PLANNING COMMISSIONERS

JEFFREY BARNES
Chair

PATRICIA KORZEC
Vice-Chair

RAY L. BAKER
Commissioner

JEFFREY SIMS
Commissioner

ALVIN DEJOHNETTE
Commissioner

JOANN STEPHAN
Commissioner

ROBERT HARRIS
Commissioner

PLANNING COMMISSION
Regular Meeting

Agenda

Thursday, October 25, 2018 at 7:00 PM
City Hall Council Chamber – 14177 Frederick Street

CALL TO ORDER

ROLL CALL

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

APPROVAL OF AGENDA

CONSENT CALENDAR

All matters listed under Consent Calendar are considered to be routine and all will be enacted by one roll call vote. There will be no discussion of these items unless Members of the Planning Commission request specific items be removed from the Consent Calendar for separate action.

1. APPROVAL OF MINUTES

Planning Commission – Special Meeting – October 11, 2018 6:30 PM

PUBLIC COMMENTS PROCEDURE

Any person wishing to address the Commission on any matter, either under the Public Comments section of the Agenda or scheduled items or public hearings, must fill out a "Request to Speak" form available at the door. The completed form must be submitted to the Secretary prior to the Agenda item being called by the Chairperson. In speaking to the Commission, member of the public may be limited to three minutes per person, except for the applicant for entitlement. The Commission may establish an overall time limit for comments on a particular Agenda item. Members of the public must direct their questions to the Chairperson of the Commission and not to other members of the Commission, the applicant, the Staff, or the audience.

Upon request, this agenda will be made available in appropriate alternative formats to persons with disabilities, in compliance with the Americans with Disabilities Act of 1990. Any person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to Guy Pegan, ADA Coordinator, at 951.413.3120 at least 72 hours before the meeting. The 72-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

NON-PUBLIC HEARING ITEMS

PUBLIC HEARING ITEMS

1.	Case:	PEN18-0027 Tentative Parcel Map PEN18-0028 Plot Plan
	Applicant:	MacDavid Aubert and Associates, Inc.
	Owner:	Group V San Bernardino , LP
	Representative:	Ryan Liu, PAMA Management, Inc.
	Location:	South of Alessandro Boulevard, north of Brodiaea Avenue and east of Rebecca Street
	Case Planner:	Seda Yaghoubian
	Council District:	1
2.	Case:	PEN18-0053 (General Plan Amendment) PEN18-0054 (Change of Zone) PEN18-0092 (Tentative Tract Map)
	Applicant:	FH II, LLC.
	Owner:	FH II, LLC.
	Representative:	Melissa Vallone
	Location:	Northwest corner of Brodiaea Avenue and Quincy Street, easterly of Moreno Beach Drive
	Case Planner:	Seda Yaghoubian
	Council District:	3

OTHER COMMISSION BUSINESS

STAFF COMMENTS

PLANNING COMMISSIONER COMMENTS

ADJOURNMENT

Planning Commission Regular Meeting, November 8, 2018 at 7:00 P.M., City of Moreno Valley, City Hall Council Chamber, 14177 Frederick Street, Moreno Valley, CA 92553.

OFFICIAL MINUTES OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY

SPECIAL MEETING – 6:30 PM
October 11, 2018

CALL TO ORDER

This Regular Meeting of the Planning Commission of the City of Moreno Valley was called to order at 6:37 p.m. by Chair Jeffrey Barnes in the Council Chamber located at 14177 Frederick Street.

ROLL CALL

Planning Commission:	Jeffrey Barnes	Chair	Present
	Patricia Korzec	Vice Chair	Present
	Jeffrey Sims	Commissioner	Present
	Robert Harris	Commissioner	Present
	Ray L. Baker	Commissioner	Present
	Alvin DeJohnette	Commissioner	Present
	JoAnn Stephan	Commissioner	Present

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Commissioner Alvin Dejohnette.

APPROVAL OF AGENDA

APPROVAL OF AGENDA

Motion made by Commissioner Sims and seconded by Commissioner Baker.

Vote:	7-0-0-0
Ayes:	Commissioner Sims, Baker, DeJohnette, Stephan, Harris, Vice Chair Korzec and Chair Barnes
Action:	Approved

STAFF PRESENT

Paul Early	City Attorney
Albert Armijo	Interim Planning Manager
Chris Ormsby	Senior Planner
Seda Yaghoubian	Contract Planner
Michael Lloyd	Assistant City Engineer
Vince Girón	Associate Engineer
Eric Lewis	City Traffic Engineer
Adria Reinertson	Fire Marshal
Ashley Aparicio	Planning Commission Secretary

Minutes Acceptance: Minutes of Oct 11, 2018 6:30 PM (CONSENT CALENDAR)

* ALL PLANNING COMMISSION MEETINGS ARE VIDEO/AUDIO RECORDED. THIS RECORD IS AVAILABLE FOR REVIEW 1 BUSINESS DA
AFTER EACH MEETING AND CAN BE ACCESSED VIA THE FOLLOWING LINK http://morenovalleyca.iqm2.com/Citizens/Calendar.aspx

CONSENT CALENDAR

APPROVAL OF MINUTES

Planning Commission - Regular Meeting - Aug 23, 2018 7:00 PM

Motion made by Commissioner Harris and seconded by Commissioner Baker with the minutes as amended.

Vote: 7-0
Ayes: Commissioner Harris, Baker, DeJohnette, Stephan, Sims, Vice Chair Korzec and Chair Barnes
Action: Approved

PUBLIC COMMENTS PROCEDURE

Rafael Brugueras

1. The City's progress and economic growth can physically be seen with land that used to be dirt, but is now roads, homes, and new construction. We have come a long way and we aren't done with our progress.

2. People are happy to live here under the "M", the miracle city. We need to continue doing what we do and make progress with a yes vote as we need to finish our City.

NON-PUBLIC HEARING ITEMS

No Items for Discussion

OTHER COMMISSION BUSINESS

No Items for Discussion

STAFF COMMENTS

Albert Armijo

1. Planning Commission Project Status Update
    a. General Plan Amendments/changes for residential and industrial uses
    b. Plot Plans
    c. Conditional Use Permits
    d. Tentative Tract Maps

2. New Projects coming to the City
    a. Parks and Community Services Civic Center Amphitheater and Park Project at the Conference and Recreation Center coming in 2019
    b. Nason Street Corridor Phase II on City owned land

Minutes Acceptance: Minutes of Oct 11, 2018 6:30 PM (CONSENT CALENDAR)

* ALL PLANNING COMMISSION MEETINGS ARE VIDEO/AUDIO RECORDED. THIS RECORD IS AVAILABLE FOR REVIEW 1 BUSINESS DA
AFTER EACH MEETING AND CAN BE ACCESSED VIA THE FOLLOWING LINK http://morenovalleyca.iqm2.com/Citizens/Calendar.aspx

i. There is an upcoming Workshop/Presentation on 10/18/2018 at 6:00 p.m. here at City Hall in the City Council Chamber.

3. New Planning Manager
   a. Announced his departure and welcomed new Planning Official Patty Nevins, with a start date of 10/15/2018. She brings 25 years of diversified planning experience and has most recently served as the Community Development Director for the City of Banning, WRCOG Chair for the Technical Advisory Committee, as well as worked for Southern CA Edison as well as work in the San Diego and Desert Communities.

PLANNING COMMISSIONER COMMENTS

No Items for Discussion

Chair Barnes called for a 12-minute recess.

At 7:02 p.m. Chair Barnes reconvened the meeting to consider the public hearing item.

PUBLIC HEARING ITEMS

1. General Plan Amendment, Change of Zone, and Plot Plan for a 204,022 square foot warehouse building on an 8.8-acre site (Report of: Planning Commission)

A. Staff recommends that the Planning Commission APPROVE Resolution Numbers 2018-43, 2018-44, 2018-45 and 2018-46, and thereby RECOMMEND that the City Council:

Resolution No. 2018-43

1. CERTIFY that the Initial Study/Mitigation Negative Declaration PEN18-0026 for the Centerpointe Commerce Project, inclusive of all related applications on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, and the information and findings contained in the Mitigated Negative Declaration, attached hereto as Exhibit A, reflects the City's independent judgment and analysis; and

2. ADOPT the Mitigation Monitoring and Reporting Program for the Initial Study/Mitigated Negative Declaration for the proposed project, attached hereto as Exhibit B; and

Resolution No. 2018-44

3. APPROVE PEN18-0024, the General Plan Amendment as shown on the attachment included as Exhibit A; and

Resolution No. 2018-45

Minutes Acceptance: Minutes of Oct 11, 2018 6:30 PM (CONSENT CALENDAR)

* ALL PLANNING COMMISSION MEETINGS ARE VIDEO/AUDIO RECORDED. THIS RECORD IS AVAILABLE FOR REVIEW 1 BUSINESS DA
AFTER EACH MEETING AND CAN BE ACCESSED VIA THE FOLLOWING LINK http://morenovalleyca.iqm2.com/Citizens/Calendar.aspx

4. APPROVE PEN18-0025, the Change of Zone as shown on the attachment included as Exhibit A; and

Resolution No. 2018-46

5. APPROVE PEN18-0023, Plot Plan subject to the attached Conditions of Approval included as Exhibit A.

Public Hearing Opened: 7:21 p.m.

Public Comments

Rafael Brugueras supports the item.

Public Hearing Closed: 7:26 p.m.

Motion made by Vice Chair Korzec and seconded by Commissioner Baker with the Conditions of Approval as amended.

Vote:	7-0-0-0
Ayes:	Vice Chair Korzec, Commissioner Baker, DeJohnette, Stephan, Harris and Sims and Chair Barnes
Action:	Approved with the addition of conditions of approval to Exhibit A of Resolution 2018-46 included in staff's memorandum to the Planning Commission dated October 11, 2018

At this Chair Barnes went on to ask if there were any Staff Wrap-up or additional items from staff or comments from the Commissioners.

Albert Armijo, Interim Planning Manager stated the Public Hearing Item will be going to Council in December.

Commissioner Sims asked about the General Plan Review update.

Albert Armijo, Interim Planning Manager, said the General Plan Update has been tabled at this time.

Chair Barnes asked why was it tabled.

Albert Armijo, Interim Planning Manager, stated it is his understanding that the City wanted to do visioning for the City prior to the General Plan Update.

ADJOURNMENT

There being no further business to come before the Planning Commission, Chairman Barnes adjourned the meeting at 7:31 AM.

Minutes Acceptance: Minutes of Oct 11, 2018 6:30 PM (CONSENT CALENDAR)

* ALL PLANNING COMMISSION MEETINGS ARE VIDEO/AUDIO RECORDED. THIS RECORD IS AVAILABLE FOR REVIEW 1 BUSINESS DA
AFTER EACH MEETING AND CAN BE ACCESSED VIA THE FOLLOWING LINK http://morenovalleyca.iqm2.com/Citizens/Calendar.aspx

Submitted by:

_____
Ashley Aparicio
Planning Commission Secretary

Approved by:

_____
Jeffrey Barnes
Chair

* ALL PLANNING COMMISSION MEETINGS ARE VIDEO/AUDIO RECORDED. THIS RECORD IS AVAILABLE FOR REVIEW 1 BUSINESS DA
AFTER EACH MEETING AND CAN BE ACCESSED VIA THE FOLLOWING LINK http://morenovalleyca.iqm2.com/Citizens/Calendar.aspx

PLANNING COMMISSION

STAFF REPORT

Meeting Date: October 25, 2018

PLOT PLAN TO DEVELOP A 280,800 SQUARE FOOT BUSINESS PARK AND A TENTATIVE PARCEL MAP TO SUBDIVIDE THE SITE INTO SEVEN PARCELS

Case:	PEN18-0027 Tentative Parcel Map PEN18-0028 Plot Plan
Applicant:	MacDavid Aubert and Associates, Inc.
Owner:	Group V San Bernardino , LP
Representative:	Ryan Liu, PAMA Management, Inc.
Location:	South of Alessandro Boulevard, north of Brodiaea Avenue and east of Rebecca Street
Case Planner:	Seda Yaghoubian
Council District:	1

SUMMARY

The applicant, MacDavid Aubert and Associates, Inc., is requesting approval of the PAMA Business Center. The project includes a Tentative Parcel Map and a Plot Plan for construction and operation of a campus of seven warehouse/light industrial buildings including office/mezzanine space. The seven buildings will achieve a combined total of 280,800 square feet, including 252,800 square feet of warehouse and 28,000 square feet of associated office and mezzanine space. No individual building will exceed 50,000 square feet. Associated improvements to the property include loading docks, surface parking areas (automobile parking and truck trailer parking) and utility infrastructure.

PROJECT DESCRIPTION

Project

The project, PAMA Business Center, includes Tentative Parcel Map No. 37478 (PEN18-0027) and a Plot Plan (PEN18-0028) to develop a 15.62-acre property located South of Alessandro Boulevard, north of Brodiaea Avenue and east of Rebecca Street. The proposed Tentative Parcel Map subdivides the property into seven (7) numbered parcels and one (1) lettered lot (Lot A) as a water detention basin. The Plot Plan proposes seven buildings for a total of 280,800 square feet, including 252,800 square feet of warehouse and 28,000 square feet of associated office and mezzanine space.

Tentative Parcel Map 37478 (PEN18-0027)

Tentative Parcel Map 37478 will subdivide the property into seven buildable parcels ranging from 62,639 square feet to 109,989 square feet, and one 32,860-square foot lettered lot (Lot A), as a stormwater detention basin. The Tentative Parcel Map also includes improvements for the construction of Rebecca Street including construction of the eastern portion of Rebecca Street adjacent to the project property boundary.

PEN18-0028 Plot Plan

The proposed Plot Plan includes construction of seven (7) warehouse buildings each of which will also include office and mezzanine space. The buildings will range from 26,000 square feet to 50,000 square feet for a total 252,800 square feet of warehouse and 28,000 square feet of office and mezzanine space. Shipping and receiving areas will be located in the rear or side elevations of the buildings and within the interior area of the development, and will include 27 loading docks and 27 truck trailer parking spaces. Office areas, including the mezzanine space, range from 2,000 to 5,000 square feet, generally near the main entrance of each building. Employee and visitor parking will be provided within close proximity of each building.

Site

The project site is located south of Alessandro Boulevard, north of Brodiaea Avenue and east of Rebecca Street on a relatively flat, rectangular-shaped site. The proposed grading will not create any manufactured slopes. The site is vacant, undeveloped and has no notable topographic features.

A Department of Water Resources 120-inch water pipeline, a part of the California Aqueduct, is located within a 120-foot easement which runs across the southern portion of the site. No buildings can be located on this easement. However, roads, driveways, parking lots and landscaping are permissible.

Surrounding Area

Immediately north of the Project site across Alessandro Boulevard is an existing neighborhood shopping center. Residences are located more than 700 feet to the north. The property located south of the Project site (south of Brodiaea Avenue) includes vacant land and warehouses. The property located west of the Project site is partially developed with commercial uses and warehouse facilities. Immediately east of the Project site is vacant land which was recently approved for a 262,000-square foot warehouse building beyond which is Heacock Street and a concrete-lined storm drain channel (Heacock Channel). Existing single-family residences are located more than 700 feet on the east side of Heacock Street.

The project was sent to the Riverside County Airport Land Use Commission (ALUC) for consideration. On September 27, 2018, the ALUC found the project consistent with the 2014 Riverside County Airport Land Use Plan, subject to conditions of approval. These conditions of approval have been incorporated into the City's Conditions of Approval for this project.

Access/Parking

Vehicular access to the proposed Project will be provided via two (2) right-turn in/right-turn out driveways located along Alessandro Boulevard. Only passenger cars will utilize these driveways and no truck access will be allowed along Alessandro Boulevard. Truck access will be provided via two (2) full access driveways located along Rebecca Street and one (1) right-turn in/right-turn out only driveway located along Brodiaea Avenue.

In conjunction with the proposed Project, Rebecca Street will be extended northerly from the current Rebecca Street terminus (north of Brodiaea Avenue) to Alessandro Boulevard at the existing intersection of Alessandro Plaza and Alessandro Boulevard, which will allow site access via Rebecca Street in addition to via Alessandro Boulevard and Brodiaea Avenue. Also, the existing traffic signal at the intersection of Alessandro Plaza and Alessandro Boulevard will be modified to accommodate Rebecca Street as the fourth leg of the intersection.

The Project will construct public sidewalks per City of Moreno Valley standards along its frontage on Alessandro Boulevard, Rebecca Street, and Brodiaea Avenue. The intersection of Heacock Street at Alessandro Boulevard currently provides crosswalks along the north, south, west and east legs, which will provide pedestrians access from the Project site across Alessandro Boulevard and Heacock Street.

The Project developer will dedicate a fifteen-foot-wide easement along Alessandro Boulevard and will construct a Class I multi-use meandering trail as part of the Juan Bautista De Anza Trail from Rebecca Street on the west to the Project's eastern property line.

The auto parking areas will be designed consistent with City parking standards including landscape planters and lighting. The Project provides 349 automobile parking spaces and 27 truck trailer parking spaces. Designated spaces for low emitting fuel efficient

vehicles and van pool spaces will be provided per the California Building Standards. Bicycle parking will also be provided per the City's Municipal Code requirements.

Design/Landscaping

The architectural theme of the buildings features accent painted concrete tilt-up panels and vertical glazing elements at the office corner entries, capped with an accent metal cornice. Blue glazing is utilized throughout the project and silver metal accent canopies occur at the office entry zones. The canopy color matches the typical aluminum window mullion system. The buildings are designed with clerestory windows which allow natural light to filter into the industrial warehouse areas. Other exterior wall accents include horizontal reveal patterns and the color palette focuses on a light and medium gray theme. All buildings are integrated with the same exterior elevation architectural theme and the color palette will unify the entire business park into a cohesive master plan along with the landscape palette.

Screen walls and gates consisting of 8-foot high concrete panels with reveal detail and painted to match the buildings will be located at truck court/loading areas to reduce visual impacts from the surrounding streets.

REVIEW PROCESS

The Applicant submitted the Project application on February 21, 2018. The Project was reviewed by the Project Review Staff Committee on March 6, 2018. The Project was further reviewed by staff and revised by the applicant between March 2018 and September 2018 to address various site design, access, trail design, drainage and circulation design issues. The applicant has addressed all of staff's comments, and there are no outstanding site planning or design items.

ENVIRONMENTAL

An Initial Study was prepared for the Project after all discretionary applications were deemed complete. The Initial Study indicated a Mitigated Negative Declaration (MND) would be the appropriate environmental document for the Project. The MND incorporates mitigation measures for Biological Resources, Cultural Resources and Tribal Cultural Resources which result in a less than significant impact on these subject areas. A Notice of Availability for the IS/MND was prepared with the public comment period beginning on October 4, 2018 and ending on October 23, 2018.

RCA Associates, Inc. prepared the draft environmental documents, and submitted the documents to the City for review to ensure that the documents reflect the independent judgment and analysis of the City as the California Environmental Quality Act (CEQA) Lead Agency.

NOTIFICATION

Public notice was sent to all property owners of record within 300' of the project. The public hearing notice for this project was also posted on the project site and published in the local newspaper.

REVIEW AGENCY COMMENTS

Staff received the following responses to the Project Review Staff Committee transmittal; which was sent to all potentially affected reviewing agencies.

Agency	Response Date	Comments
Riverside County Flood Control And Water Conservation District	March 7, 2018	Project within the limits of District's Sunnymead Area – Fees apply prior to grading permits

ALTERNATIVES

1. Conduct a public hearing for the PAMA Business Center to approve the Mitigated Negative Declaration, adopt the Mitigation Monitoring and Reporting Program, approve the Tentative Parcel Map, and approve the Plot Plan with Conditions of Approval. *Staff recommends this alternative.*

2. Conduct a public hearing for the PAMA Business Center and do not approve the Mitigated Negative Declaration, do not adopt the Mitigation Monitoring and Reporting Program, do not approve the Tentative Parcel Map or approve the Plot Plan. *Staff does not recommend this alternative.*

STAFF RECOMMENDATION

Staff recommends that the Planning Commission **APPROVE** Resolution Numbers 2018-51, 2018-52, and 2018-53:

Resolution 2018-51

1. **CERTIFY** that the Initial Study/Mitigation Negative Declaration PEN18-0029 for the PAMA Business Center project on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Initial Study/Mitigated Negative Declaration and that the Initial Study/Mitigated Negative Declaration reflects the City's independent judgment and analysis, attached hereto as Exhibit A; and

2. **ADOPT** the Mitigation Monitoring and Reporting Program for the Initial Study/Mitigated Negative Declaration for the proposed project, attached hereto as Exhibit B; and

Resolution 2018-52

3. **APPROVE** Tentative Parcel Map 37478 (PEN18-0027), as shown on the attachment included as Exhibit A; and

Resolution 2018-53

4. **APPROVE** PEN18-0028, Plot Plan subject to the attached Conditions of Approval included as Exhibit A.

Prepared by:
Seda Yaghoubian
Planning Consultant

Approved by:
Patty Nevins
Planning Official

ATTACHMENTS

1. Resolution No 2018-51
2. Exhibit A CEQA Initial Study
3. Exhibit B MMRP
4. Resolution No 2018-52
5. Exhibit A Conditions of Approval PEN18-0027
6. Resolution No 2018-53
7. Exhibit A Conditions of Approval PEN18-0028
8. Air Quality, GHG, and Construction Noise Analysis Report
9. Geotechnical Engineering Investigation
10. Habitat Assessment and MSHCP Consistency Analysis
11. Phase 1 Cultural Resource Assessment
12. Phase I ESA Report
13. Traffic Impact Analysis
14. Water Quality Management Plan
15. Master Site Plan PAMA
16. Master Site Plan A0-1 PAMA
17. Master Site Plan A0-2 PAMA
18. Elevations Building 1
19. Floor Plan Building 1
20. Elevations Building 2
21. Floor Plan Building 2
22. Elevations Building 3
23. Floor Plan Building 3
24. Elevations Building 4

25. Floor Plan Building 4
26. Elevations Building 5
27. Floor Plan Building 5
28. Elevations Building 6
29. Floor Plan Building 6
30. Elevations Building 7
31. Floor Plan Building 7
32. Tentative Grading Plan
33. Conceptual Landscape Plan
34. Tentative Parcel Map
35. 300-ft Public Hearing Notice
36. Radius Map for Noticing

RESOLUTION NO. 2018-51

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY CERTIFYING FINAL INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM FOR THE PAMA BUSINESS CENTER PROJECT LOCATED NORTH OF BRODIAEA AVENUE AND EAST OF REBECCA STREET (ASSESSOR PARCEL NUMBER (APN) 297-170-083)

WHEREAS, the applicant, MacDavid Aubert and Associates, Inc. submitted applications for the PAMA Business Center project including Tentative Parcel Map 37478 (PEN18-0027) and Plot Plan PEN18-0028 ("Project"), and an Initial Study/Mitigated Negative Declaration PEN18-0029, for the subdivision of a 15.62-acre property into seven (7) parcels and a lettered lot (Lot A) for stormwater detention purposes, and construction and operation of a 280,800 square feet of warehouse and associated office space distributed within seven (7) buildings. The above applications shall not be approved unless the Initial Study/Mitigated Negative Declaration (IS/MND) PEN18-0029 is adopted and approved; and

WHEREAS, the applications for the Project have been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, an Initial Study, supporting studies, and Mitigated Negative Declaration for the Project were prepared, consistent with the California Environmental Quality Act (CEQA); and

WHEREAS, the City of Moreno Valley (City) worked with the environmental consultant RCA Associates, Inc. in the preparation of an Initial Study checklist; and

WHEREAS, a 20-day public review period of the Initial Study and Mitigated Negative Declaration commenced on October 4, 2018 and concluded on October 23, 2018. The public notice of Intent to adopt the Mitigated Negative Declaration was mailed to interested parties, public agencies, as well as published in the local newspaper on October 4, 2018 and filed with the Riverside County Clerk; and

WHEREAS, the City, in conducting its own independent analysis of the Final Mitigated Negative Declaration, determined that a Mitigated Negative Declaration is an appropriate environmental determination for the Project as there is substantial evidence that demonstrates the Project with mitigation would not result in any significant environmental impacts; and

WHEREAS, a Mitigated Monitoring and Reporting Program (MMRP) has been prepared in accordance with CEQA Guidelines, and is designed to ensure compliance with the identified mitigation measures outlined in the Final Mitigated Negative Declaration through Project implementation; and

Attachment: Resolution No 2018-51 (3285 : PAMA Business Center)

WHEREAS, the City of Moreno Valley, Community Development Department, located at 14177 Frederick Street, Moreno Valley, California 92552 is the custodian of documents and other materials that constitute the record of proceedings upon which the decision to adopt the Mitigated Negative Declaration is based; and

WHEREAS, the Planning Commission of the City of Moreno Valley considered the Project, including all environmental documentation, at a public hearing held on October 25, 2018; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, the Planning Commission considered the Initial Study prepared for the Project for the purpose of compliance with the California Environmental Quality Act (CEQA), and based on the Initial Study including all supporting technical evidence, determined that the project impacts are expected to be less than significant with mitigation, and approval of a Mitigated Negative Declaration is an appropriate environmental determination for the Project.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

A. This Planning Commission specifically finds that all of the facts set forth above in the Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on October 25, 2018, including written and oral staff reports and the record from the public hearing, this Planning Commission finds as follows:

1. Independent Judgment and Analysis – City staff coordinated the preparation of the Initial Study/Mitigated Negative Declaration and related technical studies with RCA Associates, Inc., for the PAMA Business Center. The documents were properly circulated for public review in accordance with the California Environmental Quality Act Guidelines. The Initial Study/Mitigated Negative Declaration has been completed along with the Mitigation Monitoring and Reporting Program (MMRP) to ensure compliance with all mitigation through project implementation. All environmental documents that comprise the Mitigated Negative Declaration, including all technical studies, were independently reviewed by the City. On the basis of the whole record, there is no substantial evidence that the Project as designed, conditioned and mitigated, will have a significant effect on the environment. The Mitigated Negative Declaration prepared and completed, in accordance with the CEQA Guidelines, reflects the independent judgment and analysis of the City.

Attachment: Resolution No 2018-51 (3285 : PAMA Business Center)

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-51:

1. **CERTIFY** that the Mitigated Negative Declaration prepared for Tentative Parcel Map 37478 (PEN18-0027) and Plot Plan PEN18-0028 on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Mitigated Negative Declaration and that the Document reflects the City's independent judgment and analysis. Attached hereto as Exhibit A; and

2. **APPROVE** the Mitigation Monitoring and Reporting Program for Plot Plan PEN18-0028, attached hereto as Exhibit B.

APPROVED AND ADOPTED this 25th day of October, 2018.

AYES:
NOES:
ABSTAIN:

_____
Jeffrey Barnes
Chair, Planning Commission

ATTEST:

_____
Patricia Nevins, Planning Official
Secretary to the Planning Commission

APPROVED AS TO FORM:

_____
City Attorney

ATTACHMENTS:

Exhibit A
Exhibit B

Attachment: Resolution No 2018-51 (3285 : PAMA Business Center)

California Environmental Quality Act (CEQA) Initial Study/Mitigated Negative Declaration

PAMA Business Park

MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

(Township 3 South, Range 4 West, Section 13)

Prepared for the Lead Agency:

City of Moreno Valley
Community Development
14177 Fredrick St.
Moreno Valley, California 92553

Prepared by:

RCA Associates, Inc
15555 Main Street, #D4-235
Hesperia, CA 92345
(760) 596-0017

October 3, 2018

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Table of Contents

1.0 INTRODUCTION 1
1.1 Purpose and Scope of this CEQA Initial Study 1
1.2 Potential Environmental Effects of the Proposed Project 1
2.0 PROJECT DESCRIPTION AND SETTING 3
2.1 Project Overview 3
2.2 Prior CEQA Review 3
2.3 Project Location 3
2.4 Existing Condition of the Property 9
2.5 Environmental Setting and Surrounding Land Uses 9
2.6 Existing General Plan Land Use Designations 9
2.7 Existing Zoning Designations 10
2.8 Description of the Proposed Project 10
2.8.1 Access and Parking 10
2.8.2 Landscape Plan 11
2.8.3 Grading and Construction 11
2.8.4 Architectural Features 11
2.8.5 Water and Wastewater Infrastructure 11
2.8.6 Drainage and Water Quality 12
2.8.7 Multi-Use Trail 12
2.8.8 Road Improvements 12
2.8.9 Pedestrian 13
3.0 ENVIRONMENTAL CHECKLIST AND ANALYSIS 14
4.0 REFERENCES 86

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

List of Figures

Figure

Figure 1	Regional Vicinity Map	4
Figure 2	Topographic Map	5
Figure 3	Local Vicinity Map	6
Figure 4	Site Photograph	7
Figure 5	Tentative Parcel Map	91
Figure 6	Preliminary Grading and Utility Plan	92
Figure 7	Concept Master Plan	93
Figure 8	Preliminary Landscape Plan	95
Figure 9	Building Concept Elevations	97
Figure 10	Building Color Board	99

Appendices

Appendix

A	Air Quality, Greenhouse Gas, and Noise Impact Analysis
B	General Biological Assessment
C	Phase 1 Cultural Resources Assessment
D	Geotechnical Engineering Investigation
E	Water Quality Management Plan
F	Phase 1 Environmental Site Assessment
G	Traffic Impact Analysis
H	Mitigation Monitoring and Reporting Program

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

List of Acronyms, Abbreviations, and Units of Measure

Acronym	Definition
AB 32	California Assembly Bill 32, Global Warming Solutions Act of 2006
AB 52	Assembly Bill 52
AB 939	Assembly Bill 939
amsl	Above Mean Sea Level
APN	Assessor's Parcel Number
ASTM	American Society for Testing and Materials
AQMP	Air Quality Management Plan
BMP	Best Management Practice
BP	Business Park
CalEEMod™	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CDC	California Department of Conservation
CEQA	California Environmental Quality Act
CIWMP	Countywide Integrated Waste Management Plan
CMP	Congestion Management Program
DIF	Development Impact Fee
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances Control
e.g.	"exempli gratia" which means "for example"
EIR	Environmental Impact Report
EMWD	Eastern Municipal Water District
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GHG	Greenhouse Gas(es)
Gpd	Gallons per day
HCP	Habitat Conservation Plan

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

List of Acronyms, Abbreviations, and Units of Measure (Cont'd)

Acronym	Definition
I-215	Interstate 215
i.e.	"id est" which means "that is"
LI	Light Industrial
Mgpd	Million gallons per day
MND	Mitigated Negative Declaration
MSHCP	Multiple Species Habitat Conservation Plan
ND	Negative Declaration
NOP	Notice of Preparation
NPDES	National Pollution Discharge Elimination System
$PM_{2.5}$	Fine Particulate Matter (less than 2.5 micrometers in diameter)
PM_{10}	Particulate Matter (between 2.5 and 10 micrometers in diameter)
RCIT	Riverside County Information Technology
RWQCB	Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
s.f.	Square Foot or Square Feet
SKR	Stephens' Kangaroo Rat
SR-60	State Route 60
UBC	Uniform Building Code
USDA	United States Department of Agriculture
UWMP	Urban Water Management Plan
WQMP	Water Quality Management Plan

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

1.0 INTRODUCTION

1.1 Purpose and Scope of this CEQA Initial Study

The California Environmental Quality Act (CEQA) is a statewide environmental law contained in Public Resources Code Sections (§) §§ 21000-21177. CEQA applies to most public agency decisions to carry out, authorize, or approve actions that have the potential to adversely affect the environment. CEQA requires that public agencies analyze and acknowledge the environmental consequences of their discretionary actions and consider alternatives and mitigation measures that could avoid or reduce significant adverse impacts to the environment when avoidance or reduction is feasible. The CEQA compliance process also gives other public agencies and the general public an opportunity to comment on a proposed project's environmental effects.

This Initial Study evaluates the potential for the proposed PAMA Business Park project (the "Project") to adversely affect the physical environment. As part of the City of Moreno Valley's discretionary permit review process, the Project is required to undergo an initial environmental review pursuant to CEQA Guidelines § 15063. This Initial Study is a preliminary analysis prepared by the City of Moreno Valley Community Development Department, Planning Division. The City of Moreno Valley is the Lead Agency and responsible for determining the level of environmental review and scope of analysis that will be required for the Project. This Initial Study presents and substantiates the City of Moreno Valley's determination regarding the type of CEQA compliance document that will be prepared for the Project, which could consist of either an environmental impact report (EIR); mitigated negative declaration (MND); negative declaration (ND); addendum to a previously-prepared EIR; or a tiered analysis that relies on the findings and conclusions of a previously-prepared EIR. If this Initial Study concludes, based on substantial evidence in the City's records, that the Project has the *potential* to result in a significant effect on the environment that cannot be avoided, reduced, or mitigated to below-stated thresholds of significance, the City of Moreno Valley is obligated to prepare an EIR.

This Initial Study is an informational document that provides the City of Moreno Valley, other public agencies, interested parties, and the public-at-large with an objective assessment of the potential environmental impacts that could result from implementation of the proposed Project.

1.2 Potential Environmental Effects of the Proposed Project

The analysis presented in this Initial Study indicates that the proposed Project has the potential to result in one or more significant direct, indirect, and/or cumulatively considerable environmental effects to the following environmental subjects:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resource
- Geology/Soils
- Greenhouse Gas Emissions
- Noise
- Hazards/Hazardous Materials
- Hydrology/Water Quality
- Land Use/Planning

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

- Transportation/Traffic
- Tribal Cultural Resources
- Utilities/Service Systems
- Mandatory Findings of Significance

Based on the analysis provided in the Environmental Checklist portion of this Initial Study, the proposed Project does not have the potential to result in any significant effects on the environment for which feasible mitigation measures may not be available to reduce all of those effects to below thresholds of significance applied by the City of Moreno Valley, and therefore, a Mitigated Negative Declaration has been prepared.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

2.0 PROJECT DESCRIPTION AND SETTING

2.1 Project Overview

The project site consists of a relatively flat vacant 15.62-acre parcel. The proposed project will consist of a 252,800 square foot of warehouse facility, 28,000 square feet of office space, 246,000 square feet of parking or loading area, 32,844 square feet of stormwater detention basin, and 88,399 square feet of landscaping. Additional details regarding the Project site's location and environmental setting and the proposed Project's physical and operational characteristics are included in Subsections 2.3 through 2.8, on the following pages.

2.2 Prior CEQA Review

The Project site is located within the geographical limits of the City of Moreno Valley General Plan which was approved by the City in 2006. The General Plan provides the fundamental basis for the City's land use and development policies. The City's General Plan designates the Project site for future development with Business Park/Light Industrial land uses (City of Moreno Valley, 2014). Implementation of the City's General Plan was the subject of previous environmental review under CEQA as part of a Program EIR (State Clearinghouse Number 200091075) certified by the City of Moreno Valley. The Program EIR contains information relevant to the Project site. Thus, the Program EIR for the City's General Plan is herein incorporated by reference pursuant to CEQA Guidelines § 15150 and is available for public review at the City of Moreno Valley Community Development Department, Planning Division.

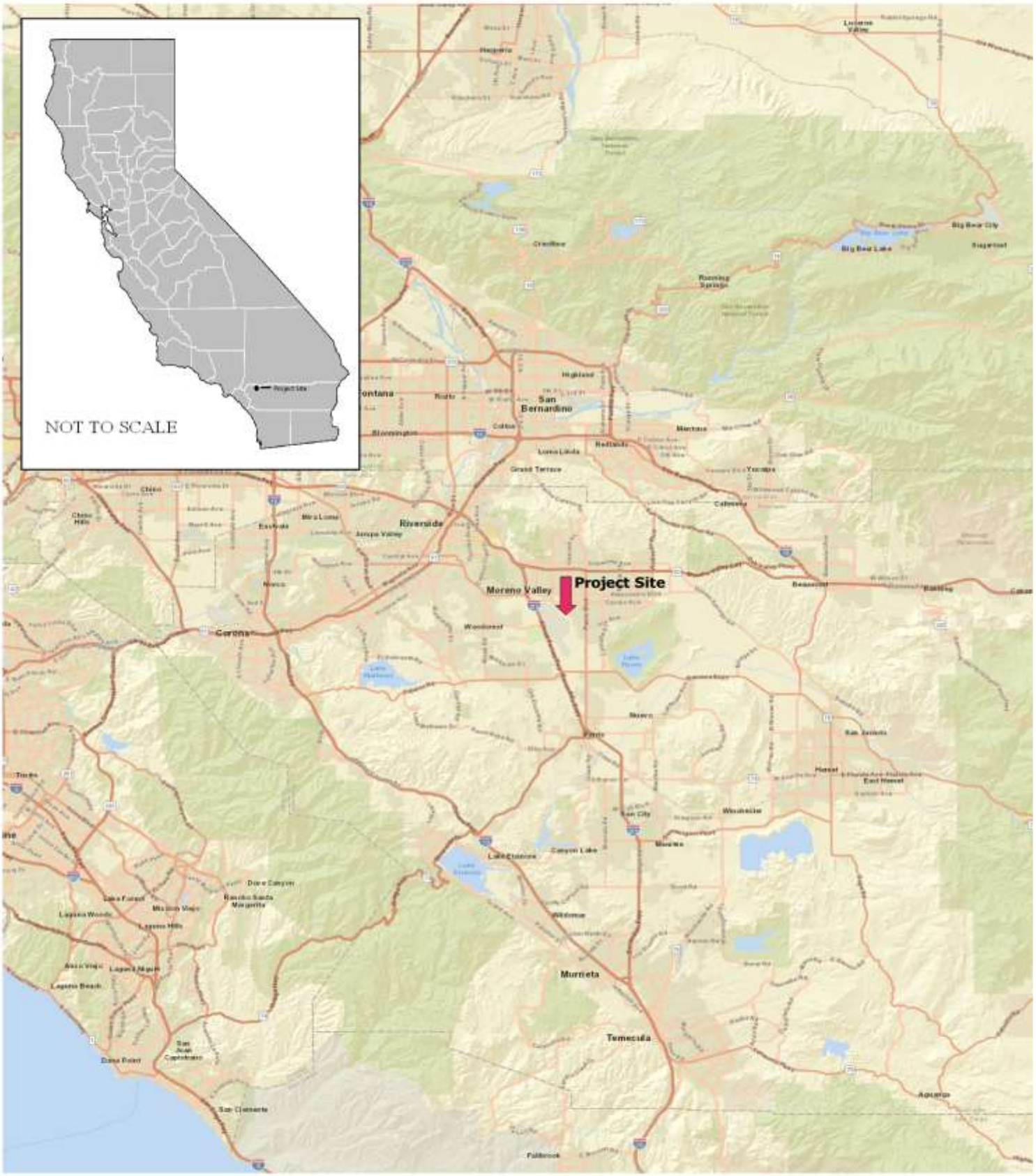
2.3 Project Location

The Project site is located in the central portion of the City of Moreno Valley, Riverside County, California. The City of Moreno Valley is located north of the City of Perris, northwest of the City of Hemet, west of the City of Beaumont, east/southeast of the City of Riverside, and east of the unincorporated communities of Mead Valley and Woodcrest (Figures 1, 2, 3 and 4). As shown in Figures 1 and 2, the Project Site is approximately 2.2 miles northeast of Interstate 215 (I-215) and approximately 1.7 miles south of State Route 60 (SR-60). The Project Site is located north of Brodiaea Avenue, east of Rebecca Street, and south of Alessandro Boulevard (Figure 3). The Project site includes Assessor Parcel Number (APN) 297-170-083.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figure 1

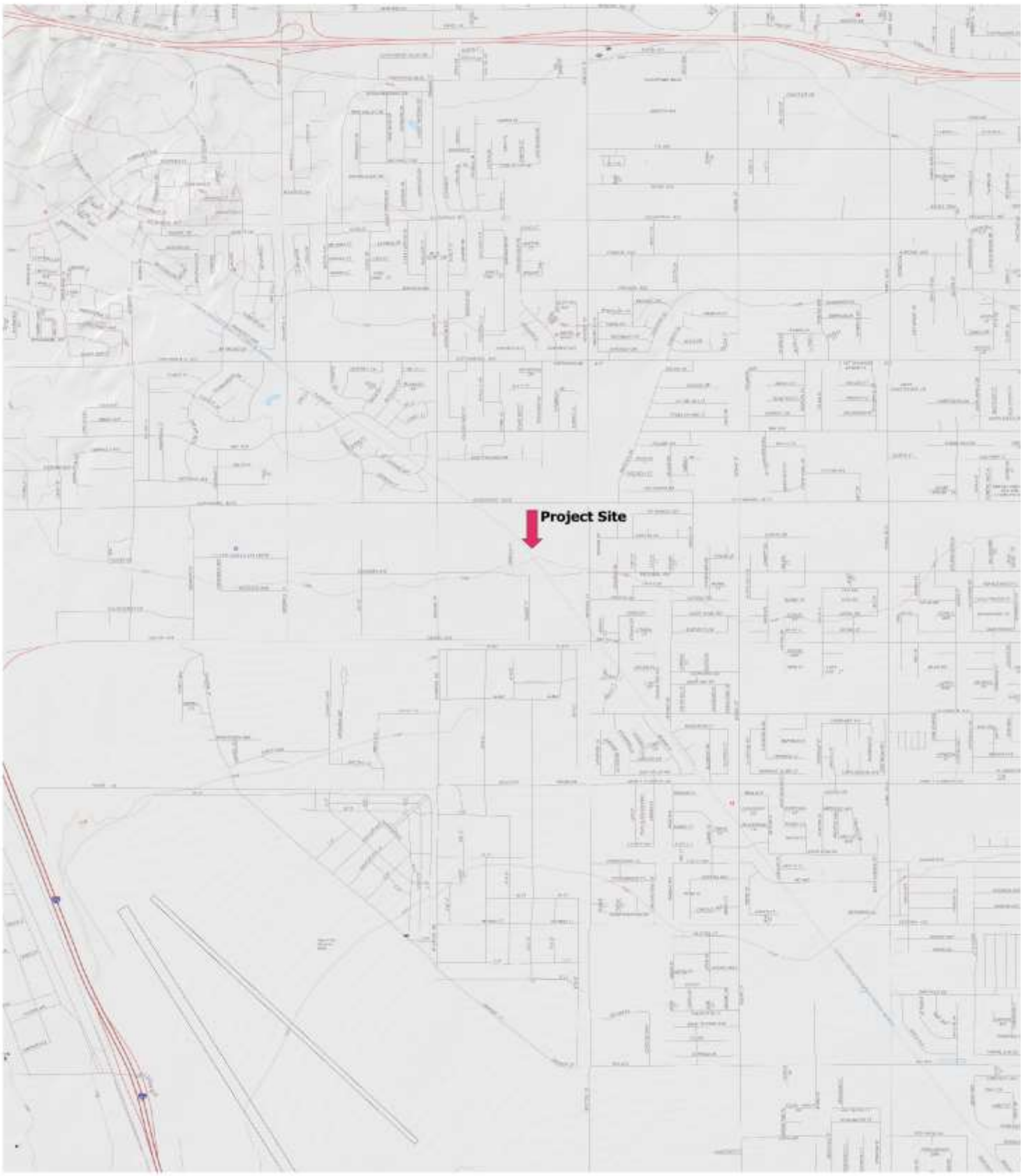
Regional Vicinity Map



Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figure 2

Local Topographic Map



Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figure 3

Local Vicinity Map

50 0 50 100 150 m

Legend

Property Border

N

RCA

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figure 4

Site Photographs

CENTER OF SITE LOOKING NORTH

CENTER OF SITE LOOKING EAST

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figure 4 Cont.

Site Photographs

CENTER OF SITE LOOKING SOUTH

CENTER OF SITE LOOKING WEST

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

2.4 Existing Condition of the Property

As shown in Figure 4, the Project site is relatively flat with elevations ranging from approximately 1,560 feet above mean sea level (AMSL) in the northern portion of the site to approximately 1,550 feet AMSL in the southern portion of the Project site. As shown in Figure 3, the entire property contains vacant undeveloped land that is routinely disturbed for weed suppression and disking for fire protection and does not contain any structures.

There is an existing 120-inch water pipeline that runs across the southern portion of the site that is part of the California Aqueduct. The Department of Water Resources has a 120-feet wide easement to allow for the excavation of the pipeline should problems occur. No buildings can be constructed within this easement, however, other infrastructure improvements such as roads, driveways, parking lots, and landscaping are permissible.

2.5 Environmental Setting and Surrounding Land Uses

The Project site is located in a developed portion of the City of Moreno Valley. The Project site is located in an area with commercial businesses (i.e., business park, distribution warehousing, e-commerce, and light industrial) and residential. Land uses surrounding the Project site include the following:

North: Immediately north of the Project site is Alessandro Boulevard beyond which is occupied by neighborhood shopping centers with residential developments to the north. Zoned as Commercial.

South: Property located south of the Project site (south of Brodiaea Avenue) includes vacant land and warehouses. Zoned as Business Park/Light Industrial.

West: Property located west of the Project site is vacant on the northern portion and warehouse development on the southern half. Zoned as Business Park/Light Industrial.

East: Immediately east of the Project site is vacant land beyond which is Heacock Street and a concrete-lined storm drain channel (Heacock Channel). This parcel is zoned as Business Park/Light Industrial.

2.6 Existing General Plan Land Use Designations

The City of Moreno Valley General Plan is the long-range planning document and will be utilized by the City in reviewing and analyzing the proposed project. The General Plan designates the entire Project site as "Business Park/Light Industrial" land use. According to the City's General Plan Policy 2.5.1, the "Business Park/Light Industrial" land use designation is intended "to provide manufacturing, research, and development, warehousing and distribution, as well as office and commercial activities".

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

2.7 Existing Zoning Designations

The City of Moreno Valley Zoning Map applies a "Business Park" (BP) designation to the Project site. According to the City of Moreno Valley Municipal Code, the primary purpose of the business park (BP) district is to provide for light industrial, research and development, office-based firms and limited supportive commercial in an attractive and pleasant working environment and a prestigious location. This district is intended to provide a transition between residential and other sensitive uses and more intense industrial and warehousing uses.

2.8 Description of the Proposed Project

The Project Applicant proposes to build a business park on 15.62 acres of undeveloped land. The Project consists of a Tentative Parcel Map (TPM No. 37478) and a Plot Plan (PEN18-0028) to create 7 numbered lots and 1 lettered lot ranging from 0.75 to 2.56 acres, and to construct 7 buildings for warehouse and office uses ranging from 26,000 to 50,000 square feet. The business park will include the construction of 252,800 square feet of warehouse, 28,000 square feet of office space (including mezzanine space), 246,000 square feet of parking or loading area, 32,844 square feet of stormwater detention basin, and 88,399 square feet of landscaping. The Project will also include site improvements, such as a stormwater detention basin, ornamental landscaping, and utility infrastructure which are discussed below.

Table 1: Site Data Table

Building	Land Area SF	Bldg. Foot Print	Bldg. Mezz.	Bldg. SF	Office SF	Warehouse SF	Parking Prov.
1	98,576.28	48,000	2,000	50,000	5,000	45,000	51
2	102,975.84	48,000	2,000	50,000	5,000	45,000	52
3	83,112.48	40,000	2,000	42,000	5,000	37,000	49
4	96,398.28	43,800	2,000	45,800	5,000	40,800	57
5	62,639.28	25,000	1,000	26,000	2,000	24,000	38
6	79,540.56	30,500	2,000	32,500	4,000	28,500	42
7	109,989.00	33,500	1,000	34,500	2,000	32,500	60
Total	**633,101.04**	**268,800**	**12,000**	**280,800**	**28,000**	**252,800**	**349**

2.8.1 Access and Parking

The Project will provide 349 parking spaces. Vehicular access to the proposed Project will be provided via two (2) right turn in/right-turn out driveways located along Alessandro Boulevard. Only passenger cars will utilize these driveways and no truck access will be allowed along Alessandro Boulevard. Truck access will be provided via two (2) full access driveways located along Rebecca Street and one (1) right-turn in/right-turn out only driveway located along Brodiaea Avenue.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

The proposed Project will construct public sidewalks per City of Moreno Valley standards along its Project frontage on Alessandro Boulevard, Rebecca Street, and Brodiaea Avenue. The intersection of Heacock Street at Alessandro Boulevard currently provides crosswalks along the north, south, west and east legs, which will provide pedestrians access from the Project site across Alessandro Boulevard and Heacock Street.

In conjunction with the proposed Project, Rebecca Street will be extended northerly from the current Rebecca Street terminus (north of Brodiaea Avenue) to Alessandro Boulevard at the existing intersection of Alessandro Plaza and Alessandro Boulevard, which will allow site access via Rebecca Street in addition to Alessandro Boulevard and Brodiaea Avenue. In addition, the existing traffic signal at the intersection of Alessandro Plaza and Alessandro Boulevard will be modified to accommodate Rebecca Street as the fourth leg of the intersection.

2.8.2 Landscape Plan

The proposed project will have landscaping that is compliant with the City of Moreno Valley Chapter 9.17 Landscape Standards. There will be 88,399 square feet of landscape area associated with the project. For a detailed landscape plan refer to Figure 7.

2.8.3 Grading and Construction

Grading to the proposed elevations will require about 60,000 cubic yards of import material. The entire project will be constructed in one phase. Exact construction sequence and duration will be determined by the general contractor. For a detailed grading plan refer to Figure 5.

2.8.4 Architectural Features

The architectural theme features accent painted concrete tilt-up panels and vertical glazing elements at the office corner entries capped with an accent metal cornice. The first-floor office will feature a built-out interior and all buildings also provide for an office mezzanine open bullpen area. Blue glazing is utilized throughout the project and silver metal accent canopies occur at the office entry zones. The canopy color matches the typical aluminum window mullion system. The buildings are designed with clerestory windows which allow natural light to filter into the industrial warehouse areas. Other exterior wall accents include horizontal reveal patterns and the color palette focuses on a light and medium gray theme. All buildings are integrated with the same office exterior elevation architectural theme and the color palette will unify the entire business park into a cohesive master plan along with the landscape palette. For a detailed architectural design refer to Figure 9 and 10.

2.8.5 Water and Wastewater Infrastructure

EMWD has potable water mains in Rebecca Street, Alessandro Boulevard, and Brodiaea Avenue along the project frontage as well as a 30” transmission main splitting the project site. There is a sewer line in Rebecca Street and another sewer line splitting the project site. There is no recycled

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

water in the vicinity.

2.8.6 Drainage and Water Quality

The site is designed to drain from north to south following the natural contours of the land. Runoff from the entire site will drain to the water quality detention basin in the southeast corner of the site. The treated runoff will enter the existing Riverside County Flood Control box culvert which runs northwest to southeast through the project site.

2.8.7 Multi-Use Trail

The City of Moreno Valley is requiring a 15 feet wide Class I multi-use trail along Alessandro Boulevard, as part of the Juan Bautista De Anza Trail. The trail will terminate at the east property line and at Rebecca Street on the west, since there is no existing trail adjacent to the subject property to connect to.

The City of Moreno Valley Bicycle Master Plan "specifically recommends programs and policies designed to make Moreno Valley a more bicycle friendly place and to encourage more residents to ride rather than drive." Figure 2: Existing Bicycle Facilities on pg. 27 of the Bicycle Master Plan illustrates that Alessandro Boulevard, between Graham Street and Heacock Street, is currently considered a Class 2 Bikeway ("Bike Lane"). Per Figures 14-17 (Recommended Bikeway Projects) on pgs. 55, 59, 67, and 69 of the Bicycle Master Plan, Alessandro Boulevard, between Graham Street and Heacock Street, is recommended to remain as a Class 2 Bikeway in the future, while the remainder of Alessandro Boulevard, from Elsworth Street to Theodore Street, is recommended to become a Class 2 Bikeway in the future. Additionally, Heacock Street, between Alessandro Boulevard and Cactus Avenue, is recommended to become a Class 1 Bikeway (Multi-Use Path) in the future. Lastly, Brodiaea Avenue, between Frederick Street and Moreno Beach Drive, is recommended to become a Class 3 Bikeway (Bike Route) in the future. The proposed Project will provide bicyclists direct connectivity to the Project site.

2.8.8 Road Improvements

Rebecca Street will be extended from the current dead-end north of the Brodiaea Avenue to Alessandro. The extension will line up with driveway for the Alessandro Plaza. The street will be constructed to near ultimate full width including curb, gutter, sidewalk, and street lights along the east side.

Alessandro Blvd. will be widened 11' on the south side to its full width. Improvements include curb, gutter, driveways, a bus turnout, and the multi-use trail. A left turn pocket will also be constructed in the median for westbound turns onto Rebecca Street.

Brodiaea Avenue will be widened on the north side to its full width. Improvements include curb, gutter, driveway, sidewalk, and street lights.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

2.8.9 Pedestrian

The proposed Project will construct public sidewalks per City of Moreno Valley standards along its Project frontage on Alessandro Boulevard, Rebecca Street, and Brodiaea Avenue. The Project's internal sidewalk system will connect with the proposed sidewalk system along the Project frontage thereby providing adequate pedestrian access to and from the Project site. The intersection of Heacock Street at Alessandro Boulevard currently provides crosswalks along the north, south, west and east legs, which will provide pedestrians safe and convenient access from the Project site across Alessandro Boulevard and Heacock Street.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

3.0 ENVIRONMENTAL CHECKLIST AND ANALYSIS

Provided on the following pages is an Environmental Checklist, based on Appendix G of the State CEQA Guidelines. The Checklist evaluates the Project's potential to result in significant adverse effects to the physical environment. As concluded by the Checklist, the proposed Project does not have the potential to result in significant environmental effects for which feasible mitigation may not be available to reduce those effects below levels of significance.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

INITIAL STUDY/
ENVIRONMENTAL CHECKLIST
FORM
CITY OF MORENO VALLEY

1. **Project Title:** PAMA Business Park

2. **Lead Agency Name and Address:** City of Moreno Valley Community Development Department, Planning Division, 14177 Frederick Street, Moreno Valley, CA 92552

3. **Contact Person and Phone Number:** Chris Ormsby, Senior Planner (951) 413-3229

4. **Project Location:** Southeast of Alessandro Boulevard and Rebecca Street, north of Brodiaea Avenue. Assessor Parcel Numbers APN 297-170-083

5. **Project Sponsor's Name and Address:** PAMA Management, 4900 Santa Anita Avenue, Suite 2C, El Monte, CA 91731

6. **General Plan Designation:** Business Park/Light Industrial (BP)

7. **Zoning:** Business Park (BP)

8. **Description of the Project:** The project is a Tentative Parcel Map to create 7 numbered lots and 1 lettered lot, ranging in size from 0.75 to 2.56 acres, and a Plot Plan to construct 7 buildings for warehouse and office uses ranging from 26,000 to 50,000 square feet.

9. **Surrounding Land Uses and Setting:** Immediately north of the Project site is Alessandro Boulevard beyond which is an existing neighborhood shopping center with residential units further north. The property located south of the Project site (south of Brodiaea Avenue) includes vacant land and warehouses. The property located west of the Project site is vacant on the northern portion and a warehouse development on the southern half. Immediately east of the Project site is vacant land beyond which is Heacock Street and a concrete-lined storm drain channel (Heacock Channel) beyond which is developed with residential units and a neighborhood shopping center.

10. **Other public agencies whose approval is required:** The Project may require discretionary and/or administrative approvals from the Santa Ana Regional Water Quality Control Board and Riverside County Flood Control and Water Conservation District, Eastern Municipal Water District, Department of Water Resources and the Riverside County Airport Land Use Commission.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below (☒) would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Hazards & Hazardous Materials	☐	Recreation
☐	Agricultural Resources and Forestry Resources	☐	Hydrology/Water Quality	☐	Transportation/Traffic
☐	Air Quality	☐	Land Use/Planning	☐	Tribal Cultural Resource
☐	Biological Resources	☐	Mineral Resources	☐	Utilities/Service Systems
☐	Cultural Resources	☐	Noise	☐	Mandatory Findings of Significance
☐	Geology/Soils	☐	Population/Housing		
☐	Greenhouse Gas Emissions	☐	Public Services		

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	☐
I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	☒
I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	☐
I find that the proposed project MAY have a "potential significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	☐
I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	☐

Signature

SEDA YAGHOUBIAN, Case Planner
Printed Name

October 2, 2018
Date

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Potentially Significant Unless Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analysis," as described in (5) below, may be cross-referenced).

5) Earlier analysis may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c) (3) (d). In this case, a brief discussion should identify the following:

   (a) Earlier Analysis Used. Identify and state where they are available for review.

   (b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   (c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The analysis of each issue should identify: (a) the significance criteria or threshold used to evaluate each question; and (b) the mitigation measure identified, if any, to reduce the impact to less than significance.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
I. AESTHETICS Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

The Project site is located in the City of Moreno Valley, which lies on relatively flat and gently sloping topography. According to General Plan Figure 5.11-1, *Major Scenic Resources*, the Project site is located within a view corridor for Reche Canyon, the Badlands, Mount Russell, and the Box Springs Mountains, however, these views are common throughout the City of Moreno Valley and the proposed project would not substantially block views of these mountains. Due to the intervening development and their distance and orientation in relation to the Project site, prominent, distinct views of the Reche Canyon area, Mount Russell, the Badlands, or the Box Springs Mountains are available for public viewing areas abutting the Project site under existing conditions. Accordingly, Implementation of the proposed Project would not have a substantial adverse effect on a scenic vista, and **less-than-significant impacts** would occur.

(Source: City of Moreno Valley, 2006; Project Application Materials, 2018)

b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

The Project site is not located within or adjacent to a scenic highway corridor and does not contain scenic resources, such as trees of scenic value, rock outcroppings, or historic buildings. There are no State-designated or eligible scenic highways within the vicinity of the Project site. The nearest State-eligible scenic highway from the Project site is a segment of Interstate 215 located approximately 9.1 miles southeast of the Project site. The Project site also is located approximately 1.5 miles south of State Route 60, which the City of Moreno Valley General Plan Figure 7-2 identifies as a "Scenic Route."

The Project's proposed physical features – seven (7) office/warehouse buildings with parking lots, truck yards, landscaping, etc. – would not be visible from either highway due to intervening development and distance. Accordingly, the Project site is not located within a state scenic highway corridor and implementation of the proposed Project would not have a substantial effect on scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway corridor. Therefore, **no impact** would occur and no further analysis is required on this subject.

(Source: City of Moreno Valley, 2006; Project Application Materials, 2018; Caltrans, 2018; Google Earth Pro, 2018)

c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐

Implementation of the proposed Project would result in the visual conversion of the site from vacant land to a commercial development (business park) consisting of warehouse/office buildings, parking spaces, drive aisles, utility infrastructure, landscaping, exterior lighting, and signage. However, the project site

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

is located in an area designated for business and light industrial park use.

The project will comply with all pertinent design requirements of the Zoning Code, to assure quality site design and building architecture that is well constructed. This includes the installation of landscaping, undulating and decorative screening walls and facades, window fenestration, and varying roof design. Development of the proposed project will improve the overall character of the area by introducing a high-quality design. All buildings are integrated with the same office exterior elevation architectural theme and the color palette will unify the entire business park into a cohesive master plan along with the landscape palette. The building will be of concrete tilt-up panel style construction with architecturally enhanced main entrance and blue/grey window glazing.

The Project would be compatible with the size, scale, height, and aesthetic qualities of other developments planned and constructed in the vicinity of the Project site and would be required to comply with the applicable development standards and design guidelines contained in the Moreno Valley Zoning Ordinance; therefore, **less-than-significant impacts** would occur.

(Source: City of Moreno Valley, 2006; Project Application Materials, 2018; Google Earth Pro, 2018)

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

City of Moreno Valley Municipal Code Section 9.16.280 includes design standards for outdoor lighting that apply to all development in the City. Development of the proposed project will require installation of outdoor lighting necessary for public safety and maintenance, as well as to accommodate nighttime business operations. All lighting will comply with the development standards contained in the City's Zoning Code. The commercial development surrounding the project site does contain lighting on the outsides of the buildings that are visible from the project site. Additionally, street lights are present approximately every 300 feet along the south side of Brodiaea Avenue as well as the east and west side of Rebecca Street.

The proposed project would involve the introduction of new lighting typically associated with business parks. This lighting would be similar to that which exists in the adjacent business park and surrounding area and would not be considered significant. The building will utilize a blue/grey medium reflective glass to keep glare at minimum. The Municipal Code lighting standards govern the placement and design of outdoor lighting fixtures to ensure adequate lighting for public safety while also minimizing light pollution and glare and precluding public nuisances (e.g., blinking/flashing lights, unusually high intensity or needlessly bright lighting). Therefore, **less than significant impacts** will occur.

(Source: City of Moreno Valley, 2006; Project Application Materials, 2018)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use?	☐	☐	☐	☒

The project site is not located on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance according to California Department of Conservation, 2016. The City of Moreno Valley has the land use zoned for Business Park; therefore, **no impact** would occur.

(Source: City of Moreno Valley, 2006; California Department of Conservation, Farmland Mapping and Monitoring Program)

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

The project site is zoned for "Business Park" land uses according to the City of Moreno Valley Zoning Map. There are no properties zoned for agricultural land uses in the Project vicinity. Therefore, the project has no potential to conflict with existing zoning for agricultural use. According to the City of Moreno Valley General Plan and the California Department of Conservation, no land within the City is under a Williamson Act Contract. **No impact** would occur.

(Source: City of Moreno Valley, 2006; Riverside County Land Information System (RCLIS); Moreno Valley Map Viewer)

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒

The project site is not zoned as forest land, timberland, or Timberland Production, nor is it surrounded by forest land, timberland, or Timberland Production land. There are no lands located within the City of Moreno Valley that are zoned for forest land, timberland, or timberland zoned Timberland Production. Therefore, the Project has no potential to conflict with any areas currently zoned as forest, timberland, or Timberland Production and would not result in the rezoning of any such lands. **No impact** would occur.

(Source: City of Moreno Valley, 2006; California Department of Conservation)

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

The Project site does not contain any forest areas and is not designated as forest land. Therefore, the proposed Project would not result in the loss of forest land or the conversion of forest land to non-forest use (City of Moreno Valley, 2006). **No impact** would occur.

(Source: City of Moreno Valley, 2006)

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

The project site is not located on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance according to California Department of Conservation, 2016. The project site has a General Plan land use designation by the City of Moreno Valley for Business Park (BP). The project site is undeveloped and does not support any forest habitat nor are any forest lands near the Project Site; therefore, **no impact** would occur.

(Source: City of Moreno Valley, 2006; California Department of Conservation)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
III. AIR QUALITY Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

The Project site is located in the South Coast Air Basin. Air quality within the South Coast Air Basin is regulated by the South Coast Air Quality Management District (SCAQMD). Standards for air quality are documented in the SCAQMD's Air Quality Management Plan (AQMP). The SCAQMD adopted an AQMP, the main purpose of which is to describe air pollution control strategies to be taken by a city, county, or region classified as a nonattainment area in order to bring the area into compliance with federal and state air quality standards. A nonattainment area is considered to have air quality worse than the National Ambient Air Quality Standards (NAAQS) as defined in the Federal Clean Air Act. The Basin includes all of Orange County and portions of Los Angeles, Riverside, and San Bernardino Counties. The Basin is in nonattainment for the federal and state standards for ozone (O3) and particulate matter less than 2.5 microns in diameter (PM2.5) and in nonattainment for the state standards for particulate matter less than 10 microns in diameter (PM10) and nitrogen dioxide (NO2). The Basin is in attainment/maintenance/unclassified status for all other federal and state criteria pollutant standards.

The project's consistency with the AQMP will be determined using the 2016 AQMP. Criteria for determining consistency with the Air Quality Management Plan are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's CEQA Air Quality Handbook (1993). These indicators are discussed below:

1. Consistency Criterion No. 1: The proposed project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

   The violations that Consistency Criterion No. 1 refers to are the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). CAAQS and NAAQS violations would occur if localized significance thresholds (LSTs) or regional significance thresholds were exceeded. As discussed under Table 3-1, below, the proposed project would not exceed the applicable localized significance thresholds (LSTs) and regional significance thresholds for construction activity or project operation. Therefore, the project would not conflict with the AQMP according to this criterion.

2. Consistency Criterion No. 2: The proposed project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

   The 2016 AQMP demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to Southern California Association of Governments

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

(SCAG), which develops regional growth forecasts, which are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in the City of Moreno Valley General Plan is considered to be consistent with the AQMP. Peak day emissions generated by construction activities are largely independent of the type of land use(s) proposed, but rather are a function of development scope and maximum area of disturbance. Irrespective of the site's land use designation or proposed use, development of the site to its maximum potential would likely occur, with disturbance of the entire site occurring during construction activities.

The City of Moreno Valley General Plan land use and Zoning designation for the project site is "Business Park (BP)". The proposed project consists of seven warehouse/office buildings at approximately 280,800 square feet, which is consistent with the site's General Plan land use and Zoning designations. The proposed project would not result in or cause NAAQS or CAAQS violations. The proposed project is consistent with the development intensities as reflected in the adopted General Plan. The proposed project is therefore considered to be consistent with the AQMP.

The proposed Project short-term construction and long-term pollutant emissions will not exceed the emissions thresholds established in the SCAQMD's CEQA Air Quality Handbook; therefore, the project would not result in an increase in the frequency or severity of any air quality standards violation and will not cause a new air quality standard violation. For these reasons, the proposed project is consistent with the City's General Plan and the regional AQMP. Therefore, impacts related to the implementation of the AQMP would be **less than significant**, and no mitigation is required.

(Source: City of Moreno Valley, 2006; Project Application Materials, 2018; Yorke,2018)

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.	☐	☐	☒	☐

The construction and operation analyses were performed by Yorke Engineering using CalEEMod® (California Emissions Estimation Model, version 2016.3.2), the official statewide land use computer model designed to provide a uniform platform for estimating potential criteria pollutant and GHG emissions associated with both construction and operations of land use projects under CEQA. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The mobile source emission factors used in the model –published by the California Air Resources Board (CARB) – include the Pavley standards and Low Carbon Fuel standards. The model also identifies project design features, regulatory measures, and mitigation measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from the selected measures. CalEEMod was developed by the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the SCAQMD, the Bay Area Air Quality Management District (BAAQMD), the San Joaquin Valley Air Pollution Control District (SJVAPCD), and other California air districts. Default land use data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) were provided by the various California air districts to account for local requirements and conditions. As

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

the official assessment methodology for land use projects in California, CalEEMod is relied upon herein for construction and operational emissions quantification, which forms the basis for the impact analysis. Projected construction-related emission impacts are considered less than significant, as summarized below in Table 3-1.

Table 3-1: Construction Emissions Summary and Significance Evaluation

Criteria Pollutants	Unmitigated lbs/day	Mitigated lbs/day	Threshold lbs/day	Significance
ROG (VOC)	69.0	69.0	75	LTS
NOx	59.6	59.6	100	LTS
CO	36.1	36.1	550	LTS
SOx	0.1	0.1	150	LTS
Total PM10	20.9	9.7	150	LTS
Total PM2.5	12.4	6.3	55	LTS

lbs/day are winter or summer maxima for planned land use Total PM_{10} / $PM_{2.5}$ comprises fugitive dust plus engine exhaust LTS - Less Than Significant LTSM - Less Than Significant with Mitigation Incorporated PS - Potentially Significant

Based on the values shown in Table 3-1, the estimated short-term emissions from construction equipment are not expected to exceed daily air emissions thresholds as established by SCAQMD.

Although the project is not anticipated to cause or contribute to regional or cumulative air quality impacts, the project will comply with SCAQMD Rule 403 regarding the implementation of appropriate fugitive dust control measures, and other applicable mandatory regional air quality standards.

The term "project operational air quality impacts" refer to the full range of activities that can or may generate criteria pollutant, Greenhouse Gases (GHG), and Toxic Air Contaminant (TAC) emissions when the project is functioning in its intended use. The proposed Project motor vehicles traveling to and from the project represents the primary source of air pollutant emissions while landscape maintenance and other sources will be a minimal sources of air pollutants. The operations and manufacturing processes, i.e., permitted stationary sources, will be considered to be less than significant from an emissions standpoint. CEQA significance thresholds address the impacts of operational emission sources on local and regional air quality. Thresholds are also provided for other potential impacts related to project operations, such as odors. Table 3-2 provides a summary of projected emissions during operation of the proposed project.

Table 3-2: Operational Emission Summary and Significance Evaluation

Criteria Pollutants	Unmitigated Lbs/day	Mitigated Lbs/day	Threshold Lbs/day	Significance
ROG (VOC)	8.2	8.2	55	LTS
NOx	9.1	9.1	55	LTS
CO	24.1	24.1	550	LTS
SOx	0.1	0.1	150	LTS
Total PM10	6.6	6.6	150	LTS
Total PM2.5	1.8	1.8	55	LTS

lbs/day are winter or summer maxima for planned land use Total PM_{10} / $PM_{2.5}$ comprises fugitive dust plus engine exhaust LTS - Less Than Significant LTSM - Less Than Significant with Mitigation Incorporated PS - Potentially Significant

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Through the analysis of the air quality report, it has been determined that the projected construction and operational related emission impacts are considered **less than significant**, as summarized in Tables 3-1 and 3-2.

(Source: City of Moreno Valley, 2006; Project Application Materials, 2018; Yorke, 2018)

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐

The SCAQMD considers a project air pollutant emission less than cumulatively considerable if the project does not exceed the SCAQMD project-level thresholds. As presented above in III (b), the Project would not exceed any applicable thresholds, and therefore, the Project's air pollutant emissions would be less than cumulatively considerable. The Proposed Project would comply with SCAQMD rules and regulations and the Proposed Project's construction-related impacts would be less than significant level. Therefore, the Proposed Project-related construction emissions, in combination with those from other projects in the area, would not substantially deteriorate the local air quality, and a **less than significant impact** would occur.

(Source: City of Moreno Valley, 2006; Project Application Materials, 2018; Yorke, 2018)

d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

The SCAQMD's Localized Significance Threshold (LST) methodology (2008) was used to analyze the neighborhood scale impacts of NOX, CO, PM10, and PM2.5 associated with project-specific mass emissions. Introduced in 2003, the LST methodology was revised in 2008 to include the PM2.5 significance threshold methodology and update the LST mass rate lookup tables for the new 1-hour NO2 standard.

For determining localized air quality impacts from small projects in a defined geographic source-receptor area (SRA), the LST methodology provides mass emission rate lookup tables for 1-acre, 2-acre, and 5-acre parcels by SRA. The tabulated LSTs represent the maximum mass emissions from a project that will not cause or contribute to an exceedance of state or national ambient air quality standards (CAAQS or NAAQS) for the above pollutants and were developed based on ambient concentrations of these pollutants for each SRA in the South Coast Air Basin. (SCAQMD 2008a)

For most land use projects, the highest daily emission rates occur during the site preparation and grading phases of construction – due to the use of heavy earthmoving equipment. For this reason, a construction LST analysis was performed.

Since land use operational emissions – mainly from associated traffic – are dispersed over a wide area, localized impacts from project operation are substantially lower than during project construction. However, an Operational LST analysis was also performed. For the purposes of this analysis, it is assumed

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

that all traffic is "local" and affects the localized significance threshold. This is a very conservative method, and still gives less than significant results.

The proposed project site is 15 acres in Source-Receptor Area (SRA) Zone 24 – Perris Valley. The peak daily soil disturbance occurs during the site preparation phase and equates to a maximum soil disturbance of more than 5 acres on any given day. Thus, the 5-acre (the largest category) screening lookup tables were used to evaluate NOx, CO, PM10, and PM2.5 impacts on nearby receptors. The closest sensitive receptor was located 325 meters away so, in the LST tables of appendix c, 200 meters was used. (SCAQMD 2016). As shown in tables 3-3 and 3-4, impacts would be **less than significant**.

Table 3-3: Construction Localized Significance Threshold Evaluation

Criteria Pollutants	Mitigated Lbs/day	Threshold Lbs/day	Percent of Threshold	Results
NOx	9.1	488.0	2%	Pass
CO	24.1	6860.0	0%	Pass
PM10	6.6	23.0	29%	Pass
PM2.5	1.8	8.0	23%	Pass

Table 3-4: Operations Localized Significance Threshold Evaluation

Criteria Pollutants	Mitigated Lbs/day	Threshold Lbs/day	Percent of Threshold	Results
NOx	9.1	488.0	2%	Pass
CO	24.1	6860.0	0%	Pass
PM10	6.6	23.0	29%	Pass
PM2.5	1.8	8.0	23%	Pass

(Source: City of Moreno Valley, 2006; Project Application Materials, 2018; SCAQMD 2016; Yorke, 2018)

e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Any temporary odor impacts generated during Project construction-related activities, such as asphalt paving and the application of architectural coatings, would be short-term and cease upon completion of the construction phase of the Project. The industrial uses proposed for the Project site are not expected to involve uses or activities that generate substantial or noticeable amounts of odor during long-term operation. **Less than significant impacts** would occur.

(Source: City of Moreno Valley, 2006; Project Application Materials, 2018)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U. S. Fish and Wildlife Service?	☐	☒	☐	☐

The project site is labeled as developed/disturbed land according to the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) vegetation map. The Western Riverside County MSHCP is a comprehensive multi-jurisdictional habitat conservation planning program for western Riverside County, California. The purpose of the Western Riverside County MSHCP is to preserve native habitats, and to this end, the plan focuses upon the habitat needs of multiple species rather than one specie at a time. In addition, an MSHCP consistency report was prepared and no special-status wildlife or plant species were observed on the project site during the various field surveys conducted on the site (RCA Associates, Inc., 2018). The project site does contain suitable habitat for burrowing owls and surveys for these species are required in accordance with the MSHCP. Therefore, focused surveys for the burrowing owl were conducted during the nesting season with four separate surveys performed in April, May and June 2018. No owls, owl sign, or active burrows were observed during the surveys. However, burrowing owl is a nomadic species and there is the potential that the species could migrate onto the Project site prior to construction. If during grading activities burrowing owls are present on the Project site, the Project's impact would be significant and mitigation would be required. The Project would result in removal of vegetation which has the potential to support nesting migratory birds protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code. This impact would be significant and mitigation would be required. Mitigation Measures BIO-1 and BIO-2 would reduce these potential impacts to less than significant levels.

With the implementation of the recommended mitigation measures, the impacts to the biological resources will be **less than significant with mitigation incorporated.**

(Source: City of Moreno Valley General Plan FEIR, Chapter 5.9 – Biological Resources, Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); *RCA Associates, 2018*)

b) Have a substantially adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

None of the riparian/riverine species listed in Section 6.1.2 of the MSHCP were found within the project site nor are any of the species expected to inhabit the site given the lack of any suitable habitat. The project site does not contain any riparian areas, vernal pool habitats, or suitable habitat for fairy shrimp.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

The project site does not support wetland soils or vegetation, and no other sensitive natural communities were identified on the project site. No riparian vegetation (e.g., cottonwoods, willows, etc.) exist on the project site; therefore, **no impact** would occur.

(Source: City of Moreno Valley General Plan FEIR, Chapter 5.9 – Biological Resources, Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); RCA Associates, 2018)

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

There are no features on the site that meet the MSHCP definition of vernal pools. In order to be considered a vernal pool under the MSHCP, a feature must be a wetland (based on the presence of hydrophytic vegetation, hydric soil, and wetland hydrology). The feature must also have a natural origin. In addition, no vernal pools were observed during the field investigations on the project site; consequently, the site does not support suitable habitat for fairy shrimp. The lack of suitable habitat for fairy shrimp is due to the soil, which is sandy loam soil which cannot hold water long enough for the development of a vernal pool. Furthermore, the site does not support any sensitive vegetation that is associated with wetland features. Other non-vernal pool features such as depressions, drainages, and road ruts were examined for suitable fairy shrimp habitat, and based on the Biological Resources survey conducted by RCA Associates, Inc. the proposed project will have **no impact** on wetlands, vernal pools, marshes.

(Source: City of Moreno Valley General Plan FEIR, Chapter 5.9 – Biological Resources, Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); *RCA Associates, 2018)*

d) Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐

The property is located in an area where habitat has been fragmented due to past human activities, agricultural activities, and on-going developments in the surrounding region. Therefore, the incremental loss of wildlife habitat associated with the proposed development is expected to be negligible. There are no major wildlife corridors present on the site and the proposed project will not impede regional wildlife movement or impact any MSHCP-designated corridors or habitat linkages. Therefore, the proposed project will have a **less than significant impact** in regard to habitat fragmentation and regional wildlife movement.

(Source: City of Moreno Valley General Plan FEIR, Chapter 5.9 – Biological Resources, Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); *RCA Associates, 2018)*

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

The Proposed Project does not contain any trees on-site. The City of Moreno Valley Municipal Code Section 9.17.040 (Street Trees) lists approved species of trees for major streets and specifies where streets trees shall be planted. The Proposed Project would not conflict with Municipal Code Section 9.17.040 because no street trees would be removed as part of the Proposed Project. **No impact** would occur.

(Source: City of Moreno Valley General Plan FEIR, Chapter 5.9 – Biological Resources, Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); RCA Associates, 2018)

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐

The Project site is subject to the provisions of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The proposed Project will be required to comply with City of Moreno Valley Municipal Code Title 3, Chapter 3.48, "Western Riverside County Multiple Species Habitat Conservation Plan Fee Program," which requires a per-acre local development mitigation fee to implement the MSHCP. The Project site is not located within one of the targeted conservation cells of the MSHCP. The Project site is, however, subject to the survey and conservation requirements of MSHCP Section 6.3.2 (Species Survey Requirements), which requires the preparation of a habitat assessment for the western burrowing owl. As per the MHSCP, a burrowing owl survey was performed during the owl's nesting season during the months of April, May and June 2018. No owls, owls sign or active owl burrows were observed and the results of the nesting season survey are presented in a separate report (RCA Associates, Inc. June 11, 2018). However, as there is the potential that the species could migrate onto the site prior to construction, prior to and during grading activities mitigation would be required. With the implementation of Mitigation Measure MM BIO-2, a **less than significant impact** is expected.

(Source: City of Moreno Valley General Plan FEIR, Chapter 5.9 – Biological Resources, Riverside County Land Information System (RCLIS), Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); RCA Associates, 2018)

Mitigation Measures

MM BIO-1: Vegetation clearing and ground disturbance shall be prohibited during the migratory bird nesting season (February 1 through September 15), unless a migratory bird nesting survey is completed in accordance with the following requirements:

a) A migratory bird nesting survey of the Project's impact footprint, including suitable habitat within a 500-foot radius, shall be conducted by a qualified biologist within three (3) days prior to initiating vegetation clearing or ground disturbance.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

b) A copy of the migratory nesting bird survey results report shall be provided to the City of Moreno Valley. If the survey identifies the presence of active nests, then the qualified biologist shall provide the City with a copy of maps showing the location of all nests and an appropriate buffer zone around each nest sufficient to protect the nest from direct and indirect impact. The size and location of all buffer zones, if required, shall be subject to review and approval by the City and shall be no less than a 100-foot radius around the nest for non-raptors and no more than a 500-foot radius around the nest for raptors. The nests and buffer zones shall be field checked weekly by a qualified biological monitor. The approved buffer zone shall be marked in the field with construction fencing, within which no vegetation clearing or ground disturbance shall commence until the qualified biologist and the City verify that the nests are no longer occupied and juvenile birds can survive independently from the nests.

MM BIO-2: Within 30 days prior to grading, a qualified biologist shall conduct a survey of suitable habitat on site and make a determination regarding the presence or absence of the burrowing owl. The determination shall be documented in a report and shall be submitted, reviewed, and accepted by the City of Moreno Valley prior to the issuance of a grading permit and subject to the following provisions:

a) In the event that the pre-construction survey identifies no burrowing owls on the property, a grading permit may be issued without restriction.

b) In the event that the pre-construction survey identifies the presence of at least one individual but less than three (3) mating pairs of burrowing owls, then prior to the issuance of a grading permit and prior to the commencement of ground-disturbing activities on the property, the qualified biologist shall passively or actively relocate any burrowing owls. Passive relocation, including the required use of one-way doors to exclude owls from the site and the collapsing of burrows, will occur if the biologist determines that the proximity and availability of alternate habitat is suitable for successful passive relocation. Passive relocation shall follow California Department of Fish and Wildlife (CDFW) relocation protocol and shall only occur between September 15 and February 1. If proximate alternate habitat is not present as determined by the biologist, active relocation shall follow CDFW relocation protocol. The biologist shall confirm in writing that the species has fledged the site or been relocated prior to the issuance of a grading permit.

c) In the event that the pre-construction survey identifies the presence of three (3) or more mating pairs of burrowing owls, the requirements of MSHCP Species-Specific Conservation Objectives 5 for the burrowing owl shall be followed. Objective 5 states that if the site (including adjacent areas) supports three (3) or more pairs of burrowing owls and supports greater than 35 acres of suitable habitat, at least 90 percent of the area with long-term conservation value and burrowing owl pairs will be conserved onsite until it is demonstrated that Objectives 1-4 have been met. A grading permit shall be issued, either:

    a. Upon approval and implementation of a property-specific Determination of Biologically Superior Preservation (DBESP) report for the burrowing owl by the CDFW; or

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

b. A determination by the biologist that the site is part of an area supporting less than 35 acres of suitable Habitat, and upon passive or active relocation of the species following accepted CDFW protocols. Passive relocation, including the required use of one-way doors to exclude owls from the site and the collapsing of burrows, will occur if the biologist determines that the proximity and availability of alternate habitat is suitable for successful passive relocation. Passive relocation shall follow CDFW relocation protocol and shall only occur between September 15 and February 1. If proximate alternate habitat is not present as determined by the biologist, active relocation shall follow CDFW relocation protocol. The biologist shall confirm in writing that the species has fledged the site or been relocated prior to the issuance of a grading permit.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
V. CULTURAL RESOURCES Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☒	☐	☐

Pursuant to CEQA requirements, a comprehensive cultural resources study was conducted on the site by RCA Associates, Inc. personnel (Dr. Alan Gold, RPA). As part of the study, a California Historical Resources Information System (CHRIS) records search was conducted at the Eastern Information Center (EIC) at the University of California, Riverside. The cultural study is part of the environmental review process for the proposed project as per CEQA, Section 21000 et. seq. The purpose of the Phase 1 cultural study was to provide the City with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any cultural resources, as defined by CEQA, that may exist in or around the project area. In addition to the data search conducted at the EIC center, RCA Associates, Inc. cultural staff contacted Native American representatives to inform them of the project and to request their comments regarding potential cultural resources on the site and in the surrounding area. Following the completion of the data search and initial contact with the Native American representatives, an intensive field survey was conducted by Dr. Gold and his team on April 18, 2018.

Historic structures and sites are defined by local, State, and Federal criteria. A site or structure may be historically significant if it is locally protected through a local general plan or historic preservation ordinance. The State of California, through the State Historic Preservation Office (SHPO), also maintains an inventory of those sites and structures that are considered to be historically significant known as the California Register of Historic Resources (CRHR). Finally, the U.S. Department of Interior has established specific guidelines and criteria that indicate the manner in which a site, structure, or district is to be defined as having historic significance and in the determination of its eligibility for listing on the National Register of Historic Places (NRHP). A property may be historic if it is old enough to be considered historic (generally considered to be at least 50 years old and appearing the way it did in the past).

No cultural resources of any kind were noted within the Project boundaries. Ten shovel-test pits were excavated on the property and these pits did not yield any material of historic or prehistoric origin that could be considered cultural resources. A cultural resource records search was completed (in person) on March 15, 2018 at the EIC at the University of California, Riverside which showed there were no cultural resources that have been previously recorded within the Project area itself. However, two cultural resources were noted within a half mile radius of the Project (P-33-017972 and -018039) and 12 previous cultural resource reports (RI-00583, -01978, -03510, -07499, -08272, -08367, -08398, -08799, -09619, -09619, -09718, -09836, and -10018) had been previously completed within half mile buffer surrounding the Project site.

Although, the proposed project would not cause a substantial adverse change in the significance of a

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

known archaeological resource pursuant to CEQA Guidelines §15064.5 or an identified tribal cultural resource pursuant to PRC §21082.3, there is a potential for project-related construction to impact unknown or previously unrecorded archaeological resources. For this reason, Mitigation Measures CR-1, CR-2, CR-3, and CR-4 are proposed in the event that cultural resources are inadvertently encountered during excavation activities.

Data from the records search revealed that there are no cultural resources that had been recorded within the Project area. In addition, the project site is undeveloped and there are no features present on the site. Also, the site was not identified as containing any historic resources according to the City's General Plan EIR. With the incorporation of Mitigation Measures CR-1, CR-2, CR-3, and CR-4 the impacts will be **less than significant with mitigation incorporated**.

(Source: City of Moreno Valley, 2006, City of Moreno Valley General Plan FEIR, Chapter 5.10 – Cultural Resources; RCA Associates, 2018)

b) Cause a substantial adverse change in the significance of an archaeological resources pursuant to Section 15064.5?	☐	☒	☐	☐

According to the Moreno Valley General Plan EIR, the property is not part of a known Native American village complex and the site has not been identified as a location of any prehistoric resources. The majority of prehistoric archaeological resources are usually found around valley edges where suitable rock outcrops occur (City of Moreno Valley, General Plan EIR). In addition, data received from CHRIS combined with the intensive field investigations did not identify any cultural resources. In the event archaeological resources are found during construction activities, a qualified archaeologist should be contacted to assess the significance of the find. If applicable, all artifacts discovered at the development site shall be inventoried and analyzed by the professional archaeologist. If any artifacts of Native American origin are discovered, all activities in the immediate vicinity of the find shall stop and the project proponent and project archaeologist shall notify the City of Moreno Valley and local Tribal representatives. For more detail refer to response V.(a)

Based on the data provided from CHRIS and field investigations, construction of the proposed project would not cause a substantial adverse change to any archaeological resources pursuant to 15064.5 and with implementation of Mitigation Measures CR-1, CR-2, CR-3, and CR-4 impacts are considered **less than significant with mitigation incorporated.**

(Source: City of Moreno Valley, 2006, City of Moreno Valley General Plan FEIR, Chapter 5.10 – Cultural Resources; Riverside County, 2014; RCA Associates, 2018)

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

A Phase 1 Cultural Resources Assessment was prepared by RCA Associates for the proposed project (RCA, 2018) and is included in Appendix C. Field survey investigations conducted on April 14, 2018 by RCA Associates, Inc. did not identify any cultural resources, including prehistoric / historic archaeological remains or historic buildings within the Project boundaries. Shovel-test pits excavated on the property did not yield any subsurface cultural remains. A cultural resources records search was

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

conducted by SCCIC which showed that no cultural resources had been previously recorded on the Project property.

The NAHC conducted a Sacred Lands File Search and provided a list of potentially interest parties and affiliated Native California individuals and groups to contact. The Sacred Lands File Search yielded negative results for cultural resources in the general project area, however, the area is sensitive to cultural resources. A list of Native American Tribes affiliated with the general area were contacted via mailed letter. Pechanga Cultural Resources office of the Band of Luiseno Mission Indians replied by mailed letter to formally request to be notified and involved in all CEQA environmental review process for the duration of the project. Soboba Band of Luiseno Indians responded via mail letter and requested to act as a consulting tribal entity for this project. Viejas Band of Kumeyaay Indians replied via mailed letter to advise that although the project area has little cultural ties to them, the Tribe requests to be informed of new developments, such as the inadvertent discovery of cultural artifacts, cremation sites, or human remains.

If previously undocumented cultural resources are identified during earthmoving activities, a qualified archaeologist should be contacted to assess the nature and significance of the find, diverting construction excavation if necessary. If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. With the implementation of Mitigation Measures CR-1, CR-2, CR-3, and CR-4 below would reduce potential impacts to a less than significant level with mitigation incorporated.

Based on the analysis and evaluation of available data, the proposed project would be considered **less than significant with mitigation incorporated** to any unique paleontological resource or site or any unique geologic features.

(Source: City of Moreno Valley, 2006, City of Moreno Valley General Plan FEIR, Chapter 5.10 – Cultural Resources; RCA Associates, 2018)

d) Disturb any human remains, including those interred outsides of formal cemeteries?	☐	☒	☐	☐

Based on the cultural resource records reviewed, the site does not contain a known cemetery and is not expected to contain any human remains, including those interred outsides of formal cemeteries. There are no indications of a formal cemetery or informal family cemetery on the site. However, the potential exists for previously unknown human remains to be discovered at the site during project construction activities.

In the event that human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be those of a Native American or has reason to believe that they are those of a Native American, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery.

The MLD shall complete his or her inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The disposition of the remains will be determined in consultation between the project proponent and the MLD. In the event that the project proponent and the MLD are in a disagreement regarding the disposition of the remains, State law will apply and the decision process will occur with the NAHC (see Public Resources Code Section 5097.98(e) and 5097.94(k)). With the implementation of Mitigation Measures CR-1, CR-2, CR-3, and CR-4 the project will minimize possible impacts. Therefore, impacts are expected to be **less than significant with incorporated mitigation measures**.

(Source: City of Moreno Valley, 2006, City of Moreno Valley General Plan FEIR, Chapter 5.10 – Cultural Resources; RCA Associates, 2018)

Mitigation Measures

MM CR-1 Prior to the issuance of a grading permit, the Project Applicant shall provide evidence to the City of Moreno Valley that a qualified paleontologist has been retained by the Project Applicant to conduct monitoring of excavation activities and has the authority to halt and redirect earthmoving activities in the event that suspected paleontological resources are unearthed.

MM CR-2 The paleontological monitor shall conduct full-time monitoring during grading and excavation operations in undisturbed, very old alluvial fan sediments at or below four (4) feet below ground surface and shall be equipped to salvage fossils if they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The paleontological monitor shall be empowered to temporarily halt or divert equipment to allow of removal of abundant and large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources.

MM CR-3 Recovered specimens shall be properly prepared to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage, such as the Western Science Museum in Hemet, California, is required for significant discoveries. The paleontologist must have a written repository agreement in hand prior to initiation of mitigation activities.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

MM CR-4 A final monitoring and mitigation report of findings and significance shall be prepared, including lists of all fossils recovered, if any, and necessary maps and graphics to accurately record the original location of the specimens. The report shall be submitted to the City of Moreno Valley prior to building final.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
VI. GEOLOGY AND SOILS Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:				
(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐

The Project site is not located in an Alquist-Priolo Earthquake Fault Zone. The nearest significant active faults are the San Jacinto and San Andreas faults, which are approximately 5.6 and 15.3 miles away from the subject site, respectively. There are no known faults located directly on the Project site; therefore, the potential that the proposed Project could expose people or structures to adverse effects related to ground rupture is **less than significant**.

(Source: City of Moreno Valley, 2006; *Google Earth Pro, 2018; CQuest Consultants, Inc, 2018)*

(ii) Strong seismic ground shaking?	☐	☐	☒	☐

The site is located in a seismically active area of Southern California. Due to its location in the region, the Project Site is expected to experience moderate to severe ground shaking should an earthquake occur, however, that risk is not substantially different than other similar sites in the region. The nearest significant active faults are the San Jacinto and San Andreas fault zones, which are approximately 5.6 and 15.3 miles away from the subject site, respectively. The area in consideration shows no mapped faults on-site according to maps prepared by the California Geologic Survey and published by the International Conference of Building Officials (ICBO). Buildings proposed for the site will be required to be constructed in accordance with the most recent edition of Title 24 of the California Building Code (CBC) and chapter 8.20 and 8.36 of the City of Moreno Valley Municipal Code to provide collapse-resistant design. Therefore, impacts are expected to be **less than significant.**

(Source: City of Moreno Valley, 2006; CQuest Consultants, Inc, 2018)

(iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒

Liquefaction is a phenomenon where water-saturated granular soil loses shear strength during strong ground shaking produced by earthquakes. The loss of soil strength occurs when cyclic pore water pressure increases below the groundwater surface. Potential hazards due to liquefaction include the loss of bearing strength beneath structures, possibly causing foundation failure and/or significant settlements. The soils encountered within a depth of 50 feet at the project site predominately consist of medium dense to very dense silty sands. Groundwater was not encountered in any of the borings drilled at the subject site. In addition, a Liquefaction Hazard Map has not been prepared for the subject site. The project site is not located with a liquefaction potential zone. Through compliance with the 2013 California Building Code and implementation of standard engineering and construction protocols,

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

impacts associated with seismic-related ground failure, including liquefaction, will be reduced; therefore, **no impacts** would occur.

(Source: City of Moreno Valley, 2006; CQuest Consultants, Inc, 2018)

(iv) Landslides?	☐	☐	☐	☒

The Project site is relatively flat and contains no hillside or steep slopes nor are any hills or slopes in the vicinity. The Project site is located in an area with a low potential for landslides since there are no substantial natural or man-made slopes in the vicinity, and grading associated with the Project is not anticipated to result in the creation of any new substantial slopes on-site that could be subject to landslide. Grading of the site would not pose a landslide threat to adjacent properties, future site workers, or the proposed buildings. The proposed Project would not create and would not be exposed to any risk of a landslide and **no impacts** would occur.

(Source: City of Moreno Valley, 2006; Google Earth Pro, 2018; CQuest Consultants, Inc, 2018)

(b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

The Geotechnical Report determines that there would be no long-term soil erosion as the proposed project would involve the development of structures, paving (i.e., hardscape), and landscape. Short-term construction-related erosion potential would be addressed through compliance with National Pollutant Discharge Elimination System (NPDES) permit requirements, and impacts would be **less than significant**.

(Source: City of Moreno Valley, 2006; CQuest Consultants, Inc, 2018)

(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒

The subject site is relatively flat and level and there are no significant slopes proposed as part of the proposed development. The soils encountered within a depth of 50 feet at the project site predominately consist of medium dense to very dense silty sands. Groundwater was not encountered in any of the borings drilled at the subject site. Based on the encountered site conditions, liquefaction induced settlement is not considered a significant concern for the subject site. It is recommended that following site clearing, fill removal, and demolition activities, at a minimum, the upper four (4) feet of exposed subgrade soils beneath the building pad areas be excavated, worked until uniform and free from large clods, moisture-conditioned to at least optimum moisture-content, and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. In addition, remedial grading should be performed to a minimum of two (2) feet below proposed foundation bearing grades. Within the pavement and exterior flatwork areas, the exposed subgrade should be excavated to a depth of twelve (12) inches, worked until uniform and free from large clods and moisture-conditioned to at least optimum moisture-content and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. Prior to backfilling, the bottom of the excavation should be proof-rolled and observed by a soil specialist to verify stability. This compaction effort should stabilize the upper soils and locate any unsuitable or pliant areas not found during our field investigation.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Implementation of the recommendations in the geotechnical report in regards to the design and construction of the anticipated development will prevent off-site landslides, lateral spreading, liquefaction, or collapse from occurring during construction activities. Therefore, with the recommendations implemented **no impacts** would occur.

(Source: Project Application Materials, 2018; CQuest Consultants, Inc, 2018)

(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐

The near-surface sand soils encountered at the site have been identified through laboratory testing as having a very low expansion potential. Expansive soils have the potential to undergo volume change, or shrinkage and swelling, with changes in soil moisture. As expansive soils dry, the soil shrinks; when moisture is reintroduced into the soil, the soil swells.

The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since he has complete control of the project site at that time. Imported Non-Expansive Fill should consist of a well-graded, slightly cohesive, fine silty sand or sandy silt soil, with relatively impervious characteristics when compacted. This material should be approved by the Soils Engineer prior to use.

Fill soils should be placed in lifts approximately 6 inches thick, moisture-conditioned to at least optimum moisture-content, and compacted to achieve at least 95 percent of the maximum dry density based on ASTM D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

It is recommended that no material shall be moved or compacted without the presence of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer. Impacts to life or property due to expansive soils would be **less than significant**.

(Source: Project Application Materials, 2018; USDA, nd; City of Moreno Valley 2006b*; CQuest Consultants, Inc, 2018)*

(e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

The Project would not install any septic tanks or alternative waste water disposal systems. **No impact** would occur.

(Source: Project Application Materials, 2018)

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS Would this project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

Greenhouse gases – primarily carbon dioxide (CO2), methane (CH4), and nitrous (N2O) oxide, collectively reported as carbon dioxide equivalents (CO2e) – are directly emitted from stationary source combustion of natural gas in equipment such as water heaters, boilers, process heaters, and furnaces. GHGs are also emitted from mobile sources such as on-road vehicles and off-road construction equipment burning fuels such as gasoline, diesel, biodiesel, propane, or natural gas (compressed or liquefied). Indirect GHG emissions result from electric power generated elsewhere (i.e., power plants) used to operate process equipment, lighting, and utilities at a facility. Also, included in GHG quantification is electric power used to pump the water supply (e.g., aqueducts, wells, pipelines) and disposal and decomposition of municipal waste in landfills. (CARB 2008)

California's Building Energy Efficiency Standards are updated on an approximately three-year cycle. The 2016 standards improved upon the 2013 standards for new construction of, and additions and alterations to, residential, commercial, and industrial buildings. The 2016 standards went into effect on January 1, 2017 (CEC 2017).

Since the Title 24 standards require energy conservation features in new construction (e.g., high efficiency lighting, high-efficiency heating, ventilating, and air-conditioning (HVAC) systems, thermal insulation, double-glazed windows, water conserving plumbing fixtures, etc.), they indirectly regulate and reduce GHG emissions. Using CalEEMod, direct onsite and offsite GHG emissions were estimated for construction and operation, and indirect offsite GHG emissions were estimated to account for electric power used by the proposed project, water conveyance, and solid waste disposal.

The SCAQMD officially adopted an industrial facility mass emissions threshold of 10,000 metric tons (MT) CO2e per year (SCAQMD 2015) and has proposed a residential/commercial mass emissions threshold of 3,000 metric tons (MT) CO2e per year (SCAQMD 2008b).

Operational mitigation measures incorporate typical code-required energy and water conservation features. Off-site traffic impacts are included in these emissions estimates, along with construction and operational emissions amortized over 30 years, as required by the SCAQMD. CalEEMod calculates all GHG sources: direct, indirect, and mobile. As shown in Table 7-1, mitigated GHG emissions are below the proposed GHG significance threshold for land use projects, i.e., **Less Than Significant** (LTS).

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Table 7-1: Greenhouse Gas Emissions Summary and Significance Evaluation				
Greenhouse Gases	**Unmitigated**	**Mitigated**	**Threshold**	**Significance**
	MT/yr	**MT/yr**	**MT/yr**	
CO2	923.9	893.3	----	----
CH4	2.0	1.9	----	----
N2O	0.02	0.02	----	----
CO2e	980	945	10,000	LTS

(Source: Project Application Materials, 2018; Yorke, 2018)

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Assembly Bill 32 (AB32) establishes a statewide greenhouse gas emissions cap which requires emissions to be reduced to 1990 levels by the year 2020. The bill includes mandatory reporting rules, adoption of a plan and regulations to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions, including provisions for using both market mechanisms and alternative compliance mechanisms. Greenhouse gases, as defined under AB 32, include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The Air Resources Board (ARB) is the State agency charged with monitoring and regulating emissions of greenhouse gases.

The purpose and intent of these policies is to achieve compliance with AB 32 and reduce GHG by 15% by 2020. In 2020, the City of Moreno Valley is projected to emit a total of 1,298,543 MT CO2e without the incorporation of GHG reduction policies. The statewide reduction measures would reduce the bulk of Moreno Valley's emissions and make a substantial contribution toward reaching the 2020 reduction target. However, the City would still need to supplement the statewide measures with the implementation of local reduction policies, in order to achieve 15% reduction in GHG by 2020.

The Proposed Project would not conflict with the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Therefore, it can be assumed that regional mobile emissions would decrease in line with the goals of the RTP/SCS. Implementing SCAG's RTP/SCS would greatly reduce the regional GHG emissions from transportation, helping to achieve statewide emission reduction targets.

Therefore, the Proposed Project would not conflict with an adopted plan, policy, or regulation pertaining to GHGs. Also, the Proposed Project would result in minimal construction- and operation related GHG emissions. Thus, a **less than significant impact** would occur.

(Source: Project Application Materials, 2018; Yorke, 2018; City of Moreno Valley, 2016)

Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?	☐	☐	☒	☐

While gas and diesel fuel would typically be used by construction vehicles, Best Management Practices (BMPs) would be utilized to ensure that no construction-related fuel hazards occur. The project may involve the use of hazardous materials but shall comply with all applicable federal, state, and local laws and regulations pertaining to the transport, use, disposal, handling, and storage of hazardous waste, including but not limited to Title 49 of the Code of Federal Regulations implemented by Title 13 of the CCR, which describes strict regulations for the safe transportation of hazardous materials. Compliance with all applicable federal, state, and local laws related to the transportation, use and storage of hazardous materials will reduce the likelihood and severity of accidents during transit, use, and storage.

As required by California Health and Safety Code Section 25507, a business shall establish and implement a Hazardous Materials Business Emergency Plan for emergency response to a release or threatened release of a hazardous material in accordance with the standards prescribed in the regulations adopted pursuant to Section 25503 if the business handles a hazardous material or a mixture containing a hazardous material that has a quantity at any one time above the thresholds described in Section 25507(a) (1) through (6).

The Phase I Environmental Site Assessment (ESA) prepared for the proposed project included Assessor Parcel Numbers 2971-700-839. The ESA included analysis of historical conditions, a review of regulatory agency records, site visit observations, hazardous materials/waste observations and observations of adjacent properties.

No hazardous materials are currently used on the site. The ESA did not find any Recognized Environmental Conditions (RECs) on the Site or adjacent properties. Construction of the proposed project would involve limited amounts of fuel and lubricants in construction vehicles as well as solvents and paints during construction of the multi-family apartment units. Such products are subject to time limits, maximum accumulated quantities, proper storage locations, container specifications and labeling. These products will not be disposed of on-site, but will be removed from the Site upon completion of construction and transported to an approved disposal facility. Any such transportation for disposal is required to comply with CFR 49 of the Code of Federal Regulations (CFR) as well as Title 13 of the California Code of Regulations (Hazardous Materials Transportation Act) which requires that such shipment be performed by a certified hazardous waste transportation company. In addition, the project will comply with SCAQMD Rule 1166 regarding Volatile Organic Compound Emissions from Decontamination of Soil. If VOC-contaminated soils are found, a VOC Contaminated Soil Mitigation Plan will be prepared for the project in order to minimize VOC emissions to the atmosphere during excavation, grading, handling and treatment of VOC contaminated soils, as required by this rule. Based on expected compliance with state and federal regulations, the proposed project is anticipated to have a less than significant impact. This environmental assessment has revealed no Recognized Environmental

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Conditions (RECs), Controlled Recognized Environmental Conditions (CRECs), or Historical Recognized Environmental Conditions (HRECs) in connection with the Property. ODIC recommends No Further Investigation at this time.

Compliance with all applicable local, state, and federal laws, including but not limited to Title 49 of the Code of Federal Regulations implemented by Title 13 of the CCR, as well as Health and Safety Code Section 25507, will ensure a **less than significant impact.**

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan FEIR Section 5.5 Hazards, ODIC, 2017)

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

Construction activities would include the use of ordinary equipment fuels and fluids. In the unlikely event of a spill, fuels would be required to be controlled and disposed of in accordance with county and State regulations. The Phase I ESA does not identify any underground storage tanks on or adjacent to the Site. No spills or illegal dumping were noted in the report. No hazardous waste generation or handling facilities will be constructed as part of this proposed project. Compliance with federal and state hazardous waste regulations, and regulations and guidelines of Riverside County and the City of Moreno Valley will result in a less than significant impact. Construction and operational activities would not create a hazard to the public or the environment, thereby reducing potential impacts to **less than significant** levels.

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan FEIR Section 5.5 Hazards; California Environmental Protection Agency (CalEPA); California Department of Toxic Substance Control)

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

No existing or proposed schools are located within one-quarter mile of the project site. The closest schools to the project site are Creekside Elementary and Serrano Elementary, both at approximately one mile from the project site. Therefore, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school. According to the City of Moreno Valley General Plan, there are no school sites planned within 0.25 mile of the Project site. **No impact** would occur.

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan FEIR Section 5.5 Hazards)

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result would	☐	☐	☐	☒

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

it create a significant hazard to the public or the environment?				

The project site is not included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and; therefore, would not create a hazard to the public or environment. **No impact** will occur.

(Source City of Moreno Valley General Plan FEIR Section 5.5 Hazards; California Environmental Protection Agency (CalEPA); California Department of Toxic Substance Control)

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐

A joint civilian and military airport (March Air Reserve Base) is located at the southwestern boundary of the City approximately 1.0 mile southwest of the project site. The project site is located in Zone E of the March Air Base Land Use Compatibility Plan, which has the fewest restrictions on proposed land uses. Zone E has a noise and risk level of low. The zone also has a hazard to flight restriction which include physical (e.g., tall objects), visual, and electronic forms of interference with the safety of aircraft operations and prohibits land use development that may cause the attraction of birds to increase.

The proposed project consists of business park uses and is consistent with the allowable land uses of Zone E. Therefore, the project does not include any features that are considered a hazard to flight or are not allowed in Zone E. Impacts to people residing and/or working on the project site are **less than significant**.

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan FEIR, Chapter 5.5 – Hazards)

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

There are no private airstrips in the vicinity of the project site; therefore, **no impact** would occur.

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan FEIR, Chapter 5.5 – Hazards; Google Earth, 2018)

g) Impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

The Project site does not contain any emergency facilities nor does it serve as an emergency evacuation route. During construction and long-term operation, the proposed Project would be required to maintain adequate emergency access for emergency vehicles as required by the City. Because the proposed Project would not interfere with an adopted emergency response or evacuation plan, **no impact** would occur.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan Safety Element, City of Moreno Valley General Plan FEIR, Chapter 5.5 – Hazards)

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

The project site is not located within a fire hazard area as identified in the City of Moreno General Plan Final Program EIR, and **no impact** would occur.

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan Safety Element, City of Moreno Valley General Plan FEIR, Chapter 5.5 – Hazards)

Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐

Construction and operation of the project would generate pollutants that may impact storm water quality. The Santa Ana Regional Water Quality Control Board (RWQCB) sets water quality standards for all ground and surface waters within the project's region. Water quality standards are defined under the Clean Water Act to include both the beneficial uses of specific water bodies and the levels of water quality that must be met and maintained to protect those uses (water quality objectives). The project site is located within the Santa Ana Watershed and San Jacinto Sub-Watershed. Runoff from the site enter into the stormwater drainage which discharges into the Perris Valley Storm Drain, which in turn, connects to the San Jacinto River. The San Jacinto River eventually discharges into Lake Elsinore. Overflows from Lake Elsinore go into Temescal Creek and ultimately to the Santa Ana River. Under Section 303(d) of the Clean Water Act, the San Jacinto River (or Canyon Lake) is considered an impaired water body for nutrients and pathogens; Lake Elsinore is also an impaired water body for nutrients, organic enrichment/low dissolved oxygen, and indicator bacteria.

Construction Impacts. Construction-related activities have the potential to result in impacts to water quality due to grading activities that would potentially cause erosion and sedimentation in runoff. Sediments also transport substances such as nutrients, hydrocarbons, and trace metals, which would be conveyed to the storm drain facilities and receiving waters. Substances such as fuels, oil and grease, solvents, paints and other building construction materials, wash water, and dust control water could also enter storm runoff and be transported to nearby waterways. This could potentially degrade the quality of the receiving waters and lead to the impairment of downstream water sources.

Since development of the project site would involve grading of more than one acre, the project proponent would be required to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (NPDES No. CAS000002, Water Quality Order No 2009-009DWQ,6 or the latest approved Construction General Permit) and implement a Storm Water Pollution Prevention Plan (SWPPP) to reduce pollutants in the storm water to the maximum extent practicable during construction. The SWPPP must include erosion-control and sediment-control BMPs that would meet or exceed measures required by the determined risk level of the construction site, in addition to tracking control, waste management, and non-storm water control BMPs that reduce the potential for construction-related storm water pollutants. These measures may include the use of gravel bags, silt fences, straw wattles, hay bales, check dams, hydroseed, or soil binders. The construction contractor would be required to install, implement, and maintain these BMPs throughout the duration of on-site construction activities. A Construction Site Monitoring Program that identifies storm water monitoring and sampling requirements during construction is a required component of the SWPPP. In addition, the construction contractor would be required to maintain an inspection log and allow the log-on site to be reviewed by the City and representatives of the RWQCB. Thus, compliance with the NPDES Construction General

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Permit and implementation of the required SWPPP would avoid the violation of water quality standards or waste discharge requirements, as well as avoid the degradation of water quality during construction. Impacts would be less than significant, and no mitigation is required.

Operational Impacts. The project site is currently undeveloped and the majority of storm water percolates into the ground. The proposed project would result in approximately 12.50-acres of impervious surfaces at the project site associated with the proposed building, parking areas, truck yard, walkways, drive aisles, sidewalks, roadways, and other surfaces that would reduce ground percolation and increase storm water runoff. Potential pollutants of concern that could be generated by long-term operation of the proposed industrial project include bacterial indicators, metals, nutrients, pesticides, toxic organic compounds (solvents), trash and debris, and oil and grease. These pollutants may lead to the degradation of storm water quality in downstream water bodies, including Canyon Lake and Lake Elsinore.

Pursuant to the requirements of Riverside County MS4 Permit and the City of Moreno Valley, a project-specific preliminary WQMP has been prepared to address post-construction erosion and pollutant discharge impacts to storm water quality. As discussed in the WQMP in Appendix E, the catch basins would have drain inserts to remove trash and debris, and the infiltration chamber would allow storm water to infiltrate into the ground. A number of other non-structural BMPs are proposed and would include inlet markings, tenant information, pesticide use, trash enclosure, industrial processes, loading docks, and site maintenance. The proposed BMPs would reduce pollutants in the runoff.

Future tenants of the project would also have to comply with the NPDES Industrial General Permit or project-specific Waste Discharge Requirements for any point source discharge associated with proposed activities within the warehouse building. Thus, no violation of water quality standards or waste discharge requirements or degradation of water quality during long-term operations would occur. Impacts related to water quality would be less than significant, and no mitigation is required.

During grading and construction activities, graded areas and temporary soil stockpiles would be stabilized to minimize erosion. Impacts associated with construction-related hazardous materials would be avoided or reduced to a level below significance through implementation of standard construction operating procedures. Short-term water quality impacts related to erosion/sedimentation would be less than significant based on conformance with existing regulatory requirements (i.e., acquisition of a National Pollutant Discharge Elimination System General Construction Activity Storm Water Permit). In addition, a Storm Water Pollution Prevention Plan would be created for the Proposed Project. Impacts related to water quality would be **less than significant**.

(Source: Project Application Materials, 2018; City of Moreno Valley, 2006, WQMP, 2018)

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been	☐	☐	☒	☐

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

granted)?				

The San Jacinto Groundwater Basin underlies the valleys of San Jacinto, Perris, Moreno Valley, and Menifee in western Riverside County. This basin is bound by the San Jacinto Mountains, San Timoteo Badlands, Box Mountains, Santa Rosa Hills and Bell Mountain, and unnamed hills (DWR 2006). Free groundwater was not encountered at any of the borings drilled as part of this investigation (CQuest 2018). However, the proposed project would not involve direct withdrawals of groundwater.

Potable water service is provided to the City of Moreno Valley by the Eastern Municipal Water District (EMWD), which serves an approximately 555-square-mile area. The Urban Water Management Plan of the EMWD indicates that the majority (69 percent) of its water supply consists of imported water purchased through Metropolitan Water District of Southern California from the State Water Project and the Colorado River Aqueduct, with local supplies including groundwater, desalinated groundwater, and recycled water (EMWD 2016a). Based on the estimated water demand of the project of 6.4 acre-feet per year, which is a minimal amount of EMWD's 2015 water demand of 147,300 acre-feet (EMWD 2016a), impacts on groundwater supplies would be less than significant.

Natural recharge to the San Jacinto groundwater basin is primarily from percolation of flows in the San Jacinto River and its tributary streams, with percolation of water stored in Lake Perris as an additional source of recharge (DWR 2006a). The project site is not within a designated groundwater recharge area. Although implementation of the proposed project would reduce the pervious areas available for potential natural recharge, the area of the project site is relatively small (approximately 15-acres) in relation to the areal size of the groundwater basin (188,000 acres) (DWR 2006a), and the project site's only source of water is from direct precipitation, providing little opportunity to recharge under existing conditions. The project would also include a detention basin that would allow continued on-site ground percolation of storm water.

Due to the size of the proposed project and design features that would allow continued ground percolation (i.e., detention basin), it would not deplete groundwater supplies or interfere with groundwater recharge. This impact would be **less than significant**, and no mitigation is required.

(Source: Project Application Materials, 2018; CQuest, 2018; City of Moreno Valley, 2006)

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒

There are no drainage courses within the site; therefore, the proposed project would not alter the course of a stream or river. Current runoff from the site appears to flows along the north side of Brodiaea Ave. Development of the proposed project would result in the conversion of on-site permeable surfaces to impermeable surfaces, which would alter the current drainage pattern of the site; however, runoff will be directed to the proposed detention basin after development. By increasing the amount of impervious surfaces on the site, more surface runoff would be generated and the rate of runoff could increase. To manage surface runoff, the proposed project would incorporate Site Design BMPs. A Water Quality Management Plan (WQMP) for the proposed project is required due to the proposed project consisting of a 32,000 sq. ft. detention basin in the southeast corner of the site. Runoff associated with the proposed

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

project will drain into the detention basin and subsequently permeate into the ground. **No impact** would occur.

(Source: Project Application Materials, 2018; City of Moreno Valley, 2006)

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or surface runoff in a manner which would result in flooding on- or off site?	☐	☐	☐	☒

Refer to answer for question 9c. **No impact** would occur.

(Source: Project Application Materials, 2018; City of Moreno Valley, 2006)

e) Create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒

The proposed project would incorporate site design BMPs to minimize urban runoff, minimize the impervious footprint, conserve natural areas, and minimize directly connected impervious areas. The site design BMPs would also be incorporated into the site design in order to accommodate storm flows. **No impact** would occur.

(Source: Project Application Materials, 2018; City of Moreno Valley, 2006)

f) Otherwise substantially degrade water quality?	☐	☐	☒	☐

As discussed under Thresholds 9c and 9d above, the proposed project would result in the conversion of permeable surfaces to impermeable surfaces, which would alter the current drainage pattern of the site; however, as previously discussed a 32,000 sq ft detention basin is being proposed as part of the proposed project. The proposed project would be required to comply with applicable regulations for the protection of water quality, including the development of a WQMP. The WQMP identifies structural and non-structural BMPs to treat any pollutants generated on site, and impacts associated with this threshold are expected to be **less than significant**.

(Source: Project Application Materials, 2018)

g) Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

The Project does not include housing. Therefore, there is no potential for housing to be located within a 100-year flood hazard zone and no impacts associated with housing placement would occur from implementing the proposed Project. **No impact** would occur.

(Source: Project Application Materials, 2018)

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒

According to the FEMA Flood Insurance Rate Map No. 06065C0761G, the Project site is located within "Zone X" which are areas determined to be outside the 100-year flood hazard area (i.e, greater than 0.2% annual chance of flood). The proposed Project would not place structures within a 100-year flood hazard area that could impede or redirect flood flows and **no impact** would occur.

(Source: Project Application Materials, 2018; FEMA, 2008)

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒

The proposed project site is not located in the inundation area for any levee or dam in the project vicinity. As described above, the project site is not located within the 100-year floodplain. Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. The nearest dam to the Project site is Lake Perris, located approximately 5.0 miles southeast of the Project site. According to City of Moreno Valley General Plan FEIR Figure 5.5-2, *Floodplains and High Fire Hazard Areas*, the Project site is not located in an identified dam inundation area. There is no levee located within the vicinity of the Project site. Accordingly, there is no potential for the Project to expose people or structures to significant risk of loss, injury or death involving flooding, and **no impact** would occur.

(Source: Project Application Materials, 2018; City of Moreno Valley, 2006; FEMA, 2008; Google Earth Pro, 2018)

j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

There are no impacts related to seiche and tsunami given that there are no large bodies of water in close proximity to the project area and the project site is located substantially inland from the coast. In addition, no steep hillsides subject to mudflow are located on or near the Project site. Accordingly, the Project site has no potential to be impacted by seiches, mudflows, and/or tsunamis. **No impact** will occur.

(Source: Project Application Materials, 2018; City of Moreno Valley, 2006; FEMA, 2008; Google Earth Pro, 2018)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
X. LAND USE AND PLANNING Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒

The Project site consists of approximately 15 acres of vacant, undeveloped land that is routinely disturbed and does not contain any structures. The Project site does not provide access to established communities and would not isolate any established communities or residences from neighboring communities. The sites that border the project to the east, south, and west are zoned as industrial/business while the north is zoned for commercial. Development and operation of the Project would not physically disrupt or divide the arrangement of an established community. **No impact** would occur and no further analysis of this subject is required.

(Source: Project Application Materials, 2018)

b) Conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

The project site has a General Plan land use designation of Business Park and a zoning designation of BP. The Proposed Project is the construction of a business park. The proposed use of the project site would be compatible with the project site's land use and zoning designations. **No impact** would occur.

(Source: Project Application Materials, 2018; City of Moreno Valley, 2018)

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☒	☐	☐

The project site was reviewed to determine consistency with the MSHCP (RCA 2018). A summary of the consistency analysis is included below.

Section 6.1.2 Riparian/Riverine, Vernal Pool, and Fairy Shrimp

The project site does not contain any riparian areas, vernal pool habitats, or suitable habitat for fairy shrimp. There were no features that met the MSHCP definition for vernal pools and the site does not support wetland soils or vegetation. No riparian/riverine, vernal pool, and fairy shrimp impacts would occur.

Section 6.1.3 Narrow Endemic Plant Species

The project site is not located within any of the MSHCP Narrow Endemic Plant Species Survey Areas (NEPSSA). No NEPSSA impacts would occur.

Section 6.3.2 Criteria Area Species

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

The project site was within only one survey area under the MSHCP - burrowing owl. The project site was found to contain suitable burrowing owl habitat during the habitat assessment; however, no potential burrowing owl burrows were observed. With the implementation of mitigation measures BIO-1 and BIO-2 impacts to burrowing owls would be **less than significant with mitigation incorporated**.

(Source: RCA, 2003; City of Moreno Valley, 2018; RCA Associates, 2018)

Mitigation Measures

No significant impacts were identified and no mitigation measures are required

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XI. MINERAL RESOURCES Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

No regionally or statewide significant mineral resources are located within the City of Moreno Valley. The Moreno Valley General Plan does not identify any locally-significant mineral resources on the proposed site or within its vicinity. **No impact** would occur.

(Source: City of Moreno Valley General Plan Conservation Element, City of Moreno Valley General Plan FEIR, Chapter 5.14 – Mineral Resources)

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

No locally-important mineral resources have been delineated on the project site. **No impact** would occur.

(Source: City of Moreno Valley General Plan Conservation Element, City of Moreno Valley General Plan FEIR, Chapter 5.14 – Mineral Resources)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XII. NOISE Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐

Fundamentals of Noise

Noise is typically described as any unwanted or objectionable sound. Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity, the A-weighted decibel scale (dBA). Table 12-1 lists common sources of sound and their intensities in dBA.

In most situations, a 3-dBA change in sound pressure is considered a "just-detectable" difference. A 5-dBA change (either louder or quieter) is readily noticeable, and 10-dBA change is a doubling (if louder) or halving (if quieter) of the subjective loudness. Sound from a small localized source (a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (drops off) at a rate of 6 dBA for each doubling of the distance.

The duration of noise and the time period at which it occurs are important factors in determining the impact of noise on sensitive receptors. A single number called the equivalent continuous noise level (Leq) may be used to describe sound that is changing in level. It is also used to describe the acoustic range of the noise source being measured, which is accomplished through the maximum Leq (Lmax) and minimum Leq (Lmin) indicators.

In determining the daily measure of community noise, it is important to account for the difference in human response to daytime and nighttime noise. Noise is more disturbing at night than during the day, and noise indices have been developed to account for the varying duration of noise events over time, as well as community response to them. The Community Noise Equivalent Level (CNEL) adds a 5-dB penalty to the "nighttime" hourly noise levels (HNLs) (i.e., 7:00 p.m. to 10:00 p.m.) and the Day-Night Average Level (Ldn) adds a 10-dB penalty to the evening HNLs (Caltrans 2013; FTA 2006).

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Table 12-1: Typical Sound Level Characteristics	
Level dB	**Sound Level Characteristic**
130	Commercial Jet Plane Takeoff
120	Industrial Chipper or Punch Press
110	Loud Automobile Horn
100	Passing Diesel Truck
90	Factory - Heavy Manufacturing
80	Factory - Light Manufacturing
70	Open Floor Office - Cubicles
60	Conversational Speech
50	Private Office - Walled
40	Residence in Daytime
30	Bedroom at Night
20	Recording or Broadcasting Studio
10	Threshold of Good Hearing - Adult
0	Threshold of Excellent Hearing - Child

Impact Analysis for Temporary Construction Noise

The City of Moreno Valley's Noise Ordinance (Municipal Code Chapter 11.80 – "Noise Regulations") establishes noise limits for maximum continuous sound, maximum impulsive sound, and maximum non-impulsive sound. For purposes of this analysis, the Project's construction noise is evaluated against the City's standards for non-impulsive sound from non-residential sources, and continuous noise because these standards are the best metrics for the evaluation of the type of noise generated as a result of Project construction activities. The City's noise regulations establish non-impulsive sound for non-residential sources at 65 dBA during daytime and 60 dBA during nighttime hours, measured 200 feet from the property line; and 90 dBA during an eight-hour period for continuous noise. Section 11.80.030 (D) (7) - "Construction and Demolition" of the Municipal Code states:

No Person shall operate, or cause operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between the hours of eight p.m. and seven a.m. the following day such that the sound there from create a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee.

In addition, pursuant to Section 8.21.050 (O) of the Municipal Code, grading operations shall be limited to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday, and 8:00 a.m. to 4:00 p.m. on Saturdays.

As discussed in response d) below, during construction activities, the Project would generate noise due to operation of off-road equipment, portable equipment, and vehicles at or near the Project site, as well as noise impacts from project-related increase in road utilization. The greatest increase in ambient noise will be from the grading phase which is modeled to a temporary increase of 2.1 dBA, generating 62.1 dBA noise level which is below the City's daytime noise standard of 65 dBA. Based on the screening-level noise impact analysis, none of the Project's construction activities would exceed 90 dBA Leq., and

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

no construction activities will occur at night. No intense percussive actions (strikes, impacts) would occur during the site work, and since no extensive excavation or earthmoving will be required for the flat site, no strong vibrations are expected to be generated that could affect nearby structures.

Therefore, the Project would not expose persons to or generate noise levels in excess of applicable City of Moreno Valley standards during construction. Impacts would be less than significant and mitigation is not required.

Impact Analysis for Operational Noise

The City of Moreno Valley Noise Ordinance non-impulsive noise standards allow non-residential land uses to produce up to 65 dBA during daytime hours and 60 dBA during nighttime hours, as measured 200 feet from the property line of the noise source. The non-impulsive noise standards are the most appropriate to evaluate the Project's operational noise impacts since the proposed Project is not expected to generate substantial impulsive noise, or exterior equipment and uses that would produce continuous noise. As discussed in response c) below, the Project's operational noise levels are not expected to be above the City's established standards, and less than significant impacts will occur.

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan FEIR Chapter 5.4 - Noise; City of Moreno Valley Municipal Code, Chapter 11.80 – Noise Regulation; Yorke, 2018)

b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	☐	☐	☒	☐

Continuous sources of ground-borne vibration include the use of vibratory compaction equipment and other construction equipment that creates vibration other than in single events. Transient sources create a single isolated vibration event, such as blasting. Thresholds for continuous sources are 0.5 and 0.1 inch per second PPV for structural damage and annoyance, respectively. Thresholds for transient sources are 1.0 and 0.9 PPV for structural damage and annoyance, respectively (Caltrans 2013).

No pile driving will be done for the project since it is being built upon flat ground. Since no intense percussive actions (strikes, impacts) would occur during the site work, no strong vibrations are expected to be generated that could affect nearby structures. This impact discussion analyzes the potential for the proposed project to cause an exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels. Vibration levels in the project area may be influenced by construction. A vibration impact would generally be considered significant if it involves any construction-related or operations-related impacts in excess of 0.2 +inches per second (in/sec) PPV.

Construction Vibration. Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. Table 12-2 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Table 12-2: Typical Human Reaction and Effect on Buildings Due to Groundborne Vibration		
Vibration Level Peak Particle Velocity (PPV)	**Human Reaction**	**Effect on Buildings**
0.006-0.019 in/sec	Threshold of perception, possibility of intrusion	Vibration unlikely to cause damage of any type
0.08 in/sec	Vibration readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subject.
0.10 in/sec	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e., not structural) damage to normal buildings.
0.20 in/sec	Vibration annoying to people in buildings	Thresholds at which there is risk to "architectural" damage to normal dwelling-house with plastered walls and ceilings.
0.4-0.6 in/sec	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges.	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage.

The nearest existing structure to the project site is located approximately 150 feet to the west of the project site. As shown in Table 12-2, the threshold at which there may be a risk of architectural damage to normal single-family detached residential dwelling units with plastered walls and ceilings is 0.20 PPV in/ second. Primary sources of vibration during construction would be bulldozers.

As shown in Table 12-2, a large bulldozer could produce up to 0.089 PPV at 25 feet. At a distance of 150 feet a bulldozer would yield a worst-case 0.002 PPV (in/sec) which is well below the threshold of perception and below any risk or architectural damage. Therefore, construction activities would not expose nearby sensitive uses to excessive ground-borne vibration and the impact of the proposed project would be less than significant.

Operation Impact. The operation of the proposed industrial building and the project site would include heavy trucks transiting on site to and from the loading dock areas. Truck vibration levels are dependent on vehicle characteristics, load, speed, and pavement conditions. Since truck deliveries transiting on site would be travelling at very low speeds (i.e., 5 miles per hour or less) it is expected that delivery truck vibration impacts at nearby homes would be less than significant and no mitigation is required.

No equipment that generates significant vibrational energy will be used during construction or operations of the project. The impacts will be **less than significant**.

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan FEIR Chapter 5.4 - Noise; City of Moreno Valley Municipal Code, Chapter 11.80 – Noise Regulation; Yorke, 2018)

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing	☐	☐	☒	☐

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

without the project?				

The Project site is located in a characteristically suburban and densely populated area subject to noise from local traffic on public streets (Heacock Street and Alessandro Boulevard among others), aircraft flyovers, construction, and small power equipment (e.g., lawn mowers, edgers, etc.). Permanent increase in noise levels will be associated with vehicular traffic and on-site operational activities associated with proposed light industrial activities.

A recent noise study by Urban Crossroads prepared for the adjacent property at Brodiaea and Heacock, measured existing 24-hour ambient noise levels for surrounding sensitive land uses ranging from 49.7 dBA Leq - 62.0 dBA Leq for daytime and 48.3 dBA Leq - 59.6 dBA Leq for nighttime. (Urban Crossroads 2018 – Brodiaea Commerce Center EIR). Long-term operation of the proposed Project would result in a permanent increase in off-site, traffic related noise levels. However, based on the Project's projected traffic on surrounding roadways adjacent to sensitive receptors, noise contributions would not be significant. Based on typical operational noise levels for business park/warehouse facilities in the area, and given the distance of sensitive receptors to the Project site, all of which are farther than 200 feet from the site's boundary, and the existence of intervening roadways, buildings, landscaping and walls, the noise generated by the proposed Project operations will not exceed the City of Moreno Valley noise standards, and impacts will be less than significant.

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan FEIR Chapter 5.4 - Noise; City of Moreno Valley Municipal Code, Chapter 11.80 – Noise Regulation)

d) A substantially temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

Use of off-road equipment, on-road vehicles, and portable equipment would generate noise due to engine mechanicals, engine exhaust, driveline mechanicals, shaft-driven devices and accessories, hydraulics operation, ground friction and displacement, and gravity drops (dumping, unloading).

During Project-related construction activities, there could be a temporary or periodic increase in ambient noise levels in the Project vicinity above existing levels due to temporary construction traffic and the temporary and periodic operation of construction equipment. Using methodology developed by the U.S Department of Transportation Federal Highway Administration (DOT FHWA) based on actual noise measurement data as reference, and other technical references consistent with CalEEMod outputs for equipment utilization, logarithmic noise modelling was conducted for Project construction by Yorke Engineering, LLC. With the nearest residential use at 650-foot distance with an average hourly daytime noise level measured at 59.3 dBA, and the greatest temporary increase in noise from construction at about 2.1 dBA (See Table 12-3), the noise level from the proposed project would not surpass the 65-dBA threshold to result in a significant impact. The greatest increase in ambient noise will be from the grading phase which is modeled to a temporary increase of 2.1 dBA. This increase is below the typical threshold of human detectability of 3.0 dBA. Based on the modeled noise levels, Project construction noise levels will not exceed the local daytime threshold of 65 dBA. No construction activities are planned at nighttime.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Based on the screening-level noise impact analysis, none of the Project's construction activities would exceed 90 dBA Leq. As also shown on Table 12-3: Estimated Peak Activity Daytime Noise Impact, the Project construction activities would not exceed the City's 65 dBA standard during daytime hours.

Table 12-3: Estimated Peak Activity Daytime Noise Impact - Residential

Construction Phase	Normal Acceptance Criteria		
	Modeled Noise Level	Normally Unacceptable Threshold (CNEL dBA)	Exceeds Threshold (Yes/No)
Background	60.0	-	No
Site Preparation	61.3	65	No
Grading	62.1	65	No
Building Construction	61.9	65	No
Paving	62.0	65	No
Architectural Coating	60.2	65	No
20% Increase in Road Utilization	61.3	65	No

A **less than significant** impact would occur and no further analysis of this subject is required.

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan FEIR Chapter 5.4 - Noise; City of Moreno Valley Municipal Code, Chapter 11.80 – Noise Regulation)

e) For a project located within an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

The Project site is located approximately 1.0-mile northeast of the March Air Reserve Base. According to General Plan Figure 5.4-1, *March Reserve Air Base Noise Impact Area*, the Project site is located outside of the 60 dBA CNEL noise contour and would not be subjected to excessive noise levels due to operations at the March Air Reserve Base. Because the Project site is not located within the March Air Reserve Base noise contours, the Project would not expose people residing or working in the Project area to excessive noise levels due to its location within two miles of a public airport. A **less than significant** impact would occur and no further analysis of this subject is required.

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan FEIR Chapter 5.4 – Noise)

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The Project site is not located near any private airfields or airstrips. Therefore, the proposed Project has no potential to expose people to excessive noise levels associated with operations at a private airstrip. No further analysis of this subject is required**. No impact** would occur.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

(Source: Project Application Materials, 2018; Google Earth Pro, 2018)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XIII.POPULATION AND HOUSING Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐

The Project proposes to develop the subject property in accordance with the "Business Park" land use designation applied to the site by the City of Moreno Valley General Plan Land Use Map. Accordingly, the proposed Project would not result in growth that was not already anticipated by the City of Moreno Valley General Plan and evaluated in the City of Moreno Valley General Plan FEIR. Furthermore, the Project site is served by existing public roadways, and utility infrastructure is already installed beneath public rights of way that abut the property. Accordingly, the Project and its required improvements would not induce direct or indirect substantial growth in the area. Impacts would be **less than significant**.

(Source: Project Application Materials, 2018; City of Moreno Valley General Plan FEIR, Chapter 5.12 – Population and Housing; City of Moreno Valley, 2014)

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

The Project site does not contain any residential structures under existing conditions. Accordingly, implementation of the Project would not displace substantial numbers of existing housing and would not necessitate the construction of replacement housing elsewhere. **No impact** would occur and no further analysis of this subject is required.

(Source: Project Application Materials, 2018; Google Earth Pro, 2018)

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

The Proposed Project does not include the removal of housing; therefore, it would not displace people. **No impact** would occur.

(Source: Project Application Materials, 2018)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XIV. PUBLIC SERVICES				
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services?				
a) Fire protection?	☐	☐	☒	☐

The City of Moreno Valley currently has two fire stations within a close vicinity of the Project. Fire protection services to the Project site are provided by the Moreno Valley Fire Department (MVFD). The closest station to the Project is the Kennedy Park Fire Station (Station No. 65), located at 15111 Indian Avenue, approximately 1.1 miles to the southeast of the Project site, and the second is Towngate Fire Station (Station No. 6), located at 22250 Eucalyptus Avenue, approximately 2.1 miles to the northwest of the Project site. The Project would be adequately served by fire protection services, and no new or expanded unplanned facilities would be required. The Project will be required to comply with the City of Moreno Valley's Development Impact Fee (DIF) Ordinance (Ordinance No. 695), which requires payment of a fee that provides funding for public facilities such as fire protection services.

Based on the fire protection facilities close proximity and the Project complying with California Building Code the Project will be adequately protected against fire. The impacts are **less than significant**.

(Source: Project Application Materials; City of Moreno Valley General Plan Safety Element; City of Moreno Valley General Plan FEIR, Chapter 5.13-Public Services and Utilities; Riverside County Fire Department Strategic Plan; Riverside County Fire Department GIS; City of Moreno Valley Municipal Code, Chapter 3.42, Commercial and Development Impact Fees (Ordinance No. 695))

b) Police protection?	☐	☐	☒	☐

The Project will be required to comply with the City of Moreno Valley's Development Impact Fee (DIF) Ordinance (Ordinance No. 695), which requires payment of a fee that provides funding for public facilities such as police protection services. Based on the foregoing, the proposed Project would receive adequate police protection service, and would not result in the need for new or physically altered police protection facilities. Impacts to police protection facilities would therefore be **less than significant**.

(Source: Project Application Materials, Moreno Valley General Plan Safety Element, City of Moreno Valley General Plan FEIR, Chapter 5.13-Public Services and Utilities, City of Moreno Valley Municipal Code, Chapter 3.42, Commercial and Development Impact Fees (Ordinance No. 695))

c) Schools?	☐	☐	☒	☐

The proposed Project will consist of a business park and not supply any residential housing thus not creating a direct demand for public school services. The Project would not cause or contribute to a need to construct new or physically altered public school facilities. The proposed Project would be

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

responsible to contribute development impact fees to the Moreno Valley Unified School District (MVUSD). Impacts to public schools would be **less than significant** and no further analysis of this subject is required.

(Source: Project Application Materials, California Senate Bill 50 (Greene), California Government Code Section 65995, City of Moreno Valley General Plan FEIR, Chapter 5.1, Land Use)

d) Parks?	☐	☐	☒	☐

The Project would not create a demand for public park facilities and would not result in the need to modify existing or construct new park facilities. Accordingly, implementation of the proposed Project would not adversely affect any park facility and impacts would be **less than significant**.

(Source: Project Application Materials, 2018)

e) Other public facilities?	☐	☐	☐	☒

The Project is not expected to result in a demand for other public facilities/services, including libraries, community recreation centers, post offices, and animal shelters. The proposed Project would not create a need for the construction of new public facilities for the existing city facilities will adequately service the Project; therefore, **no impact** will occur.

(Source: Project Application Materials, 2018)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XV. RECREATION				
a) Would the project increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

The Project proposes to develop the Project site with industrial land uses. The Project does not propose any type of residential use or other land use that may generate a population that would increase the use of existing neighborhood and regional parks or other recreational facilities. Accordingly, implementation of the proposed Project would not result in the increased use or substantial physical deterioration of an existing neighborhood or regional park, thus, **no impact** would occur and no further analysis of this subject is required.

(Source: Project Application Materials, 2018)

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

The Proposed Project would not include recreational facilities nor require the construction or expansion of recreational facilities that might have an adverse effect on the environment. **No impact** would occur.

(Source: Project Application Materials, 2018)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XVI. TRANSPORTATION/TRAFFIC Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐

A site-specific Traffic Impact Analysis Report has been prepared for the project based on the City of Moreno Valley Traffic Study Guidelines and consultation with City staff which analyzes potential impacts to transportation and traffic associated with the development of the project, Appendix G. The City of Moreno Valley General Plan outlines circulation standards as it relates to vehicular travel and transit, and incorporates alternative modes including bikeways and pedestrian facilities.

The proposed project is located east of Rebecca Street, between Alessandro Boulevard and Brodiaea Avenue, in the City of Moreno Valley, California. The project will consist of an industrial park with 280,800 square feet (SF) of warehouse/office uses within seven (7) buildings and will provide 349 parking spaces. It should be noted that in conjunction with the proposed Project, Rebecca Street will be extended northerly from the current Rebecca Street terminus (north of Brodiaea Avenue) to Alessandro Boulevard at the existing intersection of Alessandro Plaza and Alessandro Boulevard, which will allow site access via Rebecca Street in addition to Alessandro Boulevard and Brodiaea Avenue. In addition, the existing traffic signal at the intersection of Alessandro Plaza and Alessandro Boulevard will be modified to accommodate Rebecca Street as the fourth leg of the intersection.

Fourteen (14) key study intersections and eight (8) key roadway segments were selected for evaluation and were determined based on coordination with City of Moreno Valley staff. The 14 intersections and 8 roadway segments listed below provide both regional and local access to the study area and define the extent of the boundaries for this traffic impact investigation. The jurisdiction where each key study intersection/key roadway segment is located is also identified. The City of Moreno Valley Circulation Element recognizes that LOS "C" is optimal. However, it also allows peak hour levels of service in the LOS "D" range at certain locations. These locations include areas of high employment concentration, roads in the vicinity of freeway on/off ramps and/or other locations in already developed areas of the City with geometric constraints that prevent LOS "C" from being achieved. Figure 5.2-7 from the City of Moreno Valley General Plan, Final Program EIR, July 2006 depicts the LOS standards that are applicable to all segments of the Circulation Element. According to this figure and confirmed by City of Moreno staff, two (2) of the fourteen (14) key study intersections must maintain a LOS "C" or better. The remaining twelve (12) intersections must maintain a LOS "D" or better. Additionally, two (2) of the eight (8) key roadway segments must maintain a LOS "C" or better. The remaining six (6) key

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

roadway segments must maintain a LOS "D" or better.

Key Study Intersections

1. I-215 SB Ramps at Alessandro Boulevard (Caltrans/City of Riverside)
2. I-215 NB Ramps at Alessandro Boulevard (Caltrans/City of Riverside)
3. Graham Street at Alessandro Boulevard (City of Moreno Valley)
4. Alessandro Plaza at Alessandro Boulevard (City of Moreno Valley)
5. Heacock Street at Alessandro Boulevard (City of Moreno Valley)
6. Graham Street at Brodiaea Avenue (City of Moreno Valley)
7. Rebecca Street at Brodiaea Avenue (City of Moreno Valley)
8. Gilbert Street at Brodiaea Avenue (City of Moreno Valley)
9. Heacock Street at Brodiaea Avenue (City of Moreno Valley)
10. I-215 SB Ramps at Cactus Avenue (Caltrans/Riverside County)
11. Old 215 Frontage Road/I-215 NB Ramps at Cactus Avenue (Caltrans/Riverside County)
12. Graham Street/Riverside Drive at Cactus Avenue (City of Moreno Valley)
13. Gilbert Street at Cactus Avenue (City of Moreno Valley)
14. Heacock Street at Cactus Avenue (City of Moreno Valley)

Key Roadway Segments

A. Alessandro Boulevard, between Elsworth Street and Frederick Street (City of Moreno Valley)
B. Alessandro Boulevard, between Graham Street and Alessandro Plaza (City of Moreno Valley)
C. Alessandro Boulevard, between Alessandro Plaza and Heacock Street (City of Moreno Valley)
D. Heacock Street, between Alessandro Boulevard and Brodiaea Avenue (City of Moreno Valley)
E. Brodiaea Avenue, between Graham Street and Rebecca Street (City of Moreno Valley)
F. Brodiaea Avenue, between Gilbert Street and Heacock Street (City of Moreno Valley)
G. Graham Street, between Brodiaea Avenue and Cactus Avenue (City of Moreno Valley)
H. Cactus Avenue, between Elsworth Street and Frederick Street (City of Moreno Valley)

Tables 8-1 and 8-2 below are taken directly from the Traffic Impact analysis Report Prepared for this Project and show the existing plus Project peak hour intersection and roadway capacity. Based on the analysis, the proposed Project will not significantly impact any of the fourteen (14) key study intersections when compared to the level of service (LOS) standards and significant impact criteria specified by the City of Moreno Valley. The fourteen (14) key study intersections currently operate and are forecast to continue to operate at an acceptable LOS during the AM and PM peak hours with the addition of Project generated traffic to existing traffic. Additionally, the proposed Project will not

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

significantly impact any of the eight (8) key roadway segments when compared to the LOS standards and significant impact criteria specified in this report. The eight (8) key roadway segments currently operate and are forecast to continue to operate at an acceptable service level on a daily basis with the addition of Project generated traffic to existing traffic.

TABLE 8-1
EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

	Key Intersections	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Significant Impact	(4) Existing Plus Project With Improvements	
				HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
1.	I-215 Southbound Ramps at	AM	LOS D	13.2 s/v	B	14.3 s/v	B	No	--	--
	Alessandro Boulevard	PM		11.7 s/v	B	11.8 s/v	B	No	--	--
2.	I-215 Northbound Ramps at	AM	LOS D	28.3 s/v	C	28.3 s/v	C	No	--	--
	Alessandro Boulevard	PM		18.2 s/v	B	18.4 s/v	B	No	--	--
3.	Graham Street at	AM	LOS D	25.4 s/v	C	25.8 s/v	C	No	--	--
	Alessandro Boulevard	PM		33.2 s/v	C	33.3 s/v	C	No	--	--
4.	Alessandro Plaza/Rebecca Street at	AM	LOS D	6.5 s/v	A	4.6 s/v	A	No	--	--
	Alessandro Boulevard	PM		9.1 s/v	A	9.8 s/v	A	No	--	--
5.	Heacock Street at	AM	LOS D	29.7 s/v	C	30.0 s/v	C	No	--	--
	Alessandro Boulevard	PM		44.4 s/v	D	47.6 s/v	D	No	--	--
6.	Graham Street at	AM	LOS D	32.6 s/v	C	32.8 s/v	C	No	--	--
	Brodiaea Avenue	PM		25.9 s/v	C	26.0 s/v	C	No	--	--
7.	Rebecca Street at	AM	LOS C	9.4 s/v	A	9.2 s/v	A	No	--	--
	Brodiaea Avenue	PM		0.0 s/v	A	9.0 s/v	A	No	--	--

Notes:
- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions
- **Bold HCM/LOS values** indicate adverse service levels based on the respective jurisdiction LOS standards

TABLE 8-1 (CONTINUED)
EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

	Key Intersections	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Significant Impact	(4) Existing Plus Project With Improvements	
				HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
8.	Gilbert Street at	AM	LOS C	9.2 s/v	A	9.2 s/v	A	No	--	--
	Brodiaea Avenue	PM		9.4 s/v	A	9.5 s/v	A	No	--	--
9.	Heacock Street at	AM	LOS D	16.2 s/v	B	16.3 s/v	B	No	--	--
	Brodiaea Avenue	PM		13.3 s/v	B	13.3 s/v	B	No	--	--
10.	I-215 Southbound Ramps at	AM	LOS D	8.3 s/v	A	11.8 s/v	B	No	--	--
	Cactus Avenue	PM		15.7 s/v	B	16.3 s/v	B	No	--	--
11.	Old 215 Frontage Rd/I-215 NB Ramps at	AM	LOS D	38.0 s/v	D	38.3 s/v	D	No	--	--
	Cactus Avenue	PM		11.6 s/v	B	11.7 s/v	B	No	--	--
12.	Graham Street/Riverside Drive at	AM	LOS D	22.6 s/v	C	23.9 s/v	C	No	--	--
	Cactus Avenue	PM		26.5 s/v	C	26.5 s/v	C	No	--	--
13.	Gilbert Street at	AM	LOS D	5.9 s/v	A	5.9 s/v	A	No	--	--
	Cactus Avenue	PM		6.8 s/v	A	6.8 s/v	A	No	--	--
14.	Heacock Street at	AM	LOS D	41.1 s/v	D	41.2 s/v	D	No	--	--
	Cactus Avenue	PM		36.8 s/v	D	36.9 s/v	D	No	--	--

Notes:
- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions
- **Bold HCM/LOS values** indicate adverse service levels based on the respective jurisdiction LOS standards

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

TABLE 8-2

EXISTING PLUS PROJECT ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY

Key Roadway Segment	Min. Acc. LOS	(1) No. of Existing Lanes	(2) Existing Capacity at LOS "E"	(3) Existing Traffic Conditions			(4) Existing Plus Project Traffic Conditions				
				Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Significant (Yes/No)
A. Alessandro Boulevard *between* Elsworth Street and Frederick Street	D	6D	56,300	31,808	0.565	A	32,392	0.575	A	0.010	No
B. Alessandro Boulevard *between* Graham Street and Alessandro Plaza	D	5D[22]	46,900	31,833	0.679	B	32,447	0.692	B	0.013	No
C. Alessandro Boulevard *between* Alessandro Plaza and Heacock Street	D	5D[22]	46,900	32,285	0.688	B	32,543	0.694	B	0.006	No
D. Heacock Street *between* Alessandro Boulevard and Brodiaea Avenue	D	4D	37,500	15,789	0.421	A	15,789	0.421	A	0.000	No
E. Brodiaea Avenue *between* Graham Street and Rebecca Street	C	2D	12,500	3,158	0.253	A	3,500	0.280	A	0.027	No
F. Brodiaea Avenue *between* Gilbert Street and Heacock Street	C	2D	12,500	2,899	0.232	A	2,914	0.233	A	0.001	No
G. Graham Street *between* Brodiaea Avenue and Cactus Avenue	D	4D	37,500	7,372	0.197	A	7,714	0.206	A	0.009	No
H. Cactus Avenue *between* Elsworth Street and Frederick Street	D	6D	56,300	43,035	0.764	C	43,362	0.770	C	0.006	No

Table 9-1 is taken directly from the Traffic Impact Analysis Report and summarizes the peak hour Level of Service results at the fourteen (14) key study intersections for Existing plus Ambient Growth plus Project (Year 2023) traffic conditions. The first column (1) of HCM/LOS values in Table 9-1 presents

TABLE 9-1

EXISTING PLUS AMBIENT GROWTH (YEAR 2023) PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing Plus Ambient Growth Traffic Conditions		(3) Existing Plus Ambient Growth Plus Project Traffic Conditions		(4) Significant Impact	(5) Existing Plus Ambient Growth Plus Project With Improvements	
			HCM	LOS	HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
1. I-215 Southbound Ramps at Alessandro Boulevard	AM	LOS D	13.2 s/v	B	14.1 s/v	B	15.0 s/v	B	No	--	--
	PM		11.7 s/v	B	14.9 s/v	B	16.3 s/v	B	No	--	--
2. I-215 Northbound Ramps at Alessandro Boulevard	AM	LOS D	28.3 s/v	C	30.4 s/v	C	30.4 s/v	C	No	--	--
	PM		18.2 s/v	B	24.0 s/v	C	25.7 s/v	C	No	--	--
3. Graham Street at Alessandro Boulevard	AM	LOS D	25.4 s/v	C	30.5 s/v	C	30.9 s/v	C	No	--	--
	PM		33.2 s/v	C	37.4 s/v	D	37.8 s/v	D	No	--	--
4. Alessandro Plaza/Rebecca St at Alessandro Boulevard	AM	LOS D	6.5 s/v	A	6.5 s/v	A	4.7 s/v	A	No	--	--
	PM		9.1 s/v	A	9.7 s/v	A	9.6 s/v	A	No	--	--
5. Heacock Street at Alessandro Boulevard	AM	LOS D	29.7 s/v	C	30.5 s/v	C	30.9 s/v	C	No	--	--
	PM		44.4 s/v	D	45.1 s/v	D	48.0 s/v	D	No	--	--
6. Graham Street at Brodiaea Avenue	AM	LOS D	32.6 s/v	C	33.5 s/v	C	33.7 s/v	C	No	--	--
	PM		25.9 s/v	C	30.3 s/v	C	32.9 s/v	C	No	--	--
7. Rebecca Street at Brodiaea Avenue	AM	LOS C	9.4 s/v	A	9.5 s/v	A	9.3 s/v	A	No	--	--
	PM		0.0 s/v	A	0.0 s/v	A	9.1 s/v	A	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions
- Bold HCM/LOS values indicate adverse service levels based on the respective jurisdiction LOS standards

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

a summary of existing AM and PM peak hour traffic conditions (which were also presented in Table 3-5 and Table 8-1). The second column (2) presents Existing Plus Ambient Growth (Year 2023) traffic conditions. The third column (3) presents Existing Plus Ambient Growth (Year 2023) traffic conditions with the addition of Project traffic. The fourth column (4) shows whether the traffic associated with the Project will have an impact based on the LOS standards. The fifth column (5) presents the Level of Service with the implementation of mitigation measures, if necessary.

TABLE 9-1 (CONTINUED)

EXISTING PLUS AMBIENT GROWTH (YEAR 2023) PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

	Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing Plus Ambient Growth Traffic Conditions		(3) Existing Plus Ambient Growth Plus Project Traffic Conditions		(4) Significant Impact	(5) Existing Plus Ambient Growth Plus Project With Improvements	
				HCM	LOS	HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
8.	Gilbert Street at	AM	LOS C	9.2 s/v	A	9.2 s/v	A	9.3 s/v	A	No	–	–
	Brodiaea Avenue	PM		9.4 s/v	A	9.6 s/v	A	9.6 s/v	A	No	–	–
9.	Heacock Street at	AM	LOS D	16.2 s/v	B	16.7 s/v	B	16.8 s/v	B	No	–	–
	Brodiaea Avenue	PM		13.3 s/v	B	15.8 s/v	B	16.7 s/v	B	No	–	–
10.	I-215 Southbound Ramps at	AM	LOS D	8.3 s/v	A	17.1 s/v	B	17.4 s/v	B	No	–	–
	Cactus Avenue	PM		15.7 s/v	B	20.4 s/v	C	22.5 s/v	C	No	–	–
11.	Old 215 Frontage Road/I-215 NB	AM	LOS D	38.0 s/v	D	51.0 s/v	D	51.7 s/v	D	No	–	–
	Ramps at Cactus Avenue	PM		11.6 s/v	B	14.4 s/v	B	15.0 s/v	B	No	–	–
12.	Graham Street/Riverside Drive at	AM	LOS D	22.6 s/v	C	24.3 s/v	C	25.3 s/v	C	No	–	–
	Cactus Avenue	PM		26.5 s/v	C	26.9 s/v	C	27.7 s/v	C	No	–	–
13.	Gilbert Street at	AM	LOS D	5.9 s/v	A	6.3 s/v	A	6.3 s/v	A	No	–	–
	Cactus Avenue	PM		6.8 s/v	A	5.4 s/v	A	5.4 s/v	A	No	–	–
14.	Heacock Street at	AM	LOS D	41.1 s/v	D	45.6 s/v	D	45.6 s/v	D	No	–	–
	Cactus Avenue	PM		36.8 s/v	D	38.9 s/v	D	42.1 s/v	D	No	–	–

Notes:
- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions
- Bold HCM/LOS values indicate adverse service levels based on the respective jurisdiction LOS standards

Table 9-2 summarizes the roadway segment level of service results at the eight (8) key roadway segments for Existing Plus Ambient Growth Plus Project traffic conditions. The first column (1) shows the number of lanes, the second column (2) shows the existing LOS "E" capacity. The third column (3) presents a summary of Existing Plus Ambient Growth (Year 2023) daily traffic conditions. The fourth column (4) lists Existing Plus Ambient Growth (Year 2023) Plus Project daily traffic conditions. Column (4) also shows the increase in V/C ratio value due to the added daily project trips and indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards. An analysis of Existing Plus Ambient Growth (Year 2023) traffic conditions indicates that the eight (8) key roadway segments are forecast to operate at an acceptable service level on a daily basis under Existing Plus Ambient Growth (Year 2023) traffic conditions. Review of Column 4 of Table 9-2 indicates that traffic associated with the proposed Project will not significantly impact any of the eight (8) key roadway segments, when compared to the LOS standards and significant impact criteria specified in this report. The eight (8) key roadway segments are forecast to continue to operate at an acceptable service level on a daily basis with the addition of Project generated traffic in the Year 2023.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

TABLE 9-2

EXISTING PLUS AMBIENT GROWTH (YEAR 2023) PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key	Roadway Segment	Min. Acc. LOS	(1) No. of Existing Lanes	(2) Existing Capacity at LOS "E"	(3) Existing Plus Ambient Growth (Year 2023) Traffic Conditions			(4) Existing Plus Ambient Growth (Year 2023) Plus Project Traffic Conditions				
					Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Significant (Yes/No)
A.	Alessandro Boulevard *between* Elsworth Street and Frederick Street	D	6D	56,300	34,989	0.621	B	35,573	0.632	B	0.011	No
B.	Alessandro Boulevard *between* Graham Street and Alessandro Plaza	D	5D[23]	46,900	35,016	0.747	C	35,630	0.760	C	0.013	No
C.	Alessandro Boulevard *between* Alessandro Plaza and Heacock Street	D	5D[23]	46,900	35,514	0.757	C	35,772	0.763	C	0.006	No
D.	Heacock Street *between* Alessandro Boulevard and Brodiaea Avenue	D	4D	37,500	17,368	0.463	A	17,368	0.463	A	0.000	No
E.	Brodiaea Avenue *between* Graham Street and Rebecca Street	C	2D	12,500	3,474	0.278	A	3,816	0.305	A	0.027	No
F.	Brodiaea Avenue *between* Gilbert Street and Heacock Street	C	2D	12,500	3,189	0.255	A	3,204	0.256	A	0.001	No
G.	Graham Street *between* Brodiaea Avenue and Cactus Avenue	D	4D	37,500	8,109	0.216	A	8,451	0.225	A	0.009	No
H.	Cactus Avenue *between* Elsworth Street and Frederick Street	D	6D	56,300	47,339	0.841	D	47,666	0.847	D	0.006	No

Pedestrian Circulation

The proposed Project will construct public sidewalks per City of Moreno Valley standards along its Project frontage on Alessandro Boulevard, Rebecca Street and Brodiaea Avenue. The Project's internal sidewalk system will connect with the proposed sidewalk system along the Project frontage thereby providing adequate pedestrian access to and from the Project site. The intersection of Heacock Street at Alessandro Boulevard currently provides crosswalks along the north, south, west and east legs, which will provide pedestrians safe and convenient access from the Project site across Alessandro Boulevard and Heacock Street.

Bicycle Circulation

The City of Moreno Valley Bicycle Master Plan "specifically recommends programs and policies designed to make Moreno Valley a more bicycle friendly place and to encourage more residents to ride rather than drive." Figure 2: *Existing Bicycle Facilities* on pg. 27 of the *Bicycle Master Plan* illustrates that Alessandro Boulevard, between Graham Street and Heacock Street, is currently considered a Class 2 Bikeway ("Bike Lane"). Per Figures 14-17 (Recommended Bikeway Projects) on pgs. 55, 59, 67, and 69 of the *Bicycle Master Plan*, Alessandro Boulevard, between Graham Street and Heacock Street, is recommended to remain as a Class 2 Bikeway in the future, while the remainder of Alessandro Boulevard, from Elsworth Street to Theodore Street, is recommended to become a Class 2 Bikeway in the future. Additionally, Heacock Street, between Alessandro Boulevard and Cactus Avenue, is recommended to become a Class 1 Bikeway (Multi-Use Path) in the future. Lastly, Brodiaea Avenue, between Frederick Street and Moreno Beach Drive, is recommended to become a Class 3 Bikeway (Bike Route) in the future. The proposed Project will provide bicyclists direct connectivity to the Project site.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Public Transit

Public transit bus service is provided in the project area by the Riverside Transit Agency (RTA). Two (2) RTA bus routes operate within the immediate vicinity of the Project site on Alessandro Boulevard and Heacock Street.

- RTA Route 11: provides service from Moreno Valley Mall to Frederick & Douglas; via Perris & Hemlock to Alessandro & Heacock to Meyer & 6th.

- RTA Route 20: provides service from Magnolia & Elizabeth to Iris & Lasselle; via Mission Grove at Social Security to Moreno Valley March Field Metrolink Station to Alessandro & Frederick to Perris & Alessandro to Riverside University Medical Center to Iris at Kaiser Permanente Hospital to Moreno Valley College to Iris & Peninsula.

The bus stops nearest to the Project site are located along the north and south sides of Alessandro Boulevard, adjacent to the Project site, and at the intersection of Heacock Street/Alessandro Boulevard. Employees and/or visitors of the proposed Project would be within walking distance of existing bus stops, which currently serve and would continue to serve the Project site.

Ambient Traffic Growth

Traffic growth estimates have been calculated using an ambient growth factor. The ambient traffic growth factor is intended to include unknown and future cumulative projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. The future growth in traffic volumes has been calculated at two percent (2.0%) per year. Applied to existing Year 2018 traffic volumes results in a ten percent (10.0%) growth in existing volumes to horizon year 2023.

Based on the analysis collected in the Traffic Impact Analysis Report, the project is not expected to conflict with an applicable plan, ordinance or policy, nor exceed the appropriate level of service (LOS) and therefore will have a **less than significant** impact on existing transportation/traffic systems in the area.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐

The Riverside County Congestion Management Program (CMP) is updated every five years by RCTC in accordance with Proposition 111, passed in June 1990. The CMP was established in the State of California to more directly link land use, transportation and air quality and to prompt reasonable growth management programs that would more effectively utilize new and existing transportation infrastructure to alleviate traffic congestion and improve air quality. Local agencies are required to monitor how new development projects will impact the CMP network. This is an important component for congestion management because deficiency plans must be prepared for locations on the CMP network that decline

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

below a Level of Service (LOS) E. The ability to address such deficiencies before they occur is critical. Understanding the reason for these deficiencies and identifying ways to reduce the impact of future growth and development along a critical CMP corridor will conserve scarce funding resources and help target those resources appropriately. The project will not affect any roadways listed in the Riverside County CMP nor will the project have a significant adverse effect on traffic associated with the nearest freeway (I-215). As stated above, the project will not cause traffic levels to decline below the minimum level of service (LOS "E") and therefore will have a **less than significant** impact on existing transportation/traffic systems in the area.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

The project would not include an air travel component (i.e., helipad) and products transported to and from the Project site would not be done so by direct air. Accordingly, the Project would not have any effect on air traffic patterns, including an increase in traffic levels or a change in flight path location that results in substantial safety risks. Additionally, according to the Riverside county Airport Land Use Commission (ALUC), the project site is situated in Zone E of the March Air Reserve Base Compatibility Map which puts the project site outside of any development restriction area pertaining to non-residential projects. Zone E does discourage developments that will attract a high concentration of people to confined areas (i.e., sports stadiums, shopping malls, schools, etc.) due to Zone E being within arrival or departure flight tracks of March Air Reserve Base. As such, this project will be consistent with the ALUC development requirements of Zone E as it relates to Land Use since the project will not attract a high concentration of people. **No impact** would occur and additional analysis of this issue is not required.

(Source: Project Application Materials, 2018; Google Earth Pro, 2018)

d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	☒

All improvements planned as part of the Project would be in conformance with applicable City of Moreno Valley standards and would not result in any hazards due to a design feature. **No impact** is expected to occur.

(Source: Project Application Materials, 2018; Google Earth Pro, 2018)

e) Result in inadequate emergency access?	☐	☐	☒	☐

During the course of the City of Moreno Valley's required review of the Project's applications, the Project's design has been reviewed to ensure that adequate access to and from the site and around the proposed buildings is provided for emergency vehicles. The City will review the Project's construction plans to ensure that adequate emergency access is maintained during construction activities. With required adherence to City of Moreno Valley requirements for emergency vehicle access, impacts are expected to be **less than significant**.

(Source: Project Application Materials, 2018)

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

f) Conflict with adopted policies or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

The proposed Project would contain a business park, which is a land use that is not likely to attract large volumes of pedestrian, bicycle, or transit traffic. Regardless, the Project is designed to comply with all applicable City of Moreno Valley alternative (non-vehicular) transportation policies.

The City of Moreno Valley Bicycle Master Plan "specifically recommends programs and policies designed to make Moreno Valley a more bicycle friendly place and to encourage more residents to ride rather than drive." Figure 2: Existing Bicycle Facilities on pg. 27 of the Bicycle Master Plan illustrates that Alessandro Boulevard, between Graham Street and Heacock Street, is currently considered a Class 2 Bikeway ("Bike Lane"). Per Figures 14-17 (Recommended Bikeway Projects) on pgs. 55, 59, 67, and 69 of the Bicycle Master Plan, Alessandro Boulevard, between Graham Street and Heacock Street, is recommended to remain as a Class 2 Bikeway in the future, while the remainder of Alessandro Boulevard, from Elsworth Street to Theodore Street, is recommended to become a Class 2 Bikeway in the future. Additionally, Heacock Street, between Alessandro Boulevard and Cactus Avenue, is recommended to become a Class 1 Bikeway (Multi-Use Path) in the future. Lastly, Brodiaea Avenue, between Frederick Street and Moreno Beach Drive, is recommended to become a Class 3 Bikeway (Bike Route) in the future. The proposed Project will provide bicyclists direct connectivity to the Project site. **No impact** would occur.

(Source: Project Application Materials, 2018; City of Moreno Valley, 2006; City of Moreno Valley, 2016; Google Earth Pro, 2018)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XVII. TRIBAL CULTURAL RESOURCES Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☐	☒	☐	☐

Intensive field investigations were conducted by Dr. Alan Gold, RPA (RCA Associates, Inc. cultural staff) on April 18, 2018 and no historical resources were identified which would be eligible for listing in the California Register of Historical Resources. With the implementation of Mitigation Measures TR-1, TR-2, TR-3, TR-4, and TR-5 the impacts will be considered to be **less than significant with mitigation incorporated**.

(Source: Project Application Materials, 2018; RCA Associates, 2018)

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency will consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

The provisions of Public Resources Code 21074 were established pursuant to Assembly Bill 52 (AB 52). AB 52 applies to all development projects that have a notice of preparation (NOP), or a notice of negative declaration or a mitigated negative declaration which was filed on or after July 1, 2015. The proposed project is subject to the provisions of AB 52; therefore, the City of Moreno Valley has sent notifications to all Native American tribes which have traditional or cultural affiliation to the area encompassing the project site. With the implantation of Mitigation Measures TR-1, TR-2, TR-3, TR-4, TR-5 and TR-6 the impacts will be considered to be **less than significant with mitigation incorporated**.

(Source: Project Application Materials, 2018; RCA Associates, 2018)

Mitigation Measures

MM TR-1 Prior to the issuance of a grading permit, the Project Applicant shall provide evidence to the City of Moreno Valley that a professional archaeologist (hereafter "Project Archaeologist")

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

has been retained to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Native American Tribes, the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) to address the details, timing and responsibility of all archaeological and cultural monitoring activities that will occur on the project site. A Consulting Native American Tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Public Resources Code Section 21080.3.2(b)(1), and includes the Pechanga and Soboba Tribes. Details in the Plan shall include:

a) Project grading and development scheduling;

b) The Project archeologist and the Consulting Native American Tribe(s) as defined in TR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Native American Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c) The protocols and stipulations that the contractor, City, Consulting Native American Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

MM TR-2 Prior to the issuance of a grading permit, the Project Applicant shall secure agreements with Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The developer is also required to provide a minimum of 30 days advance notice of all mass grading and trenching activities. The Project Applicant also shall provide the City of Moreno Valley with copies of any monitoring agreement(s) with the Consulting Native American Tribes. During mass grading and trenching activities, the Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

identification and evaluation of the suspected resource.

MM TR-3 If potential tribal cultural resources are uncovered during mass grading and/or excavation activities, the Project Archaeologist shall evaluate the suspected resource in consultation with the Native American Tribal Representatives and the City of Moreno Valley and shall: make a determination of significance pursuant to Public Resources Code Section 21083.2; and recommend measures to avoid, minimize or mitigate negative effects on the tribal cultural resource. Determinations and recommendations by the Project Archaeologist shall be immediately submitted to the City of Moreno Valley Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director and all Consulting Native American Tribes, as defined in Mitigation Measure TR-1, before any further work commences in the affected area.

MM TR-4 In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a) One or more of the following treatments, in order of preference, shall be employed based on consultation with the City of Moreno Valley and the Native American Tribe(s). Evidence of such shall be provided to the City of Moreno Valley Planning Department:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.

ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure TR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Native American Tribe(s) as defined in Mitigation Measure TR-1.

iii. Donation of the discovered items and associated records to a qualified repository within Riverside County that meets federal standards per 36 CFR Part 79.

MM TR-5 The City shall verify that the following note is included on the Grading Plan: “If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

MM TR-6 If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XVIII. UTILITIES AND SERVICE SYSTEMS				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐

As identified in the General Plan, the Eastern Municipal Water District (EMWD) would provide sanitary sewer service to the proposed project. Wastewater generated by the proposed project would be treated at the Moreno Valley Regional Water Reclamation Facility (MVRWRF). The MVRWRF currently treats an estimated 10.6 million gallons per day (MGD) and has a current capacity of 16 MGD (EMWD 2016). The facility has the potential to expand its capacity to 41 MGD. Waste Discharge Requirements are established by the Santa Ana RWQCB under the provisions of the California Water Code (Division 7 Water Quality, Article 4 Waste Discharge Requirements). These requirements regulate the discharge of wastes which may impact the region's water quality by affecting underlying groundwater basins. Discharge flows from the site which are treated at the MVRWRF would be required to comply with waste discharge requirements identified for the facility. The proposed project would not discharge any wastewater into the domestic sewer system in a way that would cause the MVRWRF to exceed requirements, as determined by the Santa Ana RWQCB's Water Discharge. The proposed project would be required to comply with all EMWD conditions, permits, and discharge requirements resulting in a **less than significant** impact.

(Source: Project Application Materials, 2018)

b) Require or result in construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

The Project would not result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. Impacts would be **less than significant**.

(Source: Project Application Materials, 2018)

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

The proposed Project would be required to construct stormwater drainage facilities as necessary to serve Project stormwater flows. The required stormwater facilities to serve the project will include the construction of a 32,000 square foot detention basin that will capture the storm water runoff. With this basin installed the environmental impacts will be **less than significant**.

(Source: Project Application Materials, 2018)

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐

The site is located within the EMWD service area, which would supply water to the proposed project. In June 2011, the EMWD adopted its 2010 Urban Water Management Plan (UWMP), which details the reliability of the EMWD's current and future water supply. In addition to local water supply, much of the water the EMWD will use to serve the proposed project is imported through the Metropolitan Water District (MWD), which continuously analyzes its ability to provide water from the State Water Project and the Colorado River Aqueduct to its users, including EMWD. Extensive development activities have occurred in the region over the last few decades which has increased demand for water; however, the MWD's UWMP has determined that the programs and protections it has in place will allow it to provide water supplies to its member agencies through 2035, even under a repeat of historic drought scenarios.

The EMWD has four sources of water supply: (1) imported water purchased from the MWD; (2) local portable groundwater; (3) local desalted groundwater sources; and (4) recycled water from the EMWD's four regional water reclamation facilities with imported water the primary supply. EMWD's existing water sources would be sufficient to meet the water demands of the proposed project. Impacts to existing water supplies are expected to be **less than significant**.

(Source: EMWD, 2016b Project Application Materials, 2018)

e) Result in a determination by the wastewater treatment provider which serves or may serve the project determined that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐

As stated above, Wastewater generated by the proposed project would be treated at the Moreno Valley Regional Water Reclamation Facility (MVRWRF). The MVRWRF currently treats an estimated 10.6 million gallons per day (mgd) and has a current capacity of 16 mgd (EMWD 2016). The facility has the potential to expand its capacity to 41 mgd. The proposed project is within the anticipated wastewater generation for the General Plan and could be adequately treated at the MVRWRF. Therefore, the proposed project would have a **less than significant** impact related to wastewater treatment capacity.

(Source: EMWD, 2016b Project Application Materials, 2018)

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐

The City of Moreno Valley provides trash, recycling and special waste handling services to residents and businesses through a contract with Waste Management. Regional landfill capacity fluctuates daily and is regularly monitored by the Riverside County Department of Waste Resources to ensure there is sufficient landfill space available to dispose of municipal solid wastes throughout the region. Cities must meet the 50% landfill diversion mandate required by State law. Waste is transported to the Moreno

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Valley Transfer Station located at 17700 Indian Street, approximately 3.5 miles south of the site. Solid waste produced on the property would be transported to the Badlands Landfill on Ironwood Avenue in Moreno Valley, which has a permitted daily capacity of about 4,800 tons per day (tpd). Impacts will be **less than significant.**

(Source: Project Application Materials, 2018)

g) Comply with federal, state, and local statues and regulations related to solid waste?	☐	☐	☒	☐

The proposed project would be required to meet all Federal, State, and local statutes and regulations regarding solid waste generation, transport, and disposal. In addition, the proposed project would be required to coordinate with Waste Management to develop a collection program for recyclables, such as paper, plastics, glass and aluminum, in accordance with local and State programs, including the California Solid Waste Reuse and Recycling Act of 1991. The proposed project would also be required to comply with applicable practices enacted by the City under the California Integrated Waste Management Act of 1989 (AB 939) and any other applicable local, State, and federal solid waste management regulations. Impacts will be **less than significant.**

(Source: Project Application Materials, 2018)

Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

Impacts to biological and cultural resources are discussed in the respective sections of this Initial Study. Impacts would be less than significant with Mitigation Measures BIO-1 and BIO-2. The Project site has been used for agriculture production for many decades in the past and thus has been cleared of all native plant communities. The current state of the land is extremely disturbed and does not hold any sensitive wildlife or plant populations. The environmental and biological impacts will be **less than significant with mitigation incorporated**.

(Source: Project Application Materials, 2018)

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐

The Project site is located in the City of Moreno Valley, which has a number of ongoing development projects throughout the City, including logistics, e-commerce, industrial warehousing, residential, and commercial projects. Development of the Project site, in addition to concurrent construction and operation of other development projects in the area, has the potential to result in cumulatively considerable impacts, particularly with respect to the following issue areas: biological resources, cultural and tribal resources; however, with the proposed mitigation implemented, these impacts will be less than significant.

(Source: Project Application Materials, 2018)

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Direct and indirect environmental effects which could cause substantial adverse effects on human beings as a result of the implementation of the Project have been discussed throughout this Initial Study. In areas where such potential effects exist, project design features and mitigation measures have been incorporated to reduce these impacts to less than significant levels. Therefore, with the implementation of mitigation measures listed in this Initial Study, construction and operation of the proposed Project

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

would not result in environmental effects to cause substantial adverse effects on human beings, either directly or indirectly.

(Source: Project Application Materials, 2018)

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

4.0 REFERENCES

This Initial Study was prepared by:

City of Moreno Valley
Chris Ormsby, Senior Planner

RCA Associates, Inc.
Randall Arnold, President and Principal Biologist
Blake Curran, Environmental Scientist/Biologist
Parker Smith, Project Manager

The following information sources were used during the preparation of this IS:

Cited As	Reference
ALUC, 2010	Airport Land Use Commission, 2010. *March Air Reserve Base/Inland Port Airport Joint Land Use Study.* December 2010. *Available on-line at:* http://marchjpa.com/documents/docs_forms/joint_land_use_2010.pdf
CA Legislative Information, 2006	California Legislative Information, 2006. *Assembly Bill No. 32.* September 27, 2006. *Available on-line at:* https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200520060AB32
CA Legislative Information, 2011	California Legislative Information, 2011. *Assembly Bill No. 341.* October 6, 2011. *Available on-line at:* https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120AB341
CA Legislative Information, 2014	California Legislative Information, 2014. *Assembly Bill No. 1826.* September 28, 2014. *Available on-line at:* http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB1826
CA Legislative Information, 2017	California Legislative Information, 2017. *State Bill No. 50.* July 22, 2017. *Available on-line at:* https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB50
Caltrans, 2017	California Department of Transportation, 2017. List of eligible and officially designated State Scenic Highways. 2017. *Available on-line at:* http://www.dot.ca.gov/design/lap/livability/scenic-highways/2017-03DesigandEligible.xlsx.

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

CDC, 2016a	California Department of Conservation, 2016a. *California Important Farmland: 1984-2016. Available on-line at:* https://maps.conservation.ca.gov/dlrp/ciftimeseries/
CDC, 2016b	California Department of Conservation, 2016b. *Riverside County Williamson Act FY 2015/2016 Sheet 1 of 3. Available on-line at:* ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Riverside_w_15_16_WA.pdf.
City of Moreno Valley, 2006	City of Moreno Valley, 2006. *General Plan FEIR.* July 2006. *Available on-line at:* http://www.moreno-valley.ca.us/city_hall/general-plan/06gpfinal/ieir/eir-tot.pdf
City of Moreno Valley, 2014	City of Moreno Valley, 2014. *Land Use Map*. November 7, 2014. *Available on-line at:* http://www.moreno-valley.ca.us/city_hall/general-plan/landuse_internet1114.pdf
City of Moreno Valley, 2016	City of Moreno Valley, 2016. *General Plan.* Revised: July 2016. *Available on-line at:* http://www.moreno-valley.ca.us/city_hall/general-plan/06gpfinal/gp/gp-tot.pdf
City of Moreno Valley, 2017	City of Moreno Valley, 2017. *Municipal Code*. *Available on-line at:* http://qcode.us/codes/morenovalley/
CQuest Consultants Inc, 2017	CQuest Consultants Inc, 2017. *Geotechnical Engineering Investigation.* January 9, 2017. Print
DTSC, 2017	Department of Toxic Substances Control, 2017. *EnviroStor Data Management System*. 2017. *Available on-line at:* http://www.envirostor.dtsc.ca.gov/public/
EMWD, 2016a	Eastern Municipal Water District, 2016. *Moreno Valley Regional Water Reclamation Facility.* October 2016. *Available on-line at:* https://www.emwd.org/home/showdocument?id=1423
EMWD, 2016b	Eastern Municipal Water District, 2016. *Eastern Municipal Water District 2015 Urban Water Management Plan.* June 2016. *Available on-line at:* https://www.emwd.org/home/showdocument?id=1506
EPA, 2009	Environmental Protection Agency, 2009. *Construction and Demolition Materials Amounts.* March 2009. *Available on-line at:* https://www.epa.gov/sites/production/files/2015- 11/documents/cd-meas.pdf
FEMA, 2008	Federal Emergency Management Agency, 2008. FEMA Flood Insurance Rate Map No. 06065C0761G. 2008. *Available on-line at:* https://msc.fema.gov/portal

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Google Earth Pro, 2018 — Google Earth Pro, 2018. Version 7.1.8.3036 Computer Software.

Huitt-Zollars, Inc, 2018 — Huitt-Zollars, Inc, 2018. *Project Specific Water Quality Management Plan.* May 22, 2018. Print

Odic Environmental, 2017 — Odic Environmental, 2017. *Phase 1 Environmental Site Assessment.* April 19, 2017. Print

Project Application, 2018 — Project Application Materials, 2018.

RCA, 2003 — Riverside Conservation Authority, 2003. *Multiple Specific Habitat Conservation Plan (MSHCP) – Volume One: The Plan.* June 17, 2003. *Available on-line at:* http://www.wrc-rca.org/about-rca/multiple-species-habitat-conservation-plan/mshcp-volume-one-the-plan/

RCA, n.d. — Riverside Conservation Authority, n.d. *RCA MSHCP Information App. Available on-line at:* http://wrcrca.maps.arcgis.com/apps/webappviewer/index.html?id=2ba3285ccc8841ed978 d2d825e74c5fa.

RCA Associates, Inc., 2018 — RCA Associates, Inc., 2018. *Habitat Assessment and MSHCP Consistency Analysis.* May 2018. Print

RCA Associates, Inc., 2018 — RCA Associates, Inc., 2018. *Phase 1 Cultural Resources Assessment.* August 2018. Print

Riverside County, 2014 — Riverside County, 2014. *General Plan Amendment No. 961.* May 1, 2014. *Available on-line at:* http://planning.rctlma.org/ZoningInformation/GeneralPlan/GeneralPlanAmendmentNo960 EIRNo521CAPMarch2014/DraftEnvironmentalImpactReportNo521.aspx

SCAQMD, 2017 — South Coast Air Quality Management District, 2017. *Final 2016 Air Quality Management Plan.* March 2017. *Available on-line at:* http://www.aqmd.gov/docs/default-source/clean- air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15

USDA, n.d. — United States Department of Agriculture. *Web Soil Survey. Available on-line at:* https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Yorke Engineering, LLC., 2018 Yorke Engineering, LLC, 2018. *Air Quality, Greenhouse Gas, and Construction Noise Analysis Report.* May 8, 2018. Print

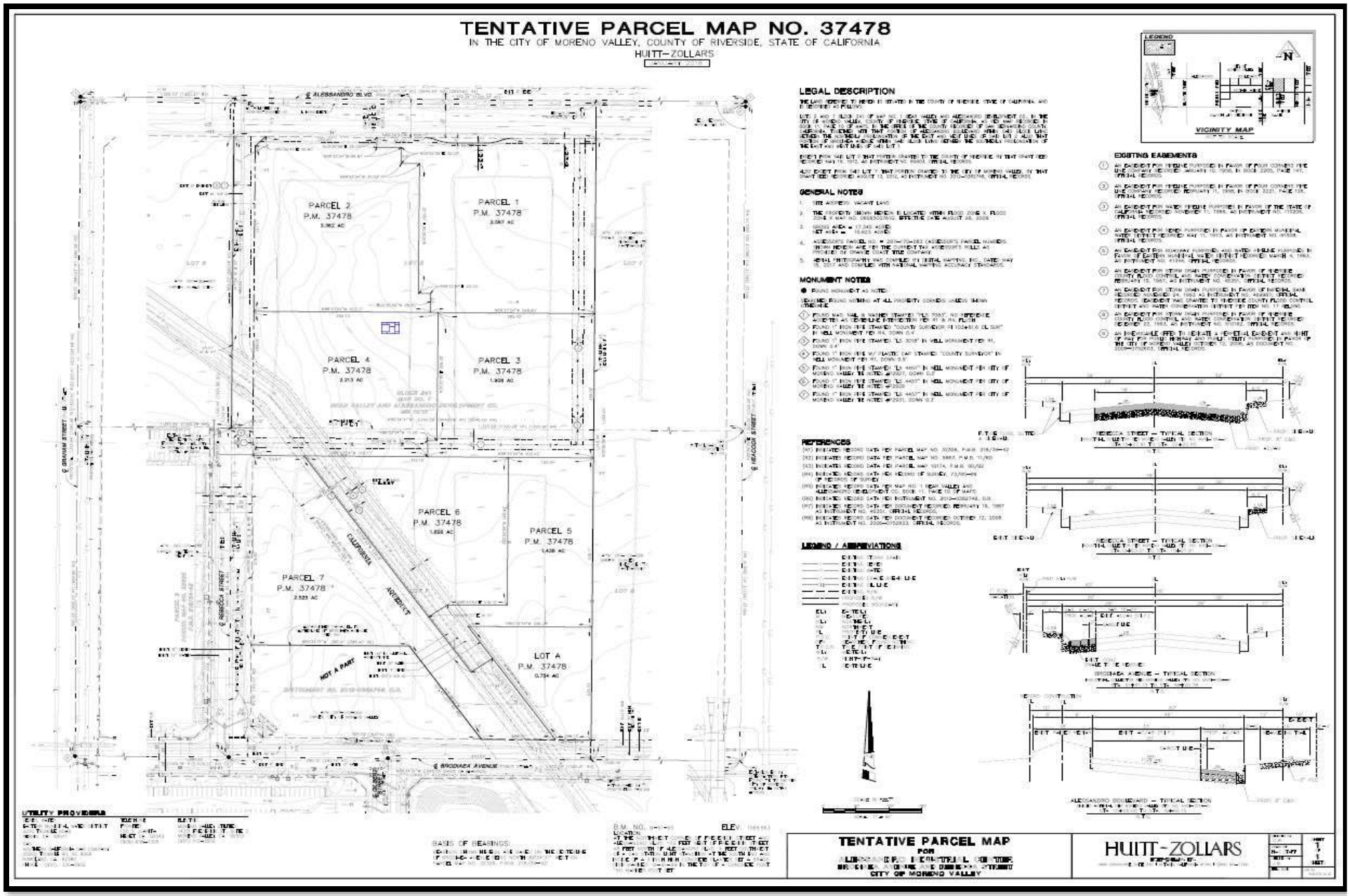
Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figures and Tables

Figure 5

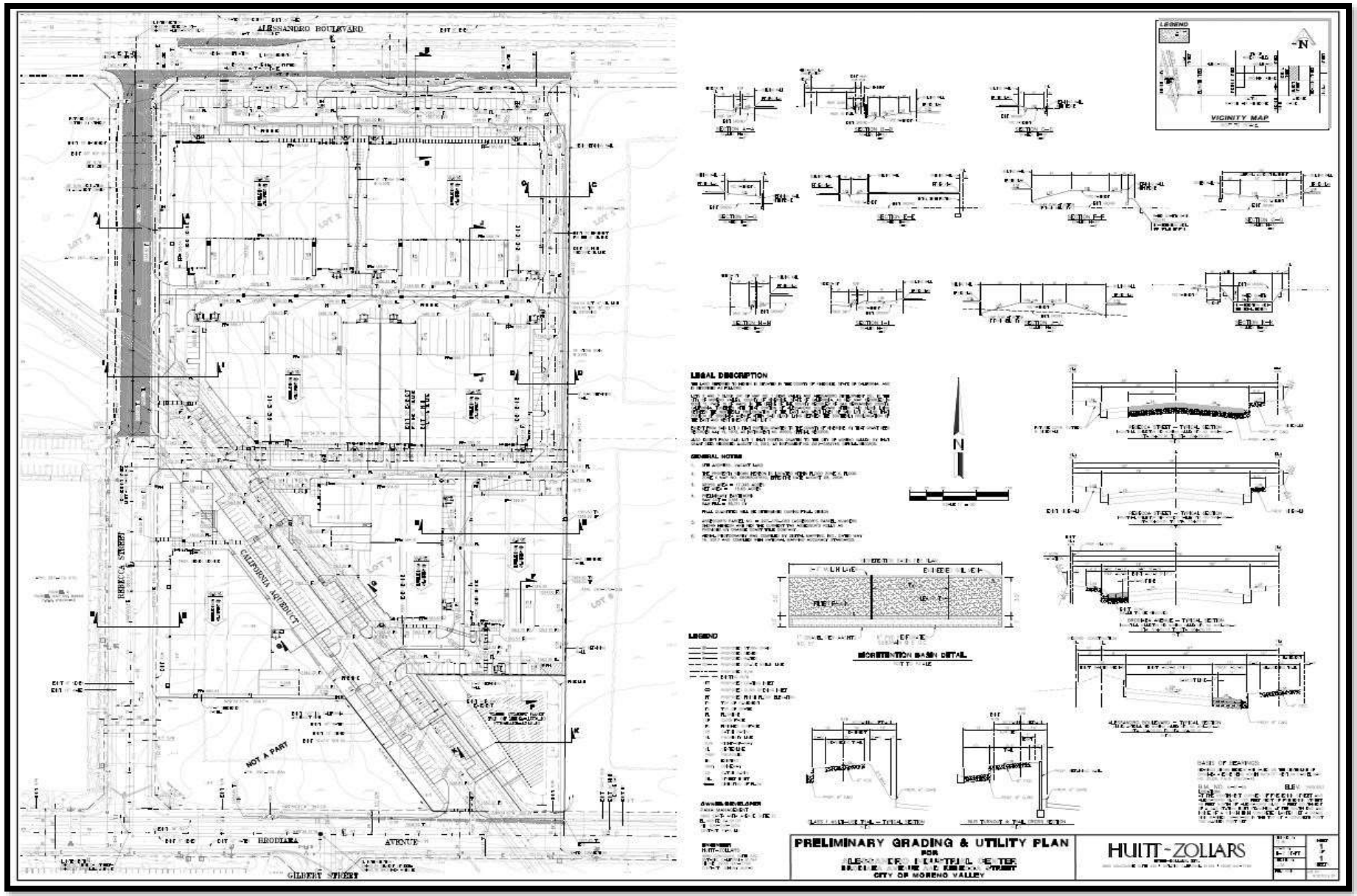
Tentative Parcel Map



Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figure 6

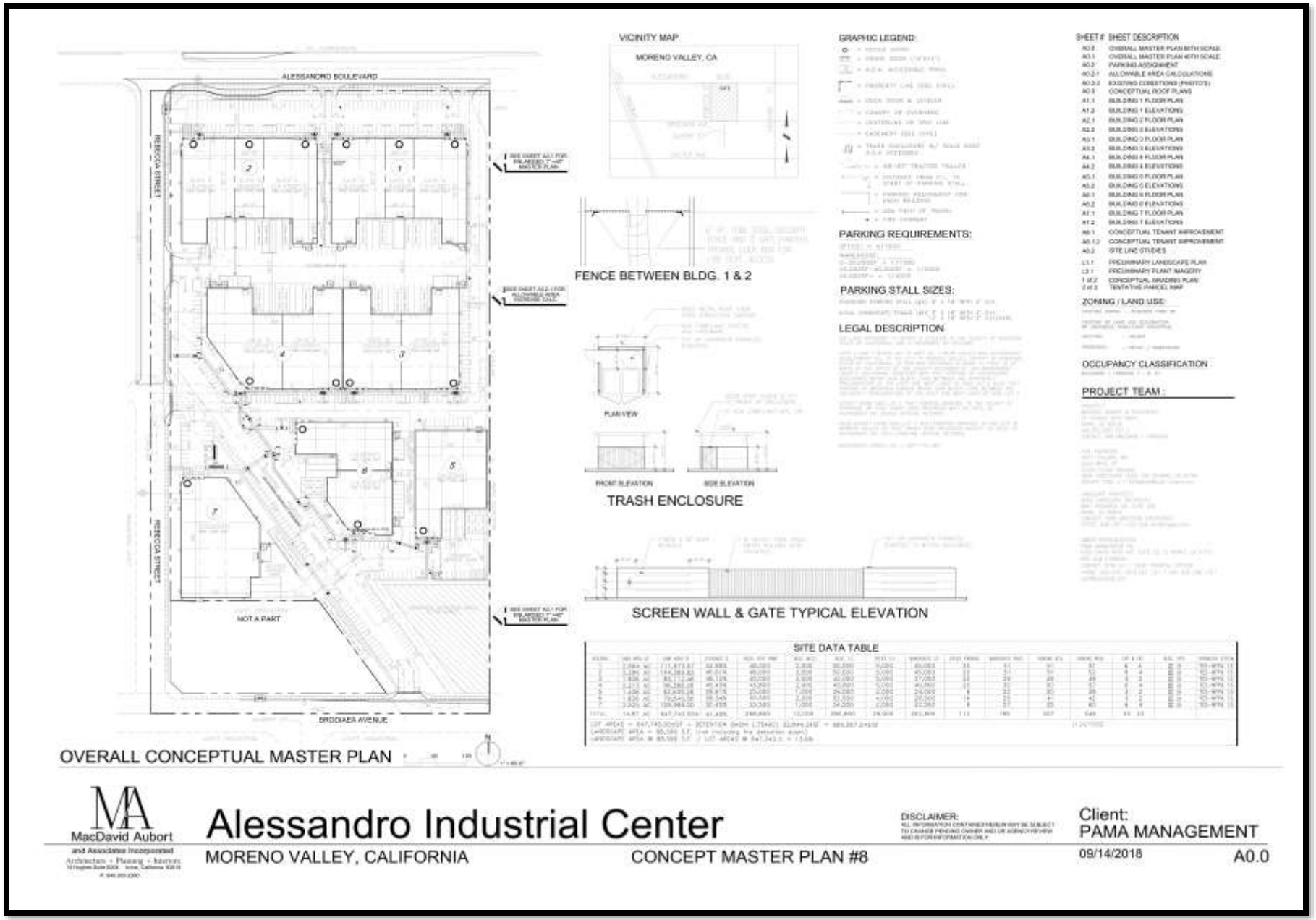
Preliminary Grading and Utility Plan



Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figure 7

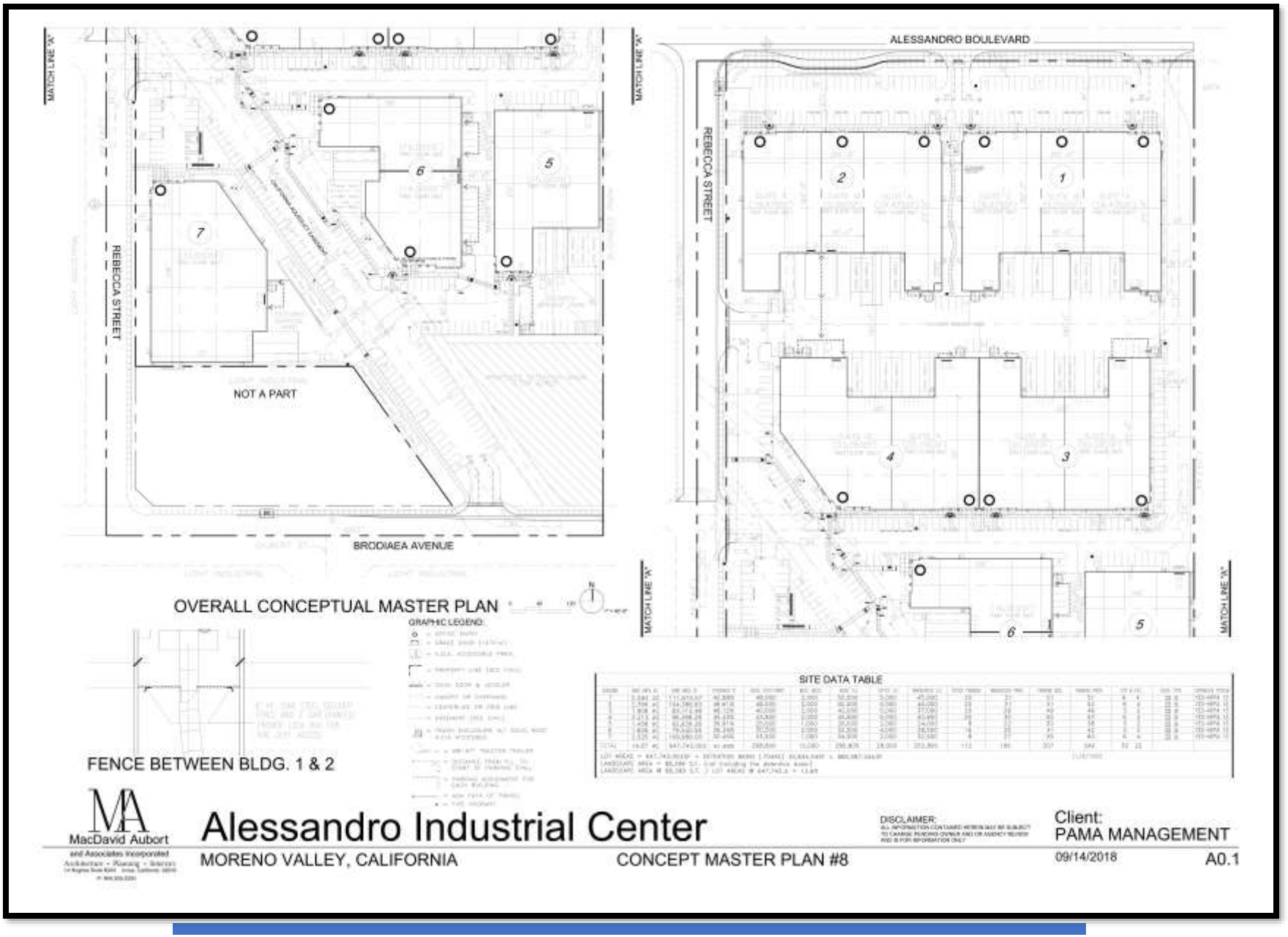
Concept Master Plan 1



Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figure 7 Cont.

Concept Master Plan 2



Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

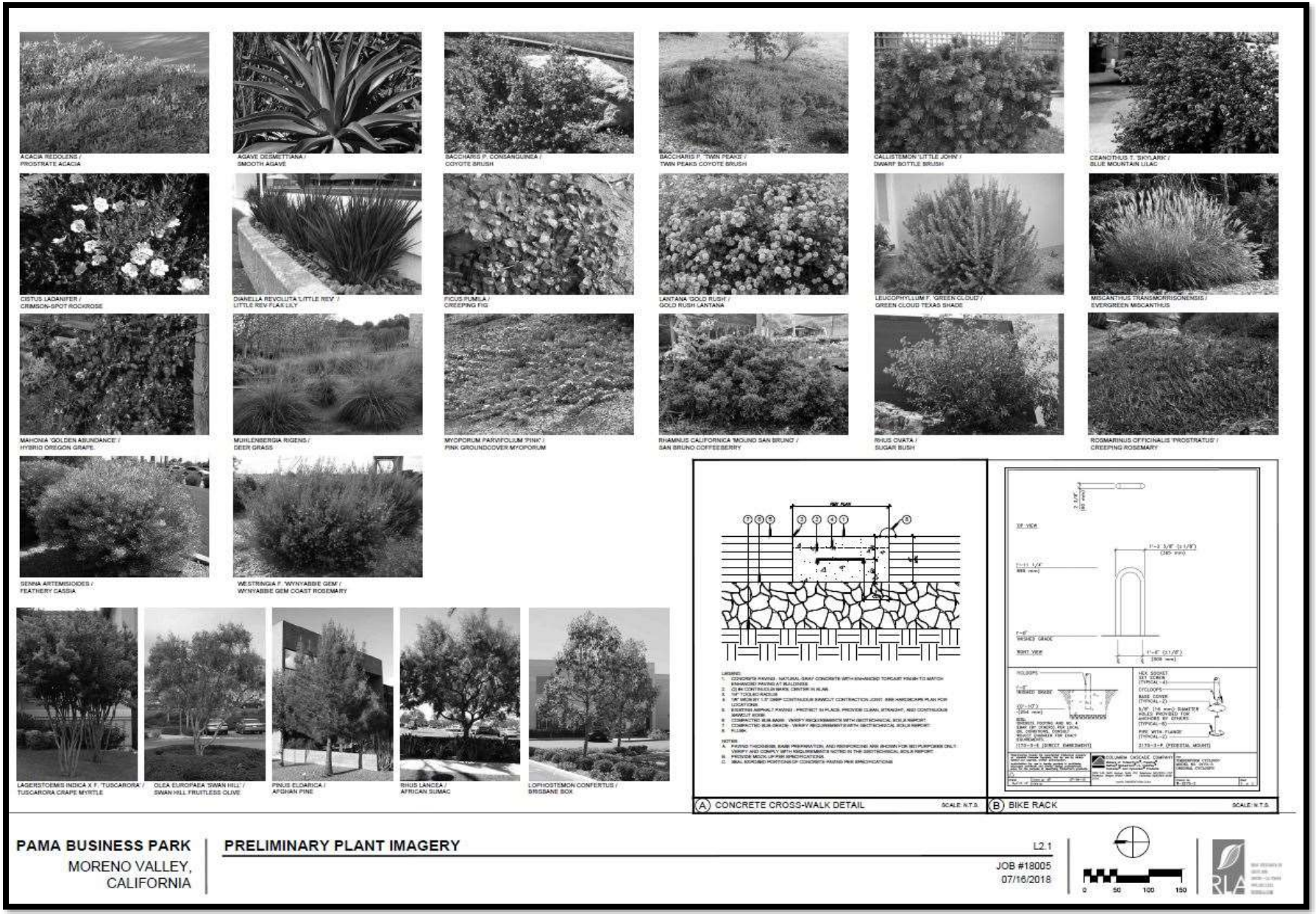
Figure 8

Preliminary Landscape Plan

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figure 8 Cont.

Preliminary Plant Imagery



Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figure 9

Building Concept Elevations

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

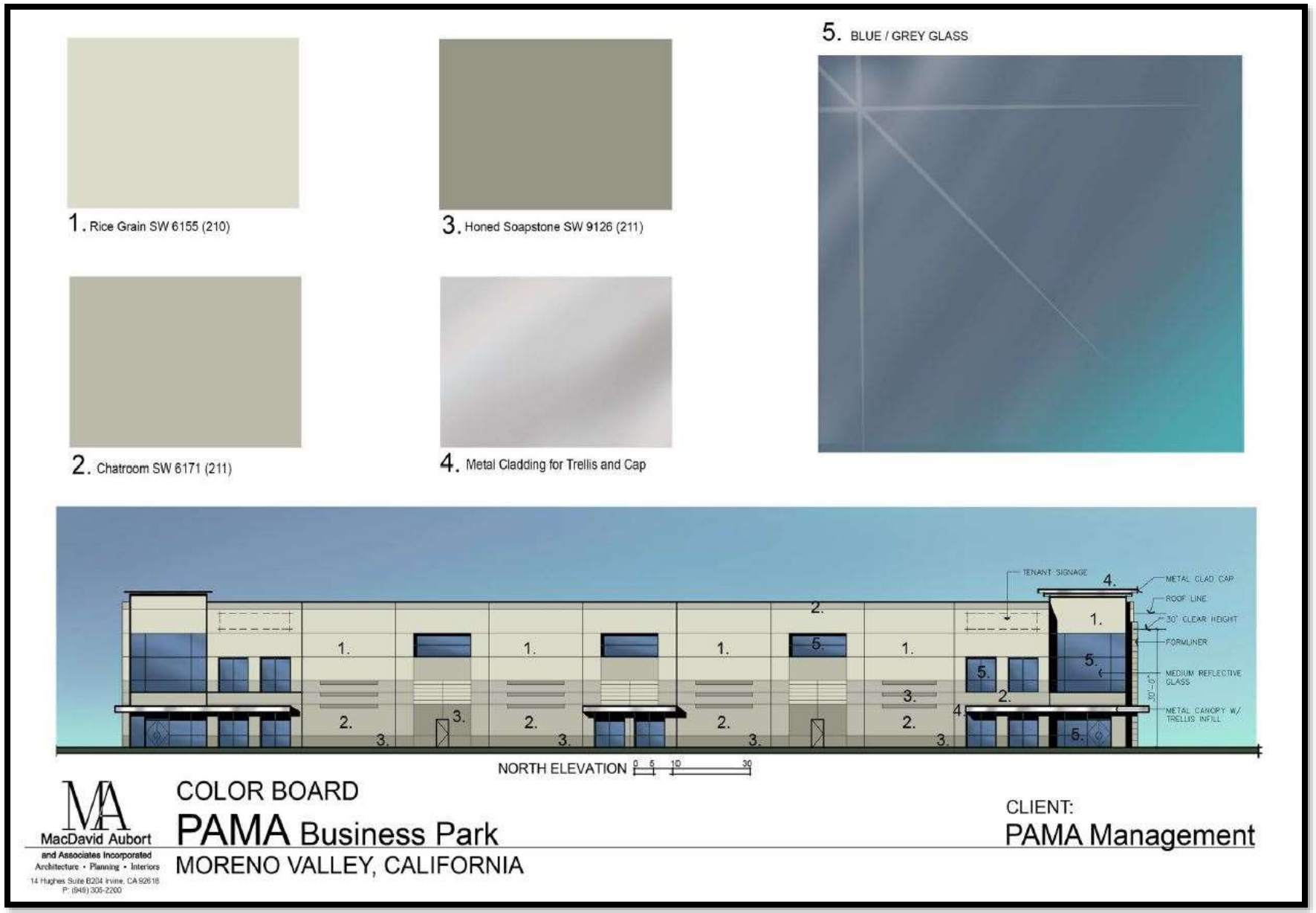
Figure 9 Cont.

Building Concept Elevations

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Figure 10

Building Color Board



Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

APPENDICES

TECHNICAL STUDIES

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Appendix A

Air Quality, Greenhouse Gas, and Noise Impact Analysis

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Appendix B

General Biological Assessment

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Appendix C

Phase 1 Cultural Resources Assessment

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Appendix D

Geotechnical Engineering Investigation

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Appendix E

Water Quality Management Plan

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Appendix F

Phase 1 Environmental Site Assessment

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Appendix G

Traffic Impact Analysis

Attachment: Exhibit A CEQA Initial Study (3285 : PAMA Business Center)

Appendix H

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING & REPORTING PLAN

The following environmental mitigation measures shall be incorporated into the project development as Conditions of Approval (MND 2329). The Project Applicant shall secure a signed verification for the mitigation measures to ensure compliance with each mitigation measure, as required by the City of Moreno Valley to meet CEQA obligations and other requirements (Public Resources Coe Section 21081.6). Final clearance shall require all verifications applicable to the following table. The Environmental Planning Department has primary responsibility for monitoring and reporting the implementation of each mitigation measure.

MITIGATION MONITORING OR REPORTING PROGRAM PAMA BUSINESS PARK				
MITIGATION MEASURES		**Verification of Compliance**		
	Timing	**Department**	**Signature**	**Date**
BIOLOGICAL RESOURCES				
BIO-1: Vegetation clearing and ground disturbance shall be prohibited during the migratory bird nesting season (February 1 through September 15), unless a migratory bird nesting survey is completed in accordance with the following requirements: a) A migratory bird nesting survey of the Project's impact footprint, including suitable habitat within a 500-foot radius, shall be conducted by a qualified biologist within three (3) days prior to initiating vegetation clearing or ground disturbance. b) A copy of the migratory nesting bird survey results report shall be provided to the City of Moreno Valley. If the survey identifies the presence of active nests, then the qualified biologist shall provide the City with a copy of maps showing the location of all nests and an appropriate buffer zone around each nest sufficient to protect the nest from direct and indirect impact. The size and location of all buffer zones, if required, shall be subject to review and approval by the City and shall be no less than a 100-foot radius around the nest for non-raptors	Within 60 days prior to Start of ground disturbance.	Planning Division		

Attachment: Exhibit B MMRP [Revision 1] (3285 : PAMA Business Center)

MITIGATION MONITORING OR REPORTING PROGRAM
PAMA BUSINESS PARK

MITIGATION MEASURE		Verification of Compliance		
	Timing	**Department**	**Signature**	**Date**
BIOLOGICAL RESOURCES *continued*				
and no more than a 500-foot radius around the nest for raptors. The nests and buffer zones shall be field checked weekly by a qualified biological monitor. The approved buffer zone shall be marked in the field with construction fencing, within which no vegetation clearing or ground disturbance shall commence until the qualified biologist and the City verify that the nests are no longer occupied and juvenile birds can survive independently from the nests. **BIO-2**: Within 30 days prior to grading, a qualified biologist shall conduct a survey of suitable habitat on site and make a determination regarding the presence or absence of the burrowing owl. The determination shall be documented in a report and shall be submitted, reviewed, and accepted by the City of Moreno Valley prior to the issuance of a grading permit and subject to the following provisions: a. Upon approval and implementation of a property-specific Determination of Biologically Superior Preservation (DBESP) report for the burrowing owl by the CDFW; or b. A determination by the biologist that the site is part of an area supporting less than 35 acres of suitable Habitat, and upon passive or active relocation of the species following accepted CDFW protocols. Passive relocation, including the required use of one-way doors to exclude owls from the site and the collapsing of burrows, will occur if the biologist determines that the proximity and availability of alternate habitat is suitable for successful passive relocation. Passive relocation shall	Prior to issuance of grading and during ground-altering activities.	Planning Division		

Attachment: Exhibit B MMRP [Revision 1] (3285 : PAMA Business Center)

MITIGATION MONITORING OR REPORTING PROGRAM
PAMA BUSINESS PARK

MITIGATION MEASURE		Verification of Compliance		
	Timing	**Department**	**Signature**	**Date**
BIOLOGICAL RESOURCES *continued*				
follow CDFW relocation protocol and shall only occur between September 15 and February 1. If proximate alternate habitat is not present as determined by the biologist, active relocation shall follow CDFW relocation protocol. The biologist shall confirm in writing that the species has fledged the site or been relocated prior to the issuance of a grading permit.		Planning Division		

Attachment: Exhibit B MMRP [Revision 1] (3285 : PAMA Business Center)

MITIGATION MONITORING OR REPORTING PROGRAM PAMA BUSINESS PARK				
MITIGATION MEASURE		**Verification of Compliance**		
	Timing	**Department**	**Signature**	**Date**
CULTURAL RESOURCES				
CR-1: Prior to the issuance of a grading permit, the Project Applicant shall provide evidence to the City of Moreno Valley that a qualified paleontologist has been retained by the Project Applicant to conduct monitoring of excavation activities and has the authority to halt and redirect earthmoving activities in the event that suspected paleontological resources are unearthed. **CR-2**: The paleontological monitor shall conduct full-time monitoring during grading and excavation operations in undisturbed, very old alluvial fan sediments at or below four (4) feet below ground surface and shall be equipped to salvage fossils if they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The paleontological monitor shall be empowered to temporarily halt or divert equipment to allow of removal of abundant and large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources. **CR-3:** Recovered specimens shall be properly prepared to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation		Planning Division		

Attachment: Exhibit B MMRP [Revision 1] (3285 : PAMA Business Center)

MITIGATION MONITORING OR REPORTING PROGRAM PAMA BUSINESS PARK				
MITIGATION MEASURES		**Verification of Compliance**		
	Timing	**Department**	**Signature**	**Date**
CULTURAL RESOURCES *Continued*				
and permanent storage, such as the Western Science Museum in Hemet, California, is required for significant discoveries. The paleontologist must have a written repository agreement in hand prior to initiation of mitigation activities. **CR-4:** A final monitoring and mitigation report of findings and significance shall be prepared, including lists of all fossils recovered, if any, and necessary maps and graphics to accurately record the original location of the specimens. The report shall be submitted to the City of Moreno Valley prior to building final.	Prior to issuance of grading permits and during ground-altering activities.	Planning Division		

Attachment: Exhibit B MMRP [Revision 1] (3285 : PAMA Business Center)

MITIGATION MONITORING OR REPORTING PROGRAM PAMA BUSINESS PARK				
MITIGATION MEASURES		**Verification of Compliance**		
	Timing	**Department**	**Signature**	**Date**
TRIBAL CULTURAL RESOURCES				
TR-1: Prior to the issuance of a grading permit, the Project Applicant shall provide evidence to the City of Moreno Valley that a professional archaeologist (hereafter "Project Archaeologist") has been retained to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Native American Tribes, the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) to address the details, timing and responsibility of all archaeological and cultural monitoring activities that will occur on the project site. A Consulting Native American Tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Public Resources Code Section 21080.3.2(b)(1), and includes the Pechanga and Soboba Tribes. Details in the Plan shall include: a) Project grading and development scheduling; b) The Project archeologist and the Consulting Native American Tribe(s) as defined in TR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Recourses Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project				

Attachment: Exhibit B MMRP [Revision 1] (3285 : PAMA Business Center)

MITIGATION MONITORING OR REPORTING PROGRAM
PAMA BUSINESS PARK

MITIGATION MEASURES		Verification of Compliance		
	Timing	Department	Signature	Date
TRIBAL CULTURAL RESOURCES *Continued*				
and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Native American Tribe(s) shall make themselves available to provide the training on an as-needed basis; c) The protocols and stipulations that the contractor, City, Consulting Native American Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation. **TR-2**: Prior to the issuance of a grading permit, the Project Applicant shall secure agreements with Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The developer is also required to provide a minimum of 30 days advance notice of all mass grading and trenching activities. The Project Applicant also shall				

Attachment: Exhibit B MMRP [Revision 1] (3285 : PAMA Business Center)

MITIGATION MONITORING OR REPORTING PROGRAM
PAMA BUSINESS PARK

MITIGATION MEASURES		Verification of Compliance		
	Timing	Department	Signature	Date
TRIBAL CULTURAL RESOURCES *Continued*				
provide the City of Moreno Valley with copies of any monitoring agreement(s) with the Consulting Native American Tribes. During mass grading and trenching activities, the Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. **TR-3:** If potential tribal cultural resources are uncovered during mass grading and/or excavation activities, the Project Archaeologist shall evaluate the suspected resource in consultation with the Native American Tribal Representatives and the City of Moreno Valley and shall: make a determination of significance pursuant to Public Resources Code Section 21083.2; and recommend measures to avoid, minimize or mitigate negative effects on the tribal cultural resource. Determinations and recommendations by the Project Archaeologist shall be immediately submitted to the City of Moreno Valley Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director and all Consulting Native American Tribes, as defined in Mitigation Measure TR-1, before any further work commences in the affected area.				

Attachment: Exhibit B MMRP [Revision 1] (3285 : PAMA Business Center)

MITIGATION MONITORING OR REPORTING PROGRAM
PAMA BUSINESS PARK

MITIGATION MEASURES		Verification of Compliance		
	Timing	Department	Signature	Date
TRIBAL CULTURAL RESOURCES *Continued*				
TR-4: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries: a) One or more of the following treatments, in order of preference, shall be employed based on consultation with the City of Moreno Valley and the Native American Tribe(s). Evidence of such shall be provided to the City of Moreno Valley Planning Department: i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure TR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Native American Tribe(s) as defined in Mitigation Measure TR-1.				

Attachment: Exhibit B MMRP [Revision 1] (3285 : PAMA Business Center)

MITIGATION MONITORING OR REPORTING PROGRAM
PAMA BUSINESS PARK

MITIGATION MEASURES		Verification of Compliance		
	Timing	Department	Signature	Date
TRIBAL CULTURAL RESOURCES *Continued*				
ii. Donation of the discovered items and associated records to a qualified repository within Riverside County that meets federal standards per 36 CFR Part 79. **TR-5:** The City shall verify that the following note is included on the Grading Plan: "If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find." **TR-6:** If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).				

Attachment: Exhibit B MMRP [Revision 1] (3285 : PAMA Business Center)

RESOLUTION NO. 2018-52

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY APPROVING PEN18-0027, TENTATIVE PARCEL MAP 37478, TO SUBDIVIDE 15.62 ACRES INTO SEVEN DEVELOPABLE PARCELS AND ONE LETTERED LOT LOCATED SOUTH OF ALESSANDRO BOULEVARD, NORTH OF BRODIAEA AVENUE AND EAST OF REBECCA STREET (ASSESSOR PARCEL NUMBER (APN) 297-170-083)

WHEREAS, the applicant, MacDavid Aubert and Associates, Inc. filed Application No. PEN18-0027, requesting approval of a Tentative Parcel Map 37478 on the property as described in the title of this resolution; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, upon completion of a thorough development review process, the project was appropriately agendized and noticed in the Press Enterprise and posted on the site on October 12, 2018 for a public hearing before the Planning Commission on October 25, 2018; and

WHEREAS, on October 25, 2018, the Planning Commission of the City of Moreno Valley conducted a meeting to consider the applications; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), NOTICE IS HEREBY GIVEN that this project is subject to certain fees, dedications, reservations and other exactions as provided herein

NOW, THEREFORE, BE IT RESOLVED, by the Planning Commission of the City of Moreno Valley as follows:

A. This Planning Commission specifically finds that all of the facts set forth above in the Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during meeting on October 25, 2018, including written and oral staff reports, and the record from the public hearing, this Planning Commission hereby specifically finds as follows:

1. That the proposed use is consistent with applicable general and specific plans.

Attachment: Resolution No 2018-52 (3285 : PAMA Business Center)

FACTS: Tentative Parcel Map 37478 will subdivide a 15.62-acre property into seven (7) parcels and one (1) lettered lot for a stormwater detention basin. The proposed Project is designated as Business Park (BP) in the General Plan which provides for manufacturing, research and development, warehousing and distribution, as well as office and support commercial activities. The intent of the General Plan, as expressed in Objective 2.5 of the Community Development Element is to promote a mix of industrial uses which provide a sound and diversified economic base and ample employment opportunities for the citizens of Moreno Valley with the establishment of industrial activities that have good access to the regional transportation system, accommodate the personal needs of workers and business visitors; and which meets the service needs of local businesses. The proposed Tentative Parcel Map is consistent with the General Plan Land Use Designation and other applicable goals, policies and objectives. There is no specific plan applicable to the project.

2. That the design or improvement of the proposed land division is consistent with the applicable general and specific plans

FACTS: The proposed tentative parcel map will subdivide the subject property into seven lots to be developed with buildings for warehouse, distribution and associated uses in accordance with the General Plan land use designation of Business Park. The project will also include associated infrastructure improvements which meet the established standards and regulations, as well as the construction of a Class I multi-use trail in accordance with the City of Moreno Valley Bicycle Master Plan. The project is consistent with applicable development standards for the Business Park (BP) zoning district of the Municipal Code, and there is no specific plan applicable to the project.

3. That the site of the proposed land division is physically suitable for the type of development and density.

FACTS: The proposed project is located on an undeveloped, relatively flat, rectangular-shaped property located in a commercial and light industrial/warehousing area. The surrounding areas are zoned and/or developed with commercial and warehouse and distribution land uses. The site abuts Alessandro Boulevard, a main commercial corridor area to the north, currently vacant land approved for a warehouse facility to the east, and warehouse and commercial uses to the south and the west. There are no prominent topographic or other features on the site. A Department of Water Resources 120-foot easement runs through the southern portion of the site. No buildings can be located on this easement. However, parking, landscaping and driveways are allowed. The Tentative Parcel Map is designed in accordance with the provisions of Section 9.14 – Land Divisions, of the City's Municipal Code.

4. That the design of the proposed land division or the proposed improvements, are not likely to cause substantial environmental damage or substantially and unavoidably injure fish or wildlife or their habitat.

Attachment: Resolution No 2018-52 (3285 : PAMA Business Center)

FACTS: No fish or wildlife will be affected by this land division. An Initial Study/Mitigated Negative Declaration was prepared for the Project (including a Plot Plan), pursuant to California Environmental Quality Act (CEQA), Public Resources Code 21000, which found that the Project will not have a significant environmental impact as designed and mitigated.

5. That the design of the proposed land division or the type of improvements are unlikely to cause serious public health problems.

   FACTS: The design of the land division and type of improvements will comply with all applicable City and other regulatory agency standards, including the proposed street and utility infrastructure improvements. As designed and conditioned, the Project will be consistent with General Plan Objectives 6.1 and 6.2 which aim to minimize the potential for loss of life and protect residents, workers and visitors to the City from physical injury and property damage due to seismic ground shaking and flooding, and the Municipal Code relative to public health and safety.

6. That the design of the subdivision or the type of improvements will not conflict with easements acquired by the public at large for access through or use of property within the proposed subdivision.

   FACTS: The Tentative Parcel Map has been designed to accommodate and not conflict with existing easements on the subject site including utility and storm drain easements. The Department of Water easement allows construction of roads, parking lots and landscaping. No buildings will be located on this easement.

7. That the proposed land division and the associated design and improvements are consistent with applicable ordinances of the City.

   FACT: The land division proposed by Tentative Parcel Map No. 37478 is consistent with the City's Municipal Code Section 9.14 Land Divisions and other applicable ordinances of the City. The land division is also consistent with the layout and design of the Plot Plan for seven warehouse buildings (PEN18-0028) which is proposed in conjunction with the parcel map.

C. FEES, DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

1. FEES

Impact, mitigation and other fees are due and payable under currently applicable ordinances and resolutions. These fees may include but are not limited to: Development Impact Fee; Transportation Uniform Mitigation Fee (TUMF); Multi-species Habitat Conservation Plan (MSHCP) Mitigation Fee; Stephens Kangaroo Rat Habitat Fee; Underground Utilities in lieu Fee; Area Drainage Plan Fee; Bridge and Thoroughfare Mitigation Fee (Future), and Traffic Signal Mitigation Fee. The final amount of fees payable is dependent upon information provided by the applicant and will be determined at the time the fees become due and payable.

Attachment: Resolution No 2018-52 (3285 : PAMA Business Center)

Unless otherwise provided for by this resolution, all impact fees shall be calculated and collected at the time and in the manner provided in Chapter 3.32 of the City of Moreno Valley Municipal Code or as so provided in the applicable ordinances and resolutions. The City expressly reserves the right to amend the fees and the fee calculations consistent with applicable law.

2. DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

The adopted Conditions of Approval for PAMA Business Park PEN18-0027, incorporated herein by reference, may include dedications, reservations, and exactions pursuant to Government Code Section 66020 (d) (1).

3. CITY RIGHT TO MODIFY/ADJUST; PROTEST LIMITATIONS

The City expressly reserves the right to establish, modify or adjust any fee, dedication, reservation or other exaction to the extent permitted and as authorized by law.

Pursuant to Government Code Section 66020(d) (1), NOTICE IS FURTHER GIVEN that the 90-day period to protest the imposition of any impact fee, dedication, reservation, or other exaction described in this resolution begins on the effective date of this resolution and any such protest must be in a manner that complies with Section 66020 (a) and failure to timely follow this procedure will bar any subsequent legal action to attack, review, set aside, void or annul imposition.

The right to protest the fees, dedications, reservation, or other exactions does not apply to planning, zoning, grading, or other similar application processing fees or service fees in connection with this project and it does not apply to any fees, dedication, reservation, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the Statute of Limitations has previously expired.

BE IT FURTHER RESOLVED that the Planning Commission **HEREBY APPROVES** Resolution No. 2018-52**:**

1. **APPROVE** Tentative Tract Map 37478, PEN18-0027, subject to conditions of approval attached as Exhibit A.

APPROVED this 25th day of October, 2018.

AYES:
NOES:
ABSTAIN:

Attachment: Resolution No 2018-52 (3285 : PAMA Business Center)

_____
Jeffrey Barnes
Chair, Planning Commission

ATTEST:

_____
Patricia Nevins, Planning Official
Secretary to the Planning Commission

APPROVED AS TO FORM:

_____
City Attorney

ATTACHMENTS:

Exhibit A: Conditions of Approval

Attachment: Resolution No 2018-52 (3285 : PAMA Business Center)

CITY OF MORENO VALLEY
CONDITIONS OF APPROVAL
Tentative Parcel Map (PEN18-0027)

EFFECTIVE DATE:
EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT

Planning Division

1. A change or modification to the land use or the approved site plans may require a separate approval. Prior to any change or modification, the property owner shall contact the City of Moreno Valley Community Development Department to determine if a separate approval is required.

2. Any expansion to this use or exterior alterations will require the submittal of a separate application(s) and shall be reviewed and approved under separate permit(s). (MC 9.02.080)

3. The developer, or the developer's successor-in-interest, shall be responsible for maintaining any undeveloped portion of the site in a manner that provides for the control of weeds, erosion and dust. (MC 9.02.030)

4. Unless specifically superseded herein, these conditions of approval do not replace or supersede the final conditions of approval for approved project PEN18-0028 or any related projects or plan checks.

5. The expiration date of this modification does not extend the expiration of any related project or activity.

6. The site shall be developed in accordance with the approved plans on file in the Community Development Department - Planning Division, the Municipal Code regulations, General Plan, and the conditions contained herein. Prior to any use of the project site or business activity being commenced thereon, all Conditions of Approval shall be completed to the satisfaction of the Planning Official. (MC 9.14.020)

7. Any signs indicated on the submitted plans are not included with this approval. Any signs, whether permanent (e.g. wall, monument) or temporary (e.g. banner, flag), require separate application and approval by the Planning Division. No signs are permitted in the public right of way. (MC 9.12)

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

Special Conditions

8. All site plans, grading plans, landscape and irrigation plans, and street improvement plans shall be coordinated for consistency with this approval.

9. MM TR-1 Prior to the issuance of a grading permit, the Project Applicant shall provide evidence to the City of Moreno Valley that a professional archaeologist (hereafter "Project Archaeologist") has been retained to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Native American Tribes, the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) to address the details, timing and responsibility of all archaeological and cultural monitoring activities that will occur on the project site. A Consulting Native American Tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Public Resources Code Section 21080.3.2(b)(1), and includes the Pechanga and Soboba Tribes. Details in the Plan shall include:
   a) Project grading and development scheduling;
   b) The Project archeologist and the Consulting Native American Tribe(s) as defined in TR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Native American Tribe(s) shall make themselves available to provide the training on an as-needed basis;
   c) The protocols and stipulations that the contractor, City, Consulting Native American Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

10. Prior to issuance of building permits, final front and street side yard landscape and irrigation plans, and slope landscape plans and basin landscape plans, shall be approved.

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

11. This approval shall comply with all applicable requirements of the City of Moreno Valley Municipal Code.

12. The grading plans shall show any conservation easement lots.

13. Prior to grading plan approval, decorative block walls shall be provided along the street side for all corner lots. (MC 9.08.070)

14. The site shall be developed in accordance with the approved tentative map on file in the Community Development Department -Planning Division, the Municipal Code regulations, General Plan, and the conditions contained herein. (MC 9.14.020)

15. Prior to building final, the developer/owner or developer's/owner's successor-in-interest shall pay all applicable impact fees, including but not limited to Transportation Uniform Mitigation fees (TUMF), and the City's adopted Development Impact Fees. (Ord)

16. A drought tolerant landscape palette shall be utilized throughout the tract in compliance with the City's Landscape Requirements. (9.17)

17. Prior to the issuance of grading permits, final erosion control landscape and irrigation plans for all cut or fill slopes over 3 feet in height shall be submitted to and approved by the Planning Division. The plans shall be designed in accordance with the slope erosion plan as required by the City Engineer. Man-made slopes greater than 10 feet in height shall be "land formed" to conform to the natural terrain and shall be landscaped and stabilized to minimize visual scarring. (GP Objective 1.5, MC 9.08.080, DG)

18. Prior to recordation, all feeder trail easements shall be shown on the final map. All feeder trails that traverse a side yard shall allow for five feet of additional area to compensate for landscape and street trees at the base of any fence or wall.

19. Feeder trails shall abide by the cross sections included within the City's design standards and be shown on the grading plan for all existing connections (i.e. interior streets) linking to the main multi-use trail system. Fences are required on a least one side of all proposed feeder trails within the tract.

20. Feeder trails shall abide by the cross sections included within the City's design standards and be shown on the map for all existing connections (i.e. interior streets) linking to the main multi-use trail system. Fences are required on a least one side of all proposed feeder trails within the tract per the Parks and Community Services standards.

21. Prior to recordation of the final map, final median enhancement/landscape/irrigation

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

plans shall be submitted to and approved by the Planning Division, and Public Works Department - Special Districts Division for review and approval by each division. (GP - Circulation Master Plan)

22. Prior to the issuance of grading permits, grading plans shall be submitted to and approved by the Planning Division to ascertain that development and grading of all lots have been designed to reduce the extent of cut and fill and loss of coastal scrub vegetation. Grading plans shall incorporate multiple level foundations, custom foundations and/or split level pads in accordance with the City's Municipal Code. (MC 9.03.030)

23. All landscaped areas in perpetuity shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)

24. This tentative map shall expire three years after the approval date of this tentative map unless extended as provided by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever in the event the applicant or any successor in interest fails to properly file a final map before the date of expiration. (MC 9.02.230, 9.14.050, 080)

25. Prior to the issuance of grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein.

26. Prior to any site disturbance and/or grading plan submittal, and or final map recordation, a mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant/owner. No City permit or approval shall be issued until such fee is paid. (CEQA)

27. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord.)

28. Prior to approval of any grading plan, local and master-planned multi-use trail easements shall be shown on the rough and precise grading plans in accordance with the City's Master Trail Plan.

29. Prior to recordation of the final subdivision map, the following documents shall be submitted to and approved by the Planning Division which shall demonstrate that the project will be developed and maintained in accordance with the intent and purpose of the approval:

    a. The document to convey title
    b. Deed restrictions, easements, or Covenants, Conditions and Restrictions to

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

be recorded

The approved documents shall be recorded at the same time that the subdivision map is recorded. The documents shall contain provisions for general maintenance of the site, joint access to proposed parcels, open space use restrictions, conservation easements, guest parking, feeder trails, water quality basins, lighting, landscaping and common area use items such as general building maintenance (apartments, condominiums and townhomes) tot lot/public seating areas and other recreation facilities or buildings. The approved documents shall also contain a provision, which provides that they may not be terminated and/or substantially amended without the consent of the City and the developer's successor-in-interest. (MC 9.14.090)

In addition, the following deed restrictions and disclosures shall be included within the document and grant deed of the properties:

a. The developer and homeowners association shall promote the use of native plants and trees and drought tolerant species.

b. All lots designated for open space and or detention basins, shall be included as an easement to, and maintained by a Homeowners Association (HOA) or other private maintenance entity. All reverse frontage landscape areas shall also be maintained by the onsite HOA. Language to this effect shall be included and reviewed within the required Covenant Conditions and Restrictions (CC&Rs) prior to the approval of the final map.

c. Maintenance of any and all common facilities.

d. A conservation easement for lettered lots shall be recorded on the deed of the property and shown on the final map. Said easement sha

30. The following Airport Land Use Commission Conditions of Approval apply to the project. Prior to the issuance of a grading permit, the applicant shall demonstrate to the City of Moreno Valley that the Airport Land Use Commission Conditions of Approval have been satisfied.

ALUC-1 Any outdoor lighting installed shall be hooded or shielded to prevent either the spillage of lumens or reflection into the sky. Outdoor lighting shall be downward facing.

31. ALUC-2 The following uses shall be prohibited:

A. Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at an airport, other than an FAA-approved navigational signal light or visual approach slope indicator.

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

B. Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards a landing at an airport.

C. Any use which would generate smoke or water vapor or which would attract large concentrations of birds, or which may otherwise affect safe air navigation within the area. (Such uses include landscaping utilizing water features, aquaculture, production of cereal grains, sunflower, and row crops, composting operations, trash transfer stations that are open on one or more sides, recycling centers containing putrescible wastes, construction and demolition debris facilities, fly ash disposal, and incinerators).

D. Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

32. "ALUC-3 The following disclosure notice shall be provided to all potential purchasers of the property and to any lessees of the structure (s) thereon, and shall be recorded as a deed of notice:

NOTICE OF AIRPORT IN VICINITY

This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any are associated with the property before you complete your purchase and determine whether they are acceptable to you. Business & Professions Code Section 1101 (b)(13)(A)."

33. ALUC-4 The proposed basins on the site (including water quality management basins) shall be designed so as to provide for a maximum 48-hour detention period following the conclusion of the storm event for the design storm (may be less, but not more), and to remain totally dry between rainfalls. Vegetation in and around the detention basins that would provide food or cover for bird species that would be incompatible with airport operations shall not be utilized in project landscaping.

34. MM TR-2 Prior to the issuance of a grading permit, the Project Applicant shall secure agreements with Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The developer is also required to provide a minimum of 30 days advance notice of all mass grading and trenching activities. The Project Applicant also shall provide the City of Moreno Valley with copies of any monitoring agreement(s) with the Consulting Native American Tribes. During mass grading and trenching activities, the Native American Tribal Representatives shall

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource.

35. MM TR-3 If potential tribal cultural resources are uncovered during mass grading and/or excavation activities, the Project Archaeologist shall evaluate the suspected resource in consultation with the Native American Tribal Representatives and the City of Moreno Valley and shall: make a determination of significance pursuant to Public Resources Code Section 21083.2; and recommend measures to avoid, minimize or mitigate negative effects on the tribal cultural resource. Determinations and recommendations by the Project Archaeologist shall be immediately submitted to the City of Moreno Valley Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director and all Consulting Native American Tribes, as defined in Mitigation Measure TR-1, before any further work commences in the affected area.

36. MM TR-4 In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:
a) One or more of the following treatments, in order of preference, shall be employed based on consultation with the City of Moreno Valley and the Native American Tribe(s). Evidence of such shall be provided to the City of Moreno Valley Planning Department:
    i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.
    ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure TR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Native American Tribe(s) as defined in Mitigation Measure TR-1.
    iii. Donation of the discovered items and associated records to a qualified repository within Riverside County that meets federal standards per 36 CFR Part 79.

37. MM TR-5 The City shall verify that the following note is included on the Grading Plan: "If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

38. MM TR-6 If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

39. The following Mitigation Measures apply to this project:

MM CR-1 Prior to the issuance of a grading permit, the Project Applicant shall provide evidence to the City of Moreno Valley that a qualified paleontologist has been retained by the Project Applicant to conduct monitoring of excavation activities and has the authority to halt and redirect earthmoving activities in the event that suspected paleontological resources are unearthed.

40. MM CR-2 The paleontological monitor shall conduct full-time monitoring during grading and excavation operations in undisturbed, very old alluvial fan sediments at or below four (4) feet below ground surface and shall be equipped to salvage fossils if they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The paleontological monitor shall be empowered to temporarily halt or divert equipment to allow of removal of abundant and large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources.

41. MM CR-3 Recovered specimens shall be properly prepared to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage, such as the Western Science Museum in Hemet, California, is required for significant discoveries. The paleontologist must have a written repository agreement in hand prior to initiation of mitigation activities.

42. MM CR-4 A final monitoring and mitigation report of findings and significance shall be prepared, including lists of all fossils recovered, if any, and necessary maps and graphics to accurately record the original location of the specimens. The report

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

shall be submitted to the City of Moreno Valley prior to building final.

Prior to Grading Permit

43. Prior to issuance of any grading permit, all Conditions of Approval, Mitigation Measures and Airport Land Use Commission Conditions of Approval shall be printed on the grading plans.

44. Prior to the issuance of grading permits, decorative (e.g. colored/scored concrete or as approve by the Planning Official) pedestrian pathways across circulation aisles/paths shall be provided throughout the development to connect dwellings with open spaces and/or recreational uses or commercial/industrial buildings with open space and/or parking. and/or the public right-of-way. The pathways shall be shown on the precise grading plan. (GP Objective 46.8, DG)

45. Prior to approval of any grading permits, plans for any security gate system shall be submitted to and approved by to the Planning Division.

46. Prior to approval of any grading plan, local and master-planned multi-use trail easements shall be shown on the rough and precise grading plans in accordance with the City's Master Trail Plan.

47. Prior to issuance of any grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein. A mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant within 30 days of project approval. No City permit or approval shall be issued until such fee is paid. (CEQA)

48. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)

49. Within thirty (30) days prior to any grading or other land disturbance, a pre-construction survey for Burrowing Owls shall be conducted pursuant to the established guidelines of Multiple Species Habitat Conservation Plan. The pre-construction survey shall be submitted to the Planning Division prior to any disturbance of the site and/or grading permit issuance.

50. Prior to approval of any grading permits, plans for any security gate system shall be submitted to and approved by to the Planning Division.

51. Prior to the issuance of grading permits, the site plan and grading plans shall show decorative hardscape (e.g. colored concrete, stamped concrete, pavers or as approved by the Planning Official) consistent and compatible with the design, color and materials of the proposed development for all driveway ingress/egress

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

locations of the project.

52. Prior to issuance of grading permits, the developer shall submit wall/fence plans to the Planning Division for review and approval as follows:

A. A maximum 6 foot high solid decorative block perimeter wall with pilasters and a cap shall be required adjacent to all residential zoned areas.

B. 3-foot high decorative wall, solid hedge or berm shall be placed in any setback areas between a public right of way and a parking lot for screening.

C. Any proposed retaining walls shall also be decorative in nature, while the combination of retaining and other walls on top shall not exceed the height requirement.

D. Proposed screening walls for truck loading areas and required loading docks shall also include decorative block walls with pilasters with a height up to fourteen (14) feet to fully screen trucks (industrial and some situations with commercial uses).

E. Walls and fences for visual screening are required when there are adjacent residential uses or residentially zone property. The height, placement and design will be based on a site specific review of the project. All walls are subject to the approval of the Planning Official. (DC 9.08.070)

53. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project. The sign shall include the following:

a. The name (if applicable) and address of the development.
b. The developer's name, address, and a 24-hour emergency telephone number.

54. Prior to issuance of grading permits, the location of the trash enclosure shall be included on the plans.

Building Division

55. All new structures shall be designed in conformance to the latest design standards adopted by the State of California in the California Building Code, (CBC) Part 2, Title 24, California Code of Regulations including requirements for allowable area, occupancy separations, fire suppression systems, accessibility, etc. The current code edition is the 2016 CBC.

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

56. Easements must be obtained for water supply and sewer services to interior parcels not yet adjoining an existing sewer and water supply easement.

FINANCIAL & MANAGEMENT SERVICES DEPARTMENT

Moreno Valley Utility

57. This project requires the installation of electric distribution facilities. A non-exclusive easement shall be provided to Moreno Valley Utility and shall include the rights of ingress and egress for the purpose of operation, maintenance, facility repair, and meter reading.

58. This project requires the installation of electric distribution facilities. The developer shall submit a detailed engineering plan showing design, location and schematics for the utility system to be approved by the City Engineer. In accordance with Government Code Section 66462, the Developer shall execute an agreement with the City providing for the installation, construction, improvement and dedication of the utility system following recordation of final map and/or concurrent with trenching operations and other improvements so long as said agreement incorporates the approved engineering plan and provides financial security to guarantee completion and dedication of the utility system.

The Developer shall coordinate and receive approval from the City Engineer to install, construct, improve, and dedicate to the City all utility infrastructure including but not limited to, conduit, equipment, vaults, ducts, wires, switches, conductors, transformers, and "bring-up" facilities including electrical capacity to serve the identified development and other adjoining, abutting, or benefiting projects as determined by Moreno Valley Utility – collectively referred to as "utility system", to and through the development, along with any appurtenant real property easements, as determined by the City Engineer necessary for the distribution and/or delivery of any and all "utility services" to and within the project. For purposes of this condition, "utility services" shall mean electric, cable television, telecommunication (including video, voice, and data) and other similar services designated by the City Engineer. "Utility services" shall not include sewer, water, and natural gas services, which are addressed by other conditions of approval.

The City, or the City's designee, shall utilize dedicated utility facilities to ensure safe, reliable, sustainable and cost effective delivery of utility services and maintain the integrity of streets and other public infrastructure. Developer shall, at developer's sole expense, install or cause the installation of such interconnection facilities as may be necessary to connect the electrical distribution infrastructure within the project to the Moreno Valley Utility owned and controlled electric distribution system.

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

59. Existing Moreno Valley Utility electrical infrastructure shall be preserved in place. The developer will be responsible, at developer's expense, for any and all costs associated with the relocation of any of Moreno Valley Utility's underground electrical distribution facilities, as determined by Moreno Valley Utility, which may be in conflict with any developer planned construction on the project site.

PUBLIC WORKS DEPARTMENT

Land Development

60. Aggregate slurry, as defined in Section 203-5 of Standard Specifications for Public Works Construction, may be required just prior to the end of the one-year warranty period of the public streets at the discretion of the City Engineer. If slurry is required, a slurry mix design shall be submitted for review and approved by the City Engineer. The latex additive shall be Ultra Pave 70 (for anionic) or Ultra Pave 65 K (for cationic) or an approved equal per the geotechnical report. The latex shall be added at the emulsion plant after weighing the asphalt and before the addition of mixing water. The latex shall be added at a rate of two to two-and-one-half (2 to 2½) parts to one-hundred (100) parts of emulsion by volume. Any existing striping shall be removed prior to slurry application and replaced per City standards.

61. The developer shall comply with all applicable City ordinances and resolutions including the City's Municipal Code (MC) and if subdividing land, the Government Code (GC) of the State of California, specifically Sections 66410 through 66499.58, said sections also referred to as the Subdivision Map Act (SMA). [MC 9.14.010]

62. The final approved conditions of approval (COAs) and any applicable Mitigation Measures issued by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.

63. The developer shall monitor, supervise and control all construction related activities, so as to prevent these activities from causing a public nuisance, including but not limited to, insuring strict adherence to the following:
(a) Removal of dirt, debris, or other construction material deposited on any public street no later than the end of each working day.
(b) Observance of working hours as stipulated on permits issued by the Land Development Division.
(c) The construction site shall accommodate the parking of all motor vehicles used by persons working at or providing deliveries to the site.
(d) All dust control measures per South Coast Air Quality Management District (SCAQMD) requirements during the grading operations.
Violation of any condition, restriction or prohibition set forth in these conditions shall subject the owner, applicant, developer or contractor(s) to remedy as noted in City

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

Municipal Code 8.14.090. In addition, the City Engineer or Building Official may suspend all construction related activities for violation of any condition, restriction or prohibition set forth in these conditions until such time as it has been determined that all operations and activities are in conformance with these conditions.

64. Drainage facilities (e.g., catch basins, water quality basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.

65. If improvements associated with this project are not initiated within two (2) years of the date of approval of the Public Improvement Agreement (PIA), the City Engineer may require that the engineer's estimate for improvements associated with the project be modified to reflect current City construction costs in effect at the time of request for an extension of time for the PIA or issuance of a permit. [MC 9.14.210(B)(C)]

66. The developer shall protect downstream properties from damage caused by alteration of drainage patterns (i.e. concentration or diversion of flow, etc). Protection shall be provided by constructing adequate drainage facilities, including, but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]

67. The maintenance responsibility of the proposed storm drain line shall be clearly identified. Storm drain lines within private property will be privately maintained and those within public streets will be publicly maintained.

68. The proposed private storm drain system shall connect to the existing storm drain. A storm drain manhole shall be placed at the right-of-way line to mark the beginning of the publicly maintained portion of this storm drain.

69. This project shall submit civil engineering design plans, reports and/or documents (prepared by a registered/licensed civil engineer) for review and approval by the City Engineer per the current submittal requirements, prior to the indicated threshold or as required by the City Engineer. The submittal consists of, but is not limited to, the following:

a. Parcel Map (recordation prior to building permit issuance);
b. Rough grading w/ erosion control plan (prior to grading permit issuance);
c. Precise grading w/ erosion control plan (prior to grading permit issuance);
d. Public improvement plan (e.g., street/storm drain w/ striping, RCFC storm drain, sewer/water, etc.) (prior to encroachment permit issuance);
e. Final drainage study (prior to grading plan approval);
f. Final WQMP (prior to grading plan approval);
g. Legal documents (e.g., easement(s), dedication(s), lot line adjustment, vacation, etc.) (prior to building permit issuance);
h. As-Built revision for all plans (prior to Occupancy release);

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

Prior to Grading Plan Approval

70. Resolution of all drainage issues shall be as approved by the City Engineer.

71. A final detailed drainage study (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer. The study shall include, but not be limited to: existing and proposed hydrologic conditions as well as hydraulic calculations for all drainage control devices and storm drain lines. The study shall analyze 1, 3, 6 and 24-hour duration events for the 2, 5, 10 and 100-year storm events [MC 9.14.110(A.1)]. A digital (pdf) copy of the approved drainage study shall be submitted to the Land Development Division.

72. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity.

73. A final project-specific Water Quality Management Plan (WQMP) shall be submitted for review and approved by the City Engineer, which:

a. Addresses Site Design Best Management Practices (BMPs) such as minimizing impervious areas, maximizing permeability, minimizes directly connected impervious areas to the City's street and storm drain systems, and conserves natural areas;

b. Incorporates Source Control BMPs and provides a detailed description of their implementation;

c. Describes the long-term operation and maintenance requirements for BMPs requiring maintenance; and

d. Describes the mechanism for funding the long-term operation and maintenance of the BMPs.

A copy of the final WQMP template can be obtained on the City's Website or by contacting the Land Development Division. A digital (pdf) copy of the approved final project-specific Water Quality Management Plan (WQMP) shall be submitted to the Land Development Division.

74. The developer shall ensure compliance with the City Grading ordinance, these Conditions of Approval and the following criteria:

a. The project street and lot grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage area and outlet points. Unless otherwise approved by the City Engineer, lot lines shall be located at the top of slopes.

b. Any grading that creates cut or fill slopes adjacent to the street shall provide erosion control, sight distance control, and slope easements as approved by the City Engineer.

c. All improvement plans are substantially complete and appropriate clearance letters are provided to the City.

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

d. A soils/geotechnical report (addressing the soil's stability and geological conditions of the site) shall be submitted to the Land Development Division for review. A digital (pdf) copy of the soils/geotechnical report shall be submitted to the Land Development Division.

75. Grading plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

76. The developer shall select Low Impact Development (LID) Best Management Practices (BMPs) designed per the latest version of the Water Quality Management Plan (WQMP) - a guidance document for the Santa Ana region of Riverside County.

77. The developer shall pay all remaining plan check fees.

78. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared in conformance with the State's current Construction Activities Storm Water General Permit. A copy of the current SWPPP shall be kept at the project site and be available for review upon request.

79. Any proposed trash enclosure(s) shall be dual bin (1 for trash and 1 for recycables) [MC 9.03.040 (G)]. The enclosure shall have a solid roof and appropriate drainage collection for water quality purposes. The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.

80. For projects that will result in discharges of storm water associated with construction with a soil disturbance of one or more acres of land, the developer shall submit a Notice of Intent (NOI) and obtain a Waste Discharger's Identification number (WDID#) from the State Water Quality Control Board (SWQCB) which shall be noted on the grading plans.

81. Prior to precise grading plan approval, the grading plans shall clearly show that the parking lot conforms to City standards. The parking lot shall be 5% maximum, 1% minimum for AC, 0.50% minimum for PCC, 2% maximum at or near any disabled parking stall and travel way. Ramps, curb openings and travel paths shall all conform to current ADA standards as outlined in Department of Justice's "ADA Standards for Accessible Design", Excerpt from 28 CFR Part 36. (www.usdoj.gov) and as approved by the City's Building and Safety Division.

<u>Prior to Grading Permit</u>

82. A receipt showing payment of the Area Drainage Plan (ADP) fee to Riverside County Flood Control and Water Conservation District shall be submitted. [MC

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

9.14.100(O)]

83. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.

84. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control measures. At least twenty-five (25) percent of the required security shall be in the form of a cash deposit with the City. [MC 8.21.160(H)]

85. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]

86. The developer shall pay all applicable inspection fees.

87. Prior to the payment of the Transportation Uniform Mitigation Fee (TUMF), the developer may enter into a TUMF Improvement Credit Agreement to secure credit for the construction of applicable improvements. If the developer fails to complete this agreement by the timing specified above, credits may not be given. The developer shall pay current TUMF fees adopted by the City Council. [Ord. 835 § 2.1, 2012] [MC 3.44.060]

88. Prior to issuance of a grading permit, the applicant shall provide either non-interference letters or written permission from the California Department of Water Resources (DWR) and the Riverside County Flood Control District for proposed improvements within their easement, as applicable.

Prior to Map Approval

89. All proposed street names shall be submitted for review and approved by the City Engineer, if applicable. [MC 9.14.090(E.2.k)]

90. A copy of the Covenants, Conditions and Restrictions (CC&R's) shall be submitted for review and approved by the City Engineer. The CC&R's shall include, but not be limited to, access easements, reciprocal access, private and/or public utility easements as may be relevant to the project.

91. The developer shall enter into a Cooperative Agreement with the City and Riverside County Flood Control and Water Conservation District establishing the terms and conditions covering the inspection, operation and maintenance of Master Drainage Plan facilities required to be constructed as part of the project, if applicable.

92. After recordation, a digital (pdf) copy of the recorded map shall be submitted to the

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

Land Development Division.

93. Resolution of all drainage issues shall be as approved by the City Engineer.

94. Maps (prepared by a registered civil engineer and/or licensed surveyor) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

95. The developer shall guarantee the completion of all related improvements required for this project by executing a Public Improvement Agreement (PIA) with the City and posting the required security. [MC 9.14.220]

96. All public improvement plans required for this project shall be approved by the City Engineer in order to execute the Public Improvement Agreement (PIA).

97. The developer shall comply with the requirements of the City Engineer based on recommendations of the Riverside County Flood Control District regarding the construction of County Master Plan Facilities.

98. All street dedications shall be free of all encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer.

Prior to Improvement Plan Approval

99. The developer is required to bring any existing access ramps adjacent to and fronting the project to current ADA (Americans with Disabilities Act) requirements. However, when work is required in an intersection that involves or impacts existing access ramps, all access ramps in that intersection shall be retrofitted to comply with current ADA requirements, unless otherwise approved by the City Engineer.

100. The developer shall submit clearances from all applicable agencies, and pay all applicable plan check fees.

101. The street improvement plans shall comply with current City policies, plans and applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.

102. The design plan and profile shall be based upon a centerline, extending beyond the project boundaries a minimum distance of 300 feet at a grade and alignment approved by the City Engineer.

103. Drainage facilities (i.e. catch basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

104. The hydrology study shall be designed to accept and properly convey all off-site drainage flowing onto or through the site. In the event that the City Engineer permits the use of streets for drainage purposes, the provisions of current City standards shall apply. Should the quantities exceed the street capacity or the use of streets be prohibited for drainage purposes, as in the case where one travel lane in each direction shall not be used for drainage conveyance for emergency vehicle access on streets classified as minor arterials and greater, the developer shall provide adequate facilities as approved by the City Engineer. [MC 9.14.110 A.2]

105. All public improvement plans (prepared by a licensed/registered civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

106. Any missing or deficient existing improvements along the project frontage shall be constructed or secured for construction. The City Engineer may require the ultimate structural section for pavement to half-street width plus 18 feet or provide core test results confirming that existing pavement section is per current City Standards; additional signing & striping to accommodate increased traffic imposed by the development, etc.

107. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts for trench repairs may be allowed for emergency repairs or as specifically approved by the City Engineer.

108. All dry and wet utilities shall be shown on the plans and any crossings shall be potholed to determine actual location and elevation. Any conflicts shall be identified and addressed on the plans. The pothole survey data shall be submitted to Land Development with the public improvement plans for reference purposes only. The developer is responsible to coordinate with all affected utility companies and bear all costs of any utility relocation.

Prior to Encroachment Permit

109. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.

110. All applicable inspection fees shall be paid.

111. Any work performed within public right-of-way requires an encroachment permit.

Prior to Building Permit

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

112. An engineered-fill certification, rough grade certification and compaction report shall be submitted for review and approved by the City Engineer. A digital (pdf) copy of the approved compaction report shall be submitted to the Land Development Division. All pads shall meet pad elevations per approved grading plans as noted by the setting of "blue-top" markers installed by a registered land surveyor or licensed civil engineer.

113. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.

114. A walk through with a Land Development Inspector shall be scheduled to inspect existing improvements within public right of way along project frontage. Any missing, damaged or substandard improvements including handicap access ramps that do not meet current City standards shall be required to be installed, replaced and/or repaired. The applicant shall post security to cover the cost of the repairs and complete the repairs within the time allowed in the public improvement agreement used to secure the improvements.

115. For all subdivision projects, the map shall be recorded. [MC 9.14.190]

116. Prior to building permit issuance, the applicant shall submit for review and approval legal documents for vacating 1' of right-of-way along the northerly side of Brodiaea Avenue along the project's southerly frontage.

Prior to Occupancy

117. All outstanding fees shall be paid.

118. All required as-built plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

119. The final/precise grade certification shall be submitted for review and approved by the City Engineer.

120. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project is subject to the following requirements:

a. Meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46 by participating in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process.

b. Notify the Special Districts Division of the intent to request building permits 90 days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy. [California Government Code & Municipal Code]

121. The developer shall complete all public improvements in conformance with current City standards, except as noted in the Special Conditions, including but not limited to the following:

a. Street improvements including, but not limited to: pavement, base, curb and/or gutter, cross gutters, spandrel, sidewalks, drive approaches, pedestrian ramps, street lights, signing, striping, under sidewalk drains, landscaping and irrigation, medians, pavement tapers/transitions and traffic control devices as appropriate.

b. Storm drain facilities including, but not limited to: storm drain pipe, storm drain laterals, open channels, catch basins and local depressions.

c. City-owned utilities.

d. Sewer and water systems including, but not limited to: sanitary sewer, potable water and recycled water.

e. Under grounding of all existing and proposed utilities adjacent to and on-site. [MC 9.14.130]

f. Relocation of overhead electrical utility lines including, but not limited to: electrical, cable and telephone.

122. For commercial, industrial and multi-family projects, a "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant" shall be recorded to provide public notice of the maintenance requirements to be implemented per the approved final project-specific WQMP. A boilerplate copy of the "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant" can be obtained by contacting the Land Development Division.

123. The applicant shall ensure the following, pursuant to Section XII. I. of the 2010 NPDES Permit:

a. Field verification that structural Site Design, Source Control and Treatment Control BMPs are designed, constructed and functional in accordance with the approved Final Water Quality Management Plan (WQMP).

b. Certification of best management practices (BMPs) from a state licensed civil engineer. An original WQMP BMP Certification shall be submitted for review and approved by the City Engineer.

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

124. The Developer shall comply with the following water quality related items:

a. Notify the Land Development Division prior to construction and installation of all structural BMPs so that an inspection can be performed.

b. Demonstrate that all structural BMPs described in the approved final project-specific WQMP have been constructed and installed in conformance with the approved plans and specifications;

c. Demonstrate that Developer is prepared to implement all non-structural BMPs described in the approved final project-specific WQMP; and

d. Demonstrate that an adequate number of copies of the approved final project-specific WQMP are available for future owners/occupants.

e. Clean and repair the water quality BMP's, including re-grading to approved civil drawing if necessary.

f. Obtain approval and complete installation of the irrigation and landscaping.

125. Prior to occupancy, the following improvements shall be completed:

a. Brodiaea Avenue, Industrial Collector, City Standard MVSI-106A-0 (78-foot RW / 56-foot CC) shall be constructed to half-width plus 18' along the project's southerly frontage. Improvements shall consist of, but not be limited to pavement, base, street lights, driveway approaches, pedestrian ramps, curb & gutter, and sidewalk. In addition, replace or install any damaged, substandard or missing improvements.

b. Rebecca Street, Industrial Collector, City Standard MVSI-106A-0 (78-foot RW / 56-foot CC) shall be constructed to half-width plus 18' along the entire project's westerly frontage. Improvements shall consist of, but not be limited to, pavement, base, street lights, driveway approaches, pedestrian ramps, curb & gutter, sidewalk. In addition, replace or install any damaged, substandard or missing improvements. The minimum longitudinal street grade shall be 0.65% or as approved by the City Engineer. Additional right-of-way on the westerly side of the street centerline shall also be required.

c. Alessandro Boulevard, Divided Major Arterial, City Standard MVSI-101A-0 (134-foot RW / 110-foot CC) shall be constructed to half-width plus 23' with a median along the entire project's northerly frontage. Improvements shall consist of, but not be limited to, pavement, base, street lights, driveway approaches, pedestrian ramps, curb & gutter, sidewalk. In addition, replace or install any damaged, substandard or missing improvements.

126. Prior to Occupancy, all overhead utilities fronting the entire project boundary shall be undergrounded as required per City Municipal Code.

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

Special Districts Division

127. The existing parkway/median along the frontage of the project shall be brought to current City Standards. Improvements may include but are not limited to: plant material, irrigation, and hardscape.

128. Prior to the issuance of the first building permit for this project, the Developer shall pay Advanced Energy fees for all applicable Residential and Arterial Street Lights required for this development. Payment shall be made to the City of Moreno Valley and collected by the Land Development Division. Fees are based upon the Advanced Energy fee rate in place at the time of payment, as set forth in the current Listing of City Fees, Charges, and Rates adopted by City Council. The Developer shall provide a copy of the receipt to the Special Districts Division (specialdistricts@moval.org). Any change in the project which may increase the number of street lights to be installed will require payment of additional Advanced Energy fees at the then current fee. Questions may be directed to the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.

129. This project is located within the boundary of Community Facilities District No. 4–Maintenance (CFD No. 4-M) and is subject to hydrology study determination based upon the final tentative parcel map. The project is conditioned to provide a funding source which will be used for maintenance of stormwater and detention basin improvements. The Developer shall satisfy the condition with one of the financing options outlined below.

a. In compliance with Proposition 218, the property owner shall agree to approve the special election for annexation into CFD No. 4-M and pay all associated costs with the special election process and formation costs, if any; or

b. Establish an endowment fund which shall be used to cover future maintenance costs for storm water and detention basin improvements benefiting this project.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financing option when submitting the application for building permit issuance. The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the first issuance of certificate of occupancy for this project.

130. The ongoing maintenance of any landscaping required to be installed behind the

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

curb shall be the responsibility of the property owner.

131. Any damage to existing landscape areas maintained by the City of Moreno Valley due to project construction shall be repaired/replaced by the Developer, or Developer's successors in interest, at no cost to the City of Moreno Valley.

132. Street Light Authorization forms for all street lights that are conditioned to be installed as part of this project must be submitted to the Special Districts Division for approval, prior to street light installation. The Street Light Authorization form can be obtained from the utility company providing electric service to the project, either Moreno Valley Utility or Southern California Edison. For questions, contact the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.

133. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services) and Zone C (Arterial Street Lighting). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C for operations and capital improvements.

134. This project is conditioned to provide a funding source for the operation and maintenance of public improvements and/or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options below.

a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

b. Establish an endowment fund to cover the future maintenance and/or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option prior to City Council action authorizing recordation of the final map for the development. A minimum of 90 days is needed to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution for conducting a special election.

The financial option selected shall be in place prior to the issuance of the first building permit for the project.

135. This project is conditioned to provide a funding source for the following special financing program(s):

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

a. Street Lighting Services for capital improvements, energy charges, and maintenance.

b. Landscape Maintenance Services for parkway, open space, and/or median landscaping on Alessandro Blvd.

The Developer's responsibility is to provide a funding source for the capital improvements and the continued maintenance of the landscaped area. The Developer shall satisfy this condition with one of the options below.

i. Participate in a special election (mail ballot proceeding) and pay all associated costs of the special election and formation, if any. Financing may be structured through a Community Services District zone, Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

ii. Establish a Property Owner's Association (POA) or Home Owner's Association (HOA) which will be responsible for any and all operation and maintenance costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option prior to City Council action authorizing recordation of the final map for the development. The option for participating in a special election requires approximately 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution for conducting a special election.

The financial option selected shall be in place prior to the issuance of the first building permit for this project and prior to acceptance of any improvements.

136. Commercial (R) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the continuous operation, remediation and/or replacement, maintenance, monitoring, systems evaluation and enhancements of on-site facilities and performing annual inspections of the affected areas to ensure compliance with state mandated stormwater regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program (see Land Development's related condition) 90 days prior to City Council action authorizing recordation of the final map for the development and participate in a special election process. This allows adequate time to be in compliance with the

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

provisions of Article 13D of the California Constitution. (California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)

137. This project has been identified to be included in the formation of a Community Facilities District for Public Safety services including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district that may already be established. The Developer must notify the Special Districts Division at 951.413.3480 or specialdistricts@moval.org of its intent to record the final map for the development 90 days prior to City Council action authorizing recordation of the map. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)

Transportation Engineering Division

138. Conditions of approval may be modified or added if a phasing plan is submitted for this development.

139. All proposed on-site traffic signing and striping should be accordance with the latest California Manual on Uniform Traffic Control Devices (CAMUTCD).

140. Alessandro Boulevard is designated as a 6-Lane Divided Arterial (134'RW/110'CC) per City Standard Plan No. MVSI-101A-0. Street improvements on Alessandro Boulevard shall include a Class-I multi-use trail (Juan Bautista De Anza) along the project frontage. Any other improvements undertaken by this project shall be consistent with the City's standards for this facility or as approved by the City Engineer.

141. Brodiaea Avenue is designated as an industrial collector (78'RW/56'CC) at the project location per City Standard Plan No. MVSI-106A-0. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.

142. Rebecca Street is designated as an industrial collector (78'RW/56'CC) per City Standard Plan No. MVSI-106A-0. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.

143. Communication conduit along project frontage may be required per City Standard Plan No. MVSI-186-0.

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

144. The driveways shall conform to City of Moreno Valley Standard No. MVSI-112C-0 for Commercial Driveway Approaches. Access at the driveways shall be allowed as follows:

- Alessandro Boulevard driveways: right-turn in/out only. The raised concrete median on Alessandro Boulevard shall restrict left-turn in/out.
- Rebecca Street driveways: full access.
- Brodiaea Avenue driveway: full access.

145. Any gated driveway shall be provided with the following:

a) A 75' storage lane in front of the gate for entering vehicles.
b) A separate pedestrian entry.

146. Prior to final approval of the landscape plans and construction plans for any type of fencing or monument sign, the project plans shall demonstrate that sight distance at the project driveway conforms to City Standard Plan No. MVSI-164A-0 through MVSI-164C-0. Trees, plants, shrubs, fence and monument sign shall not be located in an area that obstructs the drivers' line-of-sight.

147. Prior to the final approval of the street improvement plans, a signing and striping plan shall be prepared per City of Moreno Valley Standard Plans - Section 4 for all streets along the project frontages. Signing and striping plans shall be prepared per the latest edition of the California Manual on Uniform Traffic Control Devices (CAMUTCD) and current City of Moreno Valley Standard Plans by a qualified registered civil or traffic engineer.

148. Prior to the final approval of the street improvement plans, a median modification plan shall be prepared by a registered civil engineer for the existing landscaped median on Alessandro Boulevard to allow westbound left-turn movement at the existing signalized intersection of Alessandro Boulevard/Alessandro Plaza (Rebecca Street)(minimum vehicle storage length is 200').

149. Prior to the final approval of the street improvement plans, a traffic signal modification plan shall be prepared for the existing traffic signal at Alessandro Boulevard/Alessandro Plaza (Rebecca Street) intersection. Traffic signal modification plan shall be prepared per the latest edition of the California Manual on Uniform Traffic Control Devices (CAMUTCD) and current City of Moreno Valley Standard Plans by a qualified registered civil engineer.

150. Prior to the final approval of the street improvement plans, a bus turnout shall be designed per the latest City of Moreno Valley Standard Plans for eastbound traffic and shall be located on the south side of Alessandro Boulevard, between the project driveway and Alessandro Boulevard/Alessandro Plaza (Rebecca Street)

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

intersection.

151. Prior to issuance of an encroachment permit for work within the public right-of-way, construction traffic control plans prepared by a qualified, registered Civil or Traffic engineer shall be required for plan approval by the City Traffic Engineer.

152. Prior to issuance of a Building Final or Certificate of Occupancy, all approved signing and striping shall be installed per current City Standards and the approved plans.

153. Prior to issuance of Certificate of Occupancy, median improvements on Alessandro Boulevard shall be completed and fully operational per the approved plans to the satisfaction of the City Engineer. Median construction shall include but not be limited to: paving, concrete curbs, median hardscape, median landscape, signing and striping.

154. Prior to issuance of Certificate of Occupancy, all modification work for the existing traffic signal at the intersection of Alessandro Boulevard/Alessandro Plaza (Rebecca Street) shall be completed and fully operational per the approved plans to the satisfaction of the City Engineer. Signal modifications may include, but not be limited to, signal pole replacement or relocation, new video detector installation, controller cabinet relocation, controller replacement, signing & striping, curb and gutter replacement, and ADA access ramp replacement.The applicant shall demonstrate that additional right-of-way/easement from the adjacent property owner at the south west corner of the intersection has been obtained.

155. Prior to issuance of Certificate of Occupancy, a bus turnout shall be installed for eastbound traffic and shall be located on the south side of Alessandro Boulevard, between the project driveway and Alessandro Boulevard/Alessandro Plaza (Rebecca Street) intersection.

156. Prior to acceptance of streets into the City-maintained road system, all approved signing and striping shall be installed per current City Standards and the approved plans.

PARKS & COMMUNITY SERVICES DEPARTMENT

157. The Juan Bautista multi-use trail shall be constructed on the south side of Alessandro Blvd. The trail shall be concrete, 10' wide, per City Standard Plan MVSI-110-0. The trail shall meander, creating a landscape buffer at curb of up to 6'. The trail shall be dedicated a combination of right-of-way and easement to the Moreno Valley Community Services District.

158. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks and Community Services). All

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

assessable parcels therein shall be subject to the annual Zone 'A' charge for operations and capital improvements. Proof of such shall be supplied to Parks and Community Services upon Final Map and at Building Permits.

Standard Conditions

159. Detailed final plans (mylars, PDF, and AutoCAD file on a DVD-R) for parks, trails/bikeways, fencing, and adjoining landscaped areas shall be submitted to and approved by the Director of Parks and Community Services, or his/her designee, prior to the issuance of any building permits. All plans are to include a profile showing grade changes.

160. Within the improvements for PCS, the applicant shall show all existing and planned easements on all maps and plans. Easements on City/CSD owned or maintained parks, trails, bikeways, and landscape shall be identified on each of these plans with the instrument number of the recorded easement.

161. Prior to recordation of the Final Map, the applicant shall post security to guarantee construction or modification of parks, trails and/or bikeways for the City/CSD. Copies of said documentation shall be provided to PCS, prior to the approval of the Final Map.

162. Applicable plan check and inspection fees shall be paid, per the approved City fee schedule.

163. A restriction shall be placed on lots that back up to City/CSD owned or maintained parks, trails, bikeways, and landscaped areas, preventing openings or gates accessing the City/CSD owned or maintained property. This shall be documented through Covenants, Conditions, and Restrictions (CC&R's). A copy of the CC&R's with this restriction noted shall be submitted and approved by the Director of Parks and Community Services or his/her designee, prior to the recordation of the Final Map.

164. The following plans require PCS written approval: Tentative tract/parcel maps; rough grading plans (including all Delta changes); Final Map; precise grading plans; street improvement plans; traffic signal plans; fence and wall plans; landscape plans for areas adjacent to bikeways; trail improvement plans. PCS will not approve any permits without review and approval of the above items.

Attachment: Exhibit A Conditions of Approval PEN18-0027 (3285 : PAMA Business Center)

RESOLUTION NO. 2018-53

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY APPROVING PEN18-0028, PLOT PLAN, FOR THE CONSTRUCTION OF SEVEN BUILDINGS COMPRISING 252,800 SQUARE FEET OF WAREHOUSE AND 28,000 SQUARE FEET OF OFFICE SPACE ON APPROXIMATELY 15.62 ACRES LOCATED SOUTH OF ALESSANDRO BOULEVARD, NORTH OF BRODIAEA AVENUE AND EAST OF REBECCA STREET (ASSESSOR PARCEL NUMBER (APN) 297-170-083)

WHEREAS, the applicant, MacDavid Aubert and Associates, Inc. filed Application No. PEN18-0028, requesting approval of a Plot Plan on the property as described in the title of this resolution; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, upon completion of a thorough development review process, the project was appropriately agendized and noticed in the Press Enterprise and posted on the site on October 12, 2018 for a public hearing before the Planning Commission on October 25, 2018; and

WHEREAS, on October 25, 2018, the Planning Commission of the City of Moreno Valley conducted a meeting to consider the applications; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), NOTICE IS HEREBY GIVEN that this project is subject to certain fees, dedications, reservations and other exactions as provided herein

NOW, THEREFORE, BE IT RESOLVED, by the Planning Commission of the City of Moreno Valley as follows:

A. This Planning Commission specifically finds that all of the facts set forth above in the Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during meeting on October 25, 2018, including written and oral staff reports, and the record from the public hearing, this Planning Commission hereby specifically finds as follows:

1. Conformance with General Plan Policies – The proposed use is consistent with the General Plan, and its goals, objectives, policies and programs.

Attachment: Resolution No 2018-53 (3285 : PAMA Business Center)

FACTS: The proposed Project is designated as Business Park (BP) in the General Plan which provides for manufacturing, research and development, warehousing and distribution, as well as office and support commercial activities. The intent of the General Plan, as expressed in Objective 2.5 of the Community Development Element is to promote a mix of industrial uses which provide a sound and diversified economic base and ample employment opportunities for the citizens of Moreno Valley with the establishment of industrial activities that have good access to the regional transportation system, accommodate the personal needs of workers and business visitors; and which meets the service needs of local businesses.

The Project site's proximity to Alessandro Boulevard, a major commercial and industrial corridor and Interstate Highway 215 (I-215), the primary regional route for north-south travel which links Moreno Valley to neighboring and outlying communities, provides the Project good access to the regional transportation system. The proposed use is consistent with the Business Park land use designation and the applicable goals, objectives, policies and programs of the General Plan.

2. Conformance with Zoning Regulations – The proposed use complies with all applicable zoning and other regulations.

FACTS: The project site is zoned Business Park (BP) which is intended for light industrial, research and development, office-based firms and limited supportive commercial in an attractive and pleasant working environment and a prestigious location. This zoning district is intended to provide a transition between residential and other sensitive uses and more intense industrial and warehousing uses. The development and operation of the proposed warehouse and distribution buildings is consistent with the Business Park zoning of the site.

The use at this location will be compatible with the developments immediately to the east, south and the southwest which are zoned Light Industrial (LI) and Business Park (BP). The area to the north, along Alessandro Boulevard is primarily developed with commercial shopping centers, and is zoned Neighborhood Commercial (NC).

As designed, the project will be compatible with all development standards of the Municipal Code.

3. Health, Safety and Welfare – The proposed use will not be detrimental to the public health, safety and welfare or materially injurious to properties or improvements in the vicinity.

FACTS: The Project, with a total of 280,800 square-foot warehouse facility including associated 28,000 square feet of office and mezzanine space, is located approximately one mile from the Kennedy Park Fire Station (Station No. 65), located at 15111 Indian Avenue, and two miles from Towngate Fire Station (Station No. 6), located at 22250 Eucalyptus Avenue, and less than a mile from the Moreno Valley Polic

Attachment: Resolution No 2018-53 (3285 : PAMA Business Center)

Riverside County Sheriff stations. This proximity to emergency and safety services furthers General Plan Goal 9.6.2 requiring emergency services that are adequate to meet minor emergency and major catastrophic situations.

The Project was reviewed by the Airport Land Use Commission. The project was evaluated for consistency with the March Air Reserve Base Land Use Compatibility Plan (ALUCP), and was deemed consistent with the ALUCP with specific conditions of approval that have been incorporated into the City's conditions of approval.

The Project, as designed and conditioned, will result in a development that will be consistent with General Plan Objectives 6.1 and 6.2 which aim to minimize the potential for loss of life and protect residents, workers and visitors to the City from physical injury and property damage due to seismic ground shaking and flooding.

The analysis presented in the Initial Study/Mitigated Negative Declaration prepared for the Project, pursuant to California Environmental Quality Act (CEQA), Public Resources Code 21000, indicates that the Project will not have a significant environmental impact as designed and mitigated.

4. Location, Design and Operation – The location, design and operation of the proposed project will be compatible with existing and planned land uses in the vicinity.

FACTS: The Project borders Alessandro Boulevard on the north, and Brodiaea Avenue on the south, with easy access to Cactus Avenue, Interstate 215 (I-215) and State Route 60 (SR-60). The surrounding land uses to the west, east and south are a combination of warehouse and distribution and business park uses, or vacant and undeveloped land zoned Business Park or Light Industrial. The northern boundary of the site abuts Alessandro Boulevard beyond which are existing shopping centers zoned Neighborhood Commercial (NC). The physical design and architecture of the proposed buildings is contemporary in style, and compatible with the surrounding existing developments. The scale of the proposed development and landscape treatments are consistent with the surrounding area.

C. FEES, DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

1. FEES

Impact, mitigation and other fees are due and payable under currently applicable ordinances and resolutions. These fees may include but are not limited to: Development Impact Fee; Transportation Uniform Mitigation Fee (TUMF); Multi-species Habitat Conservation Plan (MSHCP) Mitigation Fee; Stephens Kangaroo Rat Habitat Fee; Underground Utilities in lieu Fee; Area Drainage Plan Fee; Bridge and Thoroughfare Mitigation Fee (Future); and, Traffic Signal Mitigation Fee. The final amount of fees payable is dependent

Attachment: Resolution No 2018-53 (3285 : PAMA Business Center)

upon information provided by the applicant and will be determined at the time the fees become due and payable.

Unless otherwise provided for by this resolution, all impact fees shall be calculated and collected at the time and in the manner provided in Chapter 3.32 of the City of Moreno Valley Municipal Code or as so provided in the applicable ordinances and resolutions. The City expressly reserves the right to amend the fees and the fee calculations consistent with applicable law.

2. DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

The adopted Conditions of Approval for PAMA Business Park PEN18-0028, incorporated herein by reference, may include dedications, reservations, and exactions pursuant to Government Code Section 66020 (d) (1).

3. CITY RIGHT TO MODIFY/ADJUST; PROTEST LIMITATIONS

The City expressly reserve the right to establish, modify or adjust any fee, dedication, reservation or other exaction to the extent permitted and as authorized by law.

Pursuant to Government Code Section 66020(d) (1), NOTICE IS FURTHER GIVEN that the 90-day period to protest the imposition of any impact fee, dedication, reservation, or other exaction described in this resolution begins on the effective date of this resolution and any such protest must be in a manner that complies with Section 66020 (a) and failure to timely follow this procedure will bar any subsequent legal action to attack, review, set aside, void or annul imposition.

The right to protest the fees, dedications, reservation, or other exactions does not apply to planning, zoning, grading, or other similar application processing fees or service fees in connection with this project and it does not apply to any fees, dedication, reservation, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the Statute of Limitations has previously expired.

BE IT FURTHER RESOLVED that the Planning Commission **HEREBY APPROVES** Resolution No. 2018-53**:**

1. **APPROVE** PEN18-0028 Plot Plan, subject to conditions of approval attached as Exhibit A.

APPROVED this 25th day of October, 2018.

AYES:
NOES:
ABSTAIN:

Attachment: Resolution No 2018-53 (3285 : PAMA Business Center)

_____
Jeffrey Barnes
Chair, Planning Commission

ATTEST:

_____
Patricia Nevins, Planning Official
Secretary to the Planning Commission

APPROVED AS TO FORM:

_____
City Attorney

ATTACHMENTS:

Exhibit A: Conditions of Approval

Attachment: Resolution No 2018-53 (3285 : PAMA Business Center)

CITY OF MORENO VALLEY
CONDITIONS OF APPROVAL
Plot Plan (PEN18-0028)

EFFECTIVE DATE:
EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT

Planning Division

1. A change or modification to the land use or the approved site plans may require a separate approval. Prior to any change or modification, the property owner shall contact the City of Moreno Valley Community Development Department to determine if a separate approval is required.

2. Any expansion to this use or exterior alterations will require the submittal of a separate application(s) and shall be reviewed and approved under separate permit(s). (MC 9.02.080)

3. The developer, or the developer's successor-in-interest, shall be responsible for maintaining any undeveloped portion of the site in a manner that provides for the control of weeds, erosion and dust. (MC 9.02.030)

4. Unless specifically superseded herein, these conditions of approval do not replace or supersede the final conditions of approval for approved project PEN18-0027 Tentative Parcel Map 37478 or any related projects or plan checks.

5. The expiration date of this modification does not extend the expiration of any related project or activity.

6. The required parking for this use shall comply with the Parking Analysis on file and all applicable requirements of the City of Moreno Valley Municipal Code (MC 9.11.040).

7. The site shall be developed in accordance with the approved plans on file in the Community Development Department - Planning Division, the Municipal Code regulations, General Plan, and the conditions contained herein. Prior to any use of the project site or business activity being commenced thereon, all Conditions of Approval shall be completed to the satisfaction of the Planning Official. (MC 9.14.020)

8. Any signs indicated on the submitted plans are not included with this approval. Any signs, whether permanent (e.g. wall, monument) or temporary (e.g. banner, flag),

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

require separate application and approval by the Planning Division. No signs are permitted in the public right of way. (MC 9.12)

9. All site plans, grading plans, landscape and irrigation plans, fence/wall plans, lighting plans and street improvement plans shall be coordinated for consistency with this approval.

Special Conditions

10. Prior to the issuance of grading permits, final erosion control landscape and irrigation plans for all cut or fill slopes over 3 feet in height shall be submitted to and approved by the Planning Division. The plans shall be designed in accordance with the slope erosion plan as required by the City Engineer. Man-made slopes greater than 10 feet in height shall be "land formed" to conform to the natural terrain and shall be landscaped and stabilized to minimize visual scarring. (GP Objective 1.5, MC 9.08.080, DG)

11. All landscaped areas in perpetuity shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)

12. Prior to issuance of building permit issuance, landscape plans (trees, shrubs and groundcover) for basins maintained by an HOA or other private entity shall be submitted to and approved by the Planning Division for the sides and/or slopes. A hydroseed mix w/irrigation is acceptable for the bottom of all the basin areas. All detention basins shall include trees, shrubs and groundcover up to the concreted portion of the basin. A solid decorative (e.g. split face, color variation, pattern variation, or as approved by the Planning Official) wall with pilasters, tubular steel fence with pilasters or other fence or wall approved by the Planning Official is required to secure all water quality and detention basins more than 18 inches in depth.

13. Prior to the issuance of grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein.

14. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord.)

15. Prior to approval of any grading plan, local and master-planned multi-use trail easements shall be shown on the rough and precise grading plans in accordance with the City's Master Trail Plan.

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

16. The following Airport Land Use Commission Conditions of Approval apply to the project. Prior to the issuance of a grading permit, the applicant shall demonstrate to the City of Moreno Valley that the Airport Land Use Commission Conditions of Approval have been satisfied.

    ALUC-1 Any outdoor lighting installed shall be hooded or shielded to prevent either the spillage of lumens or reflection into the sky. Outdoor lighting shall be downward facing.

17. ALUC-2 The following uses shall be prohibited:

    A. Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at an airport, other than an FAA-approved navigational signal light or visual approach slope indicator.

    B. Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards a landing at an airport.

    C. Any use which would generate smoke or water vapor or which would attract large concentrations of birds, or which may otherwise affect safe air navigation within the area. (Such uses include landscaping utilizing water features, aquaculture, production of cereal grains, sunflower, and row crops, composting operations, trash transfer stations that are open on one or more sides, recycling centers containing putrescible wastes, construction and demolition debris facilities, fly ash disposal, and incinerators).

    D. Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

18. "ALUC-3 The following disclosure notice shall be provided to all potential purchasers of the property and to any lessees of the structure (s) thereon, and shall be recorded as a deed of notice:

    NOTICE OF AIRPORT IN VICINITY

    This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any are associated with the property before you complete your

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

purchase and determine whether they are acceptable to you. Business & Professions Code Section 1101 (b)(13)(A)."

19. ALUC-4 The proposed basins on the site (including water quality management basins) shall be designed so as to provide for a maximum 48-hour detention period following the conclusion of the storm event for the design storm (may be less, but not more), and to remain totally dry between rainfalls. Vegetation in and around the detention basins that would provide food or cover for bird species that would be incompatible with airport operations shall not be utilized in project landscaping.

20. MM CR-2 The paleontological monitor shall conduct full-time monitoring during grading and excavation operations in undisturbed, very old alluvial fan sediments at or below four (4) feet below ground surface and shall be equipped to salvage fossils if they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The paleontological monitor shall be empowered to temporarily halt or divert equipment to allow of removal of abundant and large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources.

21. MM CR-3 Recovered specimens shall be properly prepared to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage, such as the Western Science Museum in Hemet, California, is required for significant discoveries. The paleontologist must have a written repository agreement in hand prior to initiation of mitigation activities.

22. MM CR-4 A final monitoring and mitigation report of findings and significance shall be prepared, including lists of all fossils recovered, if any, and necessary maps and graphics to accurately record the original location of the specimens. The report shall be submitted to the City of Moreno Valley prior to building final.

23. MM TR-2 Prior to the issuance of a grading permit, the Project Applicant shall secure agreements with Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The developer is also required to provide a minimum of 30 days advance notice of all mass grading and trenching activities. The Project Applicant also shall provide the City of Moreno Valley with copies of any monitoring agreement(s) with the Consulting Native American Tribes. During mass grading and trenching activities, the Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource.

24. MM TR-3 If potential tribal cultural resources are uncovered during mass grading and/or excavation activities, the Project Archaeologist shall evaluate the suspected resource in consultation with the Native American Tribal Representatives and the City of Moreno Valley and shall: make a determination of significance pursuant to Public Resources Code Section 21083.2; and recommend measures to avoid, minimize or mitigate negative effects on the tribal cultural resource. Determinations and recommendations by the Project Archaeologist shall be immediately submitted to the City of Moreno Valley Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director and all Consulting Native American Tribes, as defined in Mitigation Measure TR-1, before any further work commences in the affected area.

25. MM TR-4 In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:
a) One or more of the following treatments, in order of preference, shall be employed based on consultation with the City of Moreno Valley and the Native American Tribe(s). Evidence of such shall be provided to the City of Moreno Valley Planning Department:
i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.
ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure TR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Native American Tribe(s) as defined in Mitigation Measure TR-1.
iii. Donation of the discovered items and associated records to a qualified repository within Riverside County that meets federal standards per 36 CFR Part 79.

26. MM TR-5 The City shall verify that the following note is included on the Grading Plan: "If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

Tribal Representatives to the site to assess the significance of the find."

27. MM TR-6 If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

28. Prior to any site disturbance and/or grading plan submittal, and or final map recordation, a mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant/owner. No City permit or approval shall be issued until such fee is paid. (CEQA)

29. The following Mitigation Measures apply to this project:

Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. Project grading and development scheduling;

b. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

grading activities that begin work on the Pr

Prior to Grading Permit

30. MM TR-1 Prior to the issuance of a grading permit, the Project Applicant shall provide evidence to the City of Moreno Valley that a professional archaeologist (hereafter "Project Archaeologist") has been retained to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Native American Tribes, the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) to address the details, timing and responsibility of all archaeological and cultural monitoring activities that will occur on the project site. A Consulting Native American Tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Public Resources Code Section 21080.3.2(b)(1), and includes the Pechanga and Soboba Tribes. Details in the Plan shall include:
a) Project grading and development scheduling;
b) The Project archeologist and the Consulting Native American Tribe(s) as defined in TR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Native American Tribe(s) shall make themselves available to provide the training on an as-needed basis;
c) The protocols and stipulations that the contractor, City, Consulting Native American Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

31. Prior to issuance of any grading permit, all Conditions of Approval, Mitigation Measures and Airport Land Use Commission Conditions of Approval shall be printed on the grading plans.

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

32. Prior to the issuance of grading permits, decorative (e.g. colored/scored concrete or as approve by the Planning Official) pedestrian pathways across circulation aisles/paths shall be provided throughout the development to connect dwellings with open spaces and/or recreational uses or commercial/industrial buildings with open space and/or parking. and/or the public right-of-way. The pathways shall be shown on the precise grading plan. (GP Objective 46.8, DG)

33. Prior to approval of any grading permits, plans for any security gate system shall be submitted to and approved by to the Planning Division.

34. Prior to approval of any grading plan, local and master-planned multi-use trail easements shall be shown on the rough and precise grading plans in accordance with the City's Master Trail Plan.

35. Prior to issuance of any grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein. A mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant within 30 days of project approval. No City permit or approval shall be issued until such fee is paid. (CEQA)

36. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)

37. Within thirty (30) days prior to any grading or other land disturbance, a pre-construction survey for Burrowing Owls shall be conducted pursuant to the established guidelines of Multiple Species Habitat Conservation Plan. The pre-construction survey shall be submitted to the Planning Division prior to any disturbance of the site and/or grading permit issuance.

38. Prior to approval of any grading permits, plans for any security gate system shall be submitted to and approved by to the Planning Division.

39. Prior to the issuance of grading permits, the site plan and grading plans shall show decorative hardscape (e.g. colored concrete, stamped concrete, pavers or as approved by the Planning Official) consistent and compatible with the design, color and materials of the proposed development for all driveway ingress/egress locations of the project.

40. Prior to issuance of grading permits, the developer shall submit wall/fence plans to the Planning Division for review and approval as follows:

    A. A maximum 6 foot high solid decorative block perimeter wall with pilasters and a cap shall be required adjacent to all residential zoned areas.

    B. 3-foot high decorative wall, solid hedge or berm shall be placed in any setback

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

areas between a public right of way and a parking lot for screening.

C. Any proposed retaining walls shall also be decorative in nature, while the combination of retaining and other walls on top shall not exceed the height requirement.

D. Proposed screening walls for truck loading areas and required loading docks shall also include decorative block walls with pilasters with a height up to fourteen (14) feet to fully screen trucks (industrial and some situations with commercial uses).

E. Walls and fences for visual screening are required when there are adjacent residential uses or residentially zone property. The height, placement and design will be based on a site specific review of the project. All walls are subject to the approval of the Planning Official. (DC 9.08.070)

41. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project. The sign shall include the following:

a. The name (if applicable) and address of the development.
b. The developer's name, address, and a 24-hour emergency telephone number.

42. Prior to issuance of grading permits, the location of the trash enclosure shall be included on the plans.

43. Prior to approval of any grading permits, water well(s) on the site shall be closed or maintained in accordance with requirements of the Riverside County Environmental Health Department with documentation provided to the Planning Division prior to the approval of any grading permits.

Building Division

44. The proposed non-residential project shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, Chapter 11B for accessibility standards for the disabled including access to the site, exits, bathrooms, work spaces, etc.

45. Prior to submittal, all new development, including residential second units, are required to obtain a valid property address prior to permit application. Addresses can be obtained by contacting the Building Safety Division at 951.413.3350.

46. Contact the Building Safety Division for permit application submittal requirements.

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

47. All new buildings 10,000 square feet and over, shall include building commissioning in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (OPR). All requirements in The 2016 California Green Building Standards Code, sections 5.410.2 - 5.410.2.6 must be met.

48. Any construction within the city shall only be completed between the hour of seven a.m. to seven p.m. Monday through Friday, excluding holidays and from eight a.m. to four p.m. on Saturday, unless written approval is obtained from the city building official or city engineer (Municipal Code Section 8.14.040.E).

49. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

50. The proposed development is subject to the payment of applicable processing fees as required by the City's current Fee Ordinance at the time a building permit application is submitted or prior to the issuance of permits as determined by the City.

51. The proposed project will be subject to approval by the Eastern Municipal Water District and all applicable fees and charges shall be paid prior to permit issuance. Contact the water district at 951.928.3777 for specific details.

52. All new structures shall be designed in conformance to the latest design standards adopted by the State of California in the California Building Code, (CBC) Part 2, Title 24, California Code of Regulations including requirements for allowable area, occupancy separations, fire suppression systems, accessibility, etc. The current code edition is the 2016 CBC.

53. The proposed non-residential project shall comply with 2016 California Green Building Standards Code, Section 5.106.5.3, mandatory requirements for Electric Vehicle Charging Station (EVCS).

54. The proposed project's occupancy shall be classified by the Building Official and must comply with exiting, occupancy separation(s) and minimum plumbing fixture requirements. Minimum plumbing fixtures shall be provided per the 2016 California Plumbing Code, Table 422.1. The occupant load and occupancy classification shall be determined in accordance with the California Building Code.

55. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC 8.80.030)

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

56. Prior to building final, all required landscaping and irrigation shall be installed per plan, certified by the Landscape Architect and inspected by the Planning Division. (MC 9.03.040, MC 9.17).

57. Prior to building final, Planning approved/stamped landscape plans shall be provided to the Community Development Department – Planning Division on a CD disk.

58. Prior to building final, all required and proposed fences and walls shall be constructed according to the approved plans on file in the Planning Division. (MC 9.080.070).

ECONOMIC DEVELOPMENT DEPARTMENT (EDD)

59. New Moreno Valley businesses may work with the Economic Development Department to coordinate job recruitment fairs.

60. New Moreno Valley businesses may adopt a "First Source" approach to employee recruitment that gives notice of job openings to Moreno Valley residents for one week in advance of the public recruitment.

61. New Moreno Valley businesses are encouraged to hire local residents.

62. New Moreno Valley businesses are encouraged to provide a job fair flyer and/or web announcement to the City in advance of job recruitments, so that the City can assist in publicizing these events.

63. New Moreno Valley businesses may utilize the workforce recruitment services provided by the Moreno Valley Employment Resource Center ("ERC").

    The ERC offers no cost assistance to businesses recruiting and training potential employees. Complimentary services include:

    • Job Announcements
    • Applicant testing / pre-screening
    • Interviewing
    • Job Fair support
    • Training space

FIRE DEPARTMENT

Fire Prevention Bureau

64. Prior to issuance of Certificate of Occupancy or Building Final, all commercial

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

buildings shall display street numbers in a prominent location on the street side and rear access locations. The numerals shall be a minimum of twelve inches in height. (CFC 505.1, MVMC 8.36.060[I])

65. Prior to issuance of Certificate of Occupancy, approval shall be required from the County of Riverside Community Health Agency (Department of Environmental Health) and Moreno Valley Fire Prevention Bureau to maintain, store, use, handle materials, or conduct processes which produce conditions hazardous to life or property, and to install equipment used in connection with such activities. (CFC 105)

66. Prior to issuance of Building Permits, the applicant/developer shall participate in the Fire Impact Mitigation Program. (Fee Resolution as adopted by City Council)

67. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall install a fire sprinkler system based on square footage and type of construction, occupancy or use. Fire sprinkler plans shall be submitted to the Fire Prevention Bureau for approval prior to installation. (CFC Chapter 9, MVMC 8.36.100[D])

68. All Fire Department access roads or driveways shall not exceed 12 percent grade. (CFC 503.2.7 and MVMC 8.36.060[G])

69. The Fire Department emergency vehicular access road shall be (all weather surface) capable of sustaining an imposed load of 80,000 lbs. GVW, based on street standards approved by the Public Works Director and the Fire Prevention Bureau. The approved fire access road shall be in place during the time of construction. Temporary fire access roads shall be approved by the Fire Prevention Bureau. (CFC 501.4, and MV City Standard Engineering Plan 108d)

70. The angle of approach and departure for any means of Fire Department access shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m), and the design limitations of the fire apparatus of the Fire Department shall be subject to approval by the AHJ. (CFC 503 and MVMC 8.36.060)

71. Prior to construction, all locations where structures are to be built shall have an approved Fire Department access based on street standards approved by the Public Works Director and the Fire Prevention Bureau. (CFC 501.4)

72. Prior to issuance of Building Permits, the applicant/developer shall provide the Fire Prevention Bureau with an approved site plan for Fire Lanes and signage. (CFC 501.3)

73. Prior to issuance of Certificate of Occupancy or Building Final, “Blue Reflective Markers” shall be installed to identify fire hydrant locations in accordance with City

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

specifications. (CFC 509.1 and MVLT 440A-0 through MVLT 440C-0)

74. Existing fire hydrants on public streets are allowed to be considered available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads. (CFC 507, 501.3) a - After the local water company signs the plans, the originals shall be presented to the Fire Prevention Bureau for signatures. The required water system, including fire hydrants, shall be installed, made serviceable, and be accepted by the Moreno Valley Fire Department prior to beginning construction. They shall be maintained accessible.

75. Final fire and life safety conditions will be addressed when the Fire Prevention Bureau reviews building plans. These conditions will be based on occupancy, use, California Building Code (CBC), California Fire Code (CFC), and related codes, which are in effect at the time of building plan submittal.

76. The Fire Code Official is authorized to enforce the fire safety during construction requirements of Chapter 33. (CFC Chapter 33 & CBC Chapter 33)

77. Fire lanes and fire apparatus access roads shall have an unobstructed width of not less than twenty–four (24) feet and an unobstructed vertical clearance of not less the thirteen (13) feet six (6) inches. (CFC 503.2.1 and MVMC 8.36.060[E])

78. Prior to issuance of the building permit for development, independent paved access to the nearest paved road, maintained by the City shall be designed and constructed by the developer within the public right of way in accordance with City Standards. (MVMC 8.36.060, CFC 501.4)

79. Prior to issuance of a Certificate of Occupancy or Building Final, a “Knox Box Rapid Entry System” shall be provided. The Knox-Box shall be installed in an accessible location approved by the Fire Code Official. All exterior security emergency access gates shall be electronically operated and be provided with Knox key switches for access by emergency personnel. (CFC 506.1)

80. The minimum number of fire hydrants required, as well as the location and spacing of fire hydrants, shall comply with the C.F.C., MVMC, and NFPA 24. Fire hydrants shall be located no closer than 40 feet to a building. A fire hydrant shall be located within 50 feet of the fire department connection for buildings protected with a fire sprinkler system. The size and number of outlets required for the approved fire hydrants are (6” x 4” x 2 ½” x 2 ½”) (CFC 507.5.1, 507.5.7, Appendix C, NFPA 24-7.2.3, MVMC 912.2.1)

81. Fire Department access driveways over 150 feet in length shall have a turn-around as determined by the Fire Prevention Bureau capable of accommodating fire

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

apparatus. (CFC 503 and MVMC 8.36.060, CFC 501.4)

82. During phased construction, dead end roadways and streets which have not been completed shall have a turn-around capable of accommodating fire apparatus. (CFC 503.1 and 503.2.5)

83. If construction is phased, each phase shall provide an approved emergency vehicular access way for fire protection prior to any building construction. (CFC 501.4)

84. Plans for private water mains supplying fire sprinkler systems and/or private fire hydrants shall be submitted to the Fire Prevention Bureau for approval. (CFC 105 and CFC 3312.1)

85. The Fire Prevention Bureau is required to set a minimum fire flow for the remodel or construction of all commercial buildings per CFC Appendix B and Table B105.1. The applicant/developer shall provide documentation to show there exists a water system capable of delivering said waterflow for 2 hour(s) duration at 20-PSI residual operating pressure. The required fire flow may be adjusted during the approval process to reflect changes in design, construction type, or automatic fire protection measures as approved by the Fire Prevention Bureau. Specific requirements for the project will be determined at time of submittal. (CFC 507.3, Appendix B)

86. Prior to construction, all traffic calming designs/devices must be approved by the Fire Marshal and City Engineer.

87. Prior to building construction, dead end roadways and streets which have not been completed shall have a turnaround capable of accommodating fire apparatus. (CFC 503.2.5)

88. Prior to issuance of Building Permits, the applicant/developer shall furnish one copy of the water system plans to the Fire Prevention Bureau for review. Plans shall: a. Be signed by a registered civil engineer or a certified fire protection engineer; b. Contain a Fire Prevention Bureau approval signature block; and c. Conform to hydrant type, location, spacing of new and existing hydrants and minimum fire flow required as determined by the Fire Prevention Bureau. The required water system, including fire hydrants, shall be installed, made serviceable, and be accepted by the Moreno Valley Fire Department prior to beginning construction. They shall be maintained accessible.

FINANCIAL & MANAGEMENT SERVICES DEPARTMENT

Moreno Valley Utility

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

89. This project requires the installation of electric distribution facilities. A non-exclusive easement shall be provided to Moreno Valley Utility and shall include the rights of ingress and egress for the purpose of operation, maintenance, facility repair, and meter reading.

90. This project requires the installation of electric distribution facilities. The developer shall submit a detailed engineering plan showing design, location and schematics for the utility system to be approved by the City Engineer. In accordance with Government Code Section 66462, the Developer shall execute an agreement with the City providing for the installation, construction, improvement and dedication of the utility system following recordation of final map and/or concurrent with trenching operations and other improvements so long as said agreement incorporates the approved engineering plan and provides financial security to guarantee completion and dedication of the utility system.

    The Developer shall coordinate and receive approval from the City Engineer to install, construct, improve, and dedicate to the City all utility infrastructure including but not limited to, conduit, equipment, vaults, ducts, wires, switches, conductors, transformers, and "bring-up" facilities including electrical capacity to serve the identified development and other adjoining, abutting, or benefiting projects as determined by Moreno Valley Utility – collectively referred to as "utility system", to and through the development, along with any appurtenant real property easements, as determined by the City Engineer necessary for the distribution and/or delivery of any and all "utility services" to and within the project. For purposes of this condition, "utility services" shall mean electric, cable television, telecommunication (including video, voice, and data) and other similar services designated by the City Engineer. "Utility services" shall not include sewer, water, and natural gas services, which are addressed by other conditions of approval.

    The City, or the City's designee, shall utilize dedicated utility facilities to ensure safe, reliable, sustainable and cost effective delivery of utility services and maintain the integrity of streets and other public infrastructure. Developer shall, at developer's sole expense, install or cause the installation of such interconnection facilities as may be necessary to connect the electrical distribution infrastructure within the project to the Moreno Valley Utility owned and controlled distribution system.

91. Existing Moreno Valley Utility electrical infrastructure shall be preserved in place. The developer will be responsible, at developer's expense, for any and all costs associated with the relocation of any of Moreno Valley Utility's underground electrical distribution facilities, as determined by Moreno Valley Utility, which may be in conflict with any developer planned construction on the project site.

PUBLIC WORKS DEPARTMENT

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

Land Development

92. Aggregate slurry, as defined in Section 203-5 of Standard Specifications for Public Works Construction, may be required just prior to the end of the one-year warranty period of the public streets at the discretion of the City Engineer. If slurry is required, a slurry mix design shall be submitted for review and approved by the City Engineer. The latex additive shall be Ultra Pave 70 (for anionic) or Ultra Pave 65 K (for cationic) or an approved equal per the geotechnical report. The latex shall be added at the emulsion plant after weighing the asphalt and before the addition of mixing water. The latex shall be added at a rate of two to two-and-one-half (2 to 2½) parts to one-hundred (100) parts of emulsion by volume. Any existing striping shall be removed prior to slurry application and replaced per City standards.

93. The developer shall comply with all applicable City ordinances and resolutions including the City's Municipal Code (MC) and if subdividing land, the Government Code (GC) of the State of California, specifically Sections 66410 through 66499.58, said sections also referred to as the Subdivision Map Act (SMA). [MC 9.14.010]

94. The final approved conditions of approval (COAs) and any applicable Mitigation Measures issued by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.

95. The developer shall monitor, supervise and control all construction related activities, so as to prevent these activities from causing a public nuisance, including but not limited to, insuring strict adherence to the following:
(a) Removal of dirt, debris, or other construction material deposited on any public street no later than the end of each working day.
(b) Observance of working hours as stipulated on permits issued by the Land Development Division.
(c) The construction site shall accommodate the parking of all motor vehicles used by persons working at or providing deliveries to the site.
(d) All dust control measures per South Coast Air Quality Management District (SCAQMD) requirements during the grading operations.
Violation of any condition, restriction or prohibition set forth in these conditions shall subject the owner, applicant, developer or contractor(s) to remedy as noted in City Municipal Code 8.14.090. In addition, the City Engineer or Building Official may suspend all construction related activities for violation of any condition, restriction or prohibition set forth in these conditions until such time as it has been determined that all operations and activities are in conformance with these conditions.

96. Drainage facilities (e.g., catch basins, water quality basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

97. If improvements associated with this project are not initiated within two (2) years of the date of approval of the Public Improvement Agreement (PIA), the City Engineer may require that the engineer's estimate for improvements associated with the project be modified to reflect current City construction costs in effect at the time of request for an extension of time for the PIA or issuance of a permit. [MC 9.14.210(B)(C)]

98. The developer shall protect downstream properties from damage caused by alteration of drainage patterns (i.e. concentration or diversion of flow, etc). Protection shall be provided by constructing adequate drainage facilities, including, but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]

99. The maintenance responsibility of the proposed storm drain line shall be clearly identified. Storm drain lines within private property will be privately maintained and those within public streets will be publicly maintained.

100. The proposed private storm drain system shall connect to the existing storm drain. A storm drain manhole shall be placed at the right-of-way line to mark the beginning of the publicly maintained portion of this storm drain.

101. This project shall submit civil engineering design plans, reports and/or documents (prepared by a registered/licensed civil engineer) for review and approval by the City Engineer per the current submittal requirements, prior to the indicated threshold or as required by the City Engineer. The submittal consists of, but is not limited to, the following:

a. Parcel Map (recordation prior to building permit issuance);
b. Rough grading w/ erosion control plan (prior to grading permit issuance);
c. Precise grading w/ erosion control plan (prior to grading permit issuance);
d. Public improvement plan (e.g., street/storm drain w/ striping, RCFC storm drain, sewer/water, etc.) (prior to encroachment permit issuance);
e. Final drainage study (prior to grading plan approval);
f. Final WQMP (prior to grading plan approval);
g. Legal documents (e.g., easement(s), dedication(s), lot line adjustment, vacation, etc.) (prior to building permit issuance);
h. As-Built revision for all plans (prior to Occupancy release);

<u>Prior to Grading Plan Approval</u>

102. Resolution of all drainage issues shall be as approved by the City Engineer.

103. A final detailed drainage study (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer. The study shall include, but not be limited to: existing and proposed hydrologic conditions as well as

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

hydraulic calculations for all drainage control devices and storm drain lines. The study shall analyze 1, 3, 6 and 24-hour duration events for the 2, 5, 10 and 100-year storm events [MC 9.14.110(A.1)]. A digital (pdf) copy of the approved drainage study shall be submitted to the Land Development Division.

104. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity.

105. A final project-specific Water Quality Management Plan (WQMP) shall be submitted for review and approved by the City Engineer, which:

a. Addresses Site Design Best Management Practices (BMPs) such as minimizing impervious areas, maximizing permeability, minimizes directly connected impervious areas to the City's street and storm drain systems, and conserves natural areas;

b. Incorporates Source Control BMPs and provides a detailed description of their implementation;

c. Describes the long-term operation and maintenance requirements for BMPs requiring maintenance; and

d. Describes the mechanism for funding the long-term operation and maintenance of the BMPs.

A copy of the final WQMP template can be obtained on the City's Website or by contacting the Land Development Division. A digital (pdf) copy of the approved final project-specific Water Quality Management Plan (WQMP) shall be submitted to the Land Development Division.

106. The developer shall ensure compliance with the City Grading ordinance, these Conditions of Approval and the following criteria:

a. The project street and lot grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage area and outlet points. Unless otherwise approved by the City Engineer, lot lines shall be located at the top of slopes.

b. Any grading that creates cut or fill slopes adjacent to the street shall provide erosion control, sight distance control, and slope easements as approved by the City Engineer.

c. All improvement plans are substantially complete and appropriate clearance letters are provided to the City.

d. A soils/geotechnical report (addressing the soil's stability and geological conditions of the site) shall be submitted to the Land Development Division for review. A digital (pdf) copy of the soils/geotechnical report shall be submitted to the Land Development Division.

107. Grading plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

108. The developer shall pay all remaining plan check fees.

109. Prior to precise grading plan approval, the grading plans shall clearly show that the parking lot conforms to City standards. The parking lot shall be 5% maximum, 1% minimum for AC, 0.50% minimum for PCC, 2% maximum at or near any disabled parking stall and travel way. Ramps, curb openings and travel paths shall all conform to current ADA standards as outlined in Department of Justice's "ADA Standards for Accessible Design", Excerpt from 28 CFR Part 36. (www.usdoj.gov) and as approved by the City's Building and Safety Division.

110. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared in conformance with the State's current Construction Activities Storm Water General Permit. A copy of the current SWPPP shall be kept at the project site and be available for review upon request.

111. Any proposed trash enclosure(s) shall be dual bin (1 for trash and 1 for recycables) [MC 9.03.040 (G)]. The enclosure shall have a solid roof and appropriate drainage collection for water quality purposes. The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.

112. For projects that will result in discharges of storm water associated with construction with a soil disturbance of one or more acres of land, the developer shall submit a Notice of Intent (NOI) and obtain a Waste Discharger's Identification number (WDID#) from the State Water Quality Control Board (SWQCB) which shall be noted on the grading plans.

113. The developer shall select Low Impact Development (LID) Best Management Practices (BMPs) designed per the latest version of the Water Quality Management Plan (WQMP) - a guidance document for the Santa Ana region of Riverside County.

Prior to Grading Permit

114. A receipt showing payment of the Area Drainage Plan (ADP) fee to Riverside County Flood Control and Water Conservation District shall be submitted. [MC 9.14.100(O)]

115. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.

116. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control measures. At least twenty-five (25) percent of the required security shall be in the

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

form of a cash deposit with the City. [MC 8.21.160(H)]

117. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]

118. The developer shall pay all applicable inspection fees.

119. Prior to the payment of the Transportation Uniform Mitigation Fee (TUMF), the developer may enter into a TUMF Improvement Credit Agreement to secure credit for the construction of applicable improvements. If the developer fails to complete this agreement by the timing specified above, credits may not be given. The developer shall pay current TUMF fees adopted by the City Council. [Ord. 835 § 2.1, 2012] [MC 3.44.060]

120. Prior to issuance of a grading permit, the applicant shall provide either non-interference letters or written permission from the California Department of Water Resources (DWR) and the Riverside County Flood Control District for proposed improvements within their easement, as applicable.

Prior to Map Approval

121. All proposed street names shall be submitted for review and approved by the City Engineer, if applicable. [MC 9.14.090(E.2.k)]

122. A copy of the Covenants, Conditions and Restrictions (CC&R's) shall be submitted for review and approved by the City Engineer. The CC&R's shall include, but not be limited to, access easements, reciprocal access, private and/or public utility easements as may be relevant to the project.

123. The developer shall enter into a Cooperative Agreement with the City and Riverside County Flood Control and Water Conservation District establishing the terms and conditions covering the inspection, operation and maintenance of Master Drainage Plan facilities required to be constructed as part of the project, if applicable.

124. After recordation, a digital (pdf) copy of the recorded map shall be submitted to the Land Development Division.

125. Maps (prepared by a registered civil engineer and/or licensed surveyor) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

126. The developer shall guarantee the completion of all related improvements required for this project by executing a Public Improvement Agreement (PIA) with the City

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

and posting the required security. [MC 9.14.220]

127. All public improvement plans required for this project shall be approved by the City Engineer in order to execute the Public Improvement Agreement (PIA).

128. The developer shall comply with the requirements of the City Engineer based on recommendations of the Riverside County Flood Control District regarding the construction of County Master Plan Facilities.

129. All street dedications shall be free of all encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer.

130. Resolution of all drainage issues shall be as approved by the City Engineer.

Prior to Improvement Plan Approval

131. The developer is required to bring any existing access ramps adjacent to and fronting the project to current ADA (Americans with Disabilities Act) requirements. However, when work is required in an intersection that involves or impacts existing access ramps, all access ramps in that intersection shall be retrofitted to comply with current ADA requirements, unless otherwise approved by the City Engineer.

132. The developer shall submit clearances from all applicable agencies, and pay all applicable plan check fees.

133. The street improvement plans shall comply with current City policies, plans and applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.

134. The design plan and profile shall be based upon a centerline, extending beyond the project boundaries a minimum distance of 300 feet at a grade and alignment approved by the City Engineer.

135. Drainage facilities (i.e. catch basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.

136. The hydrology study shall be designed to accept and properly convey all off-site drainage flowing onto or through the site. In the event that the City Engineer permits the use of streets for drainage purposes, the provisions of current City standards shall apply. Should the quantities exceed the street capacity or the use of streets be prohibited for drainage purposes, as in the case where one travel lane in each direction shall not be used for drainage conveyance for emergency vehicle access on streets classified as minor arterials and greater, the developer shall provide

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

adequate facilities as approved by the City Engineer. [MC 9.14.110 A.2]

137. All public improvement plans (prepared by a licensed/registered civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

138. Any missing or deficient existing improvements along the project frontage shall be constructed or secured for construction. The City Engineer may require the ultimate structural section for pavement to half-street width plus 18 feet or provide core test results confirming that existing pavement section is per current City Standards; additional signing & striping to accommodate increased traffic imposed by the development, etc.

139. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts for trench repairs may be allowed for emergency repairs or as specifically approved by the City Engineer.

140. All dry and wet utilities shall be shown on the plans and any crossings shall be potholed to determine actual location and elevation. Any conflicts shall be identified and addressed on the plans. The pothole survey data shall be submitted to Land Development with the public improvement plans for reference purposes only. The developer is responsible to coordinate with all affected utility companies and bear all costs of any utility relocation.

Prior to Encroachment Permit

141. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.

142. All applicable inspection fees shall be paid.

143. Any work performed within public right-of-way requires an encroachment permit.

Prior to Building Permit

144. An engineered-fill certification, rough grade certification and compaction report shall be submitted for review and approved by the City Engineer. A digital (pdf) copy of the approved compaction report shall be submitted to the Land Development Division. All pads shall meet pad elevations per approved grading plans as noted by the setting of "blue-top" markers installed by a registered land surveyor or licensed civil engineer.

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

145. For all subdivision projects, the map shall be recorded (excluding model homes). [MC 9.14.190]

146. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.

147. A walk through with a Land Development Inspector shall be scheduled to inspect existing improvements within public right of way along project frontage. Any missing, damaged or substandard improvements including handicap access ramps that do not meet current City standards shall be required to be installed, replaced and/or repaired. The applicant shall post security to cover the cost of the repairs and complete the repairs within the time allowed in the public improvement agreement used to secure the improvements.

148. Prior to building permit issuance, the applicant shall submit for review and approval legal documents for vacating 1' of right-of-way along the northerly side of Brodiaea Avenue along the project's southerly frontage.

Prior to Occupancy

149. All outstanding fees shall be paid.

150. All required as-built plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

151. The final/precise grade certification shall be submitted for review and approved by the City Engineer.

152. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project is subject to the following requirements:

a. Meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46 by participating in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process; or

b. Notify the Special Districts Division of the intent to request building permits 90

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy. [California Government Code & Municipal Code]

153. The developer shall complete all public improvements in conformance with current City standards, except as noted in the Special Conditions, including but not limited to the following:

a. Street improvements including, but not limited to: pavement, base, curb and/or gutter, cross gutters, spandrel, sidewalks, drive approaches, pedestrian ramps, street lights, signing, striping, under sidewalk drains, landscaping and irrigation, medians, pavement tapers/transitions and traffic control devices as appropriate.

b. Storm drain facilities including, but not limited to: storm drain pipe, storm drain laterals, open channels, catch basins and local depressions.

c. City-owned utilities.

d. Sewer and water systems including, but not limited to: sanitary sewer, potable water and recycled water.

e. Under grounding of all existing and proposed utilities adjacent to and on-site. [MC 9.14.130]

f. Relocation of overhead electrical utility lines including, but not limited to: electrical, cable and telephone.

154. Prior to occupancy, the following improvements shall be completed:

a. Brodiaea Avenue, Industrial Collector, City Standard MVSI-106A-0 (78-foot RW / 56-foot CC) shall be constructed to half-width plus 18' along the project's southerly frontage. Improvements shall consist of, but not be limited to pavement, base, street lights, driveway approaches, pedestrian ramps, curb & gutter, and sidewalk. In addition, replace or install any damaged, substandard or missing improvements.

b. Rebecca Street, Industrial Collector, City Standard MVSI-106A-0 (78-foot RW / 56-foot CC) shall be constructed to half-width plus 18' along the entire project's westerly frontage. Improvements shall consist of, but not be limited to, pavement, base, street lights, driveway approaches, pedestrian ramps, curb & gutter, sidewalk. In addition, replace or install any damaged, substandard or missing improvements. The minimum longitudinal street grade shall be 0.65% or as approved by the City Engineer. Additional right-of-way on the westerly side of the street centerline shall also be required.

c. Alessandro Boulevard, Divided Major Arterial, City Standard MVSI-101A-0 (134-foot RW / 110-foot CC) shall be constructed to half-width plus 23' with a median along the entire project's northerly frontage. Improvements shall consist of, but not be limited to, pavement, base, street lights, driveway approaches,

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

pedestrian ramps, curb & gutter, sidewalk. In addition, replace or install any damaged, substandard or missing improvements.

155. For commercial, industrial and multi-family projects, a "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant" shall be recorded to provide public notice of the maintenance requirements to be implemented per the approved final project-specific WQMP. A boilerplate copy of the "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant" can be obtained by contacting the Land Development Division.

156. The applicant shall ensure the following, pursuant to Section XII. I. of the 2010 NPDES Permit:

a. Field verification that structural Site Design, Source Control and Treatment Control BMPs are designed, constructed and functional in accordance with the approved Final Water Quality Management Plan (WQMP).

b. Certification of best management practices (BMPs) from a state licensed civil engineer. An original WQMP BMP Certification shall be submitted for review and approved by the City Engineer.

157. The Developer shall comply with the following water quality related items:

a. Notify the Land Development Division prior to construction and installation of all structural BMPs so that an inspection can be performed.

b. Demonstrate that all structural BMPs described in the approved final project-specific WQMP have been constructed and installed in conformance with the approved plans and specifications;

c. Demonstrate that Developer is prepared to implement all non-structural BMPs described in the approved final project-specific WQMP; and

d. Demonstrate that an adequate number of copies of the approved final project-specific WQMP are available for future owners/occupants.

e. Clean and repair the water quality BMP's, including re-grading to approved civil drawing if necessary.

f. Obtain approval and complete installation of the irrigation and landscaping.

158. Prior to Occupancy, all overhead utilities fronting the entire project boundary shall be undergrounded as required per City Municipal Code.

Special Districts Division

159. The existing parkway/median along the frontage of the project shall be brought to current City Standards. Improvements may include but are not limited to: plant material, irrigation, and hardscape.

160. Prior to the issuance of the first building permit for this project, the Developer shall pay Advanced Energy fees for all applicable Residential and Arterial Street Lights

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

required for this development. Payment shall be made to the City of Moreno Valley and collected by the Land Development Division. Fees are based upon the Advanced Energy fee rate in place at the time of payment, as set forth in the current Listing of City Fees, Charges, and Rates adopted by City Council. The Developer shall provide a copy of the receipt to the Special Districts Division (specialdistricts@moval.org). Any change in the project which may increase the number of street lights to be installed will require payment of additional Advanced Energy fees at the then current fee. Questions may be directed to the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.

161. This project is conditioned for a proposed district to provide a funding source for the operation and maintenance of public improvements and/or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options outlined below.

a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

b. Establish an endowment fund to cover the future maintenance and/or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the district has been or is in the process of being formed the Developer must inform the Special Districts Division of its selected financing option (a. or b. above). The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

162. This project is conditioned to provide a funding source for the following special financing program(s):

a. Street Lighting Services for capital improvements, energy charges, and maintenance.

b. Landscape Maintenance Services for parkway, open space, and/or median landscaping on Alessandro Blvd.

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

The Developer's responsibility is to provide a funding source for the capital improvements and the continued maintenance. The Developer shall satisfy this condition with one of the options below.

i. Participate in a special election (mail ballot proceeding) and pay all associated costs of the special election and formation, if any. Financing may be structured through a Community Services District zone, Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

ii. Establish a Property Owner's Association (POA) or Home Owner's Association (HOA) which will be responsible for any and all operation and maintenance costs

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting the application for building permit issuance. The option for participating in a special election requires approximately 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project and prior to acceptance of any improvements.

163. This project is located within the boundary of Community Facilities District No. 4–Maintenance (CFD No. 4-M) and is subject to hydrology study determination based upon the final tentative parcel map. The project is conditioned to provide a funding source which will be used for maintenance of stormwater and detention basin improvements. The Developer shall satisfy the condition with one of the financing options outlined below.

a. In compliance with Proposition 218, the property owner shall agree to approve the special election for annexation into CFD No. 4-M and pay all associated costs with the special election process and formation costs, if any; or

b. Establish an endowment fund which shall be used to cover future maintenance costs for storm water and detention basin improvements benefiting this project.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financing option when submitting the application for building permit issuance. The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

The financial option selected shall be in place prior to the first issuance of certificate of occupancy for this project.

164. Commercial (BP) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the continuous operation, remediation and/or replacement, monitoring, systems evaluations and enhancement of on-site facilities and performing annual inspections of the affected areas to ensure compliance with state mandated stormwater regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program when submitting the application for the first building permit issuance (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to the City's issuance of a building permit. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution. (California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)

165. This project has been identified to be included in the formation of a Community Facilities District (Mello-Roos) for Public Safety services, including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance to determine the requirement for participation. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the condition applies, the special election will require a minimum of 90 days prior to issuance of the first building permit. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)

166. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.

167. Any damage to existing landscape areas maintained by the City of Moreno Valley due to project construction shall be repaired/replaced by the Developer, or Developer's successors in interest, at no cost to the City of Moreno Valley.

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

168. Street Light Authorization forms for all street lights that are conditioned to be installed as part of this project must be submitted to the Special Districts Division for approval, prior to street light installation. The Street Light Authorization form can be obtained from the utility company providing electric service to the project, either Moreno Valley Utility or Southern California Edison. For questions, contact the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.

169. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services) and Zone C (Arterial Street Lighting). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C for operations and capital improvements.

170. Inspection fees for the monitoring of landscape installation associated with the City of Moreno Valley maintained parkways/medians are due prior to the required pre-construction meeting. (MC 3.32.040)

171. Modification of existing irrigation systems for parkway improvements may be required per the direction of, approval by and coordination with the Special Districts Division. Please contact Special District Division staff at 951.413.3480 or specialdistricts@moval.org to coordinate the modifications.

172. The removal of existing trees with four-inch or greater trunk diameters (calipers), shall be replaced, at a three to one ratio, with minimum twenty-four (24) inch box size trees of the same species, or a minimum thirty-six (36) inch box for a one to one replacement, where approved. (MC 9.17.030)

Transportation Engineering Division

173. Conditions of approval may be modified or added if a phasing plan is submitted for this development.

174. All proposed on-site traffic signing and striping should be accordance with the latest California Manual on Uniform Traffic Control Devices (CAMUTCD).

175. Alessandro Boulevard is designated as a 6-Lane Divided Arterial (134'RW/110'CC) per City Standard Plan No. MVSI-101A-0. Street improvements on Alessandro Boulevard shall include a Class-I multi-use trail (Juan Bautista De Anza) along the project frontage. Any other improvements undertaken by this project shall be consistent with the City's standards for this facility or as approved by the City Engineer.

176. Brodiaea Avenue is designated as an industrial collector (78'RW/56'CC) at the project location per City Standard Plan No. MVSI-106A-0. Any improvements

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

undertaken by this project shall be consistent with the City's standards for this facility.

177. Rebecca Street is designated as an industrial collector (78'RW/56'CC) per City Standard Plan No. MVSI-106A-0. Any improvements undertaken by this project shall be consistent with the City's standards for this facility.

178. Communication conduit along the Alessandro Boulevard project frontage may be required per City Standard Plan No. MVSI-186-0.

179. The driveways shall conform to City of Moreno Valley Standard No. MVSI-112C-0 for Commercial Driveway Approaches. Access at the driveways shall be allowed as follows:

- Alessandro Boulevard driveways: right-turn in/out only. The raised concrete median on Alessandro Boulevard shall restrict left-turns in/out.
- Rebecca Street driveways: full access.
- Brodiaea Avenue driveway: full access.

180. Any gated driveway shall be provided with the following:

a) A 75' storage lane in front of the gate for entering vehicles.
b) A separate pedestrian entry.

181. Prior to final approval of the landscape plans and construction plans for any type of fencing or monument sign, the project plans shall demonstrate that sight distance at the project driveway conforms to City Standard Plan No. MVSI-164A-0 through MVSI-164C-0. Trees, plants, shrubs, fencing, and monument sign shall not be located in an area that obstructs the drivers' line-of-sight.

182. Prior to the final approval of the street improvement plans, a signing and striping plan shall be prepared per City of Moreno Valley Standard Plans - Section 4 for all streets along the project frontages. Signing and striping plans shall be prepared per the latest edition of the California Manual on Uniform Traffic Control Devices (CAMUTCD) and current City of Moreno Valley Standard Plans by a qualified registered civil or traffic engineer.

183. Prior to the final approval of the street improvement plans, a median modification plan shall be prepared by a registered civil engineer for the existing landscaped median on Alessandro Boulevard to allow westbound left-turn movement at the existing signalized intersection of Alessandro Boulevard/Alessandro Plaza (Rebecca Street)(minimum vehicle storage length is 200').

184. Prior to the final approval of the street improvement plans, a traffic signal modification plan shall be prepared for the existing traffic signal at Alessandro

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

Boulevard/Alessandro Plaza (Rebecca Street) intersection. Traffic signal modification plan shall be prepared per the latest edition of the California Manual on Uniform Traffic Control Devices (CAMUTCD) and current City of Moreno Valley Standard Plans by a qualified registered civil engineer.

185. Prior to the final approval of the street improvement plans, a bus turnout shall be designed per the latest City of Moreno Valley Standard Plans for eastbound traffic and shall be located on the south side of Alessandro Boulevard, between the project driveway and Alessandro Boulevard/Alessandro Plaza (Rebecca Street) intersection.

186. Prior to issuance of an encroachment permit for work within the public right-of-way, construction traffic control plans prepared by a qualified, registered Civil or Traffic engineer shall be required for plan approval by the City Traffic Engineer.

187. Prior to issuance of Certificate of Occupancy, all signing and striping shall be installed per current City Standards and the approved plans.

188. Prior to issuance of Certificate of Occupancy, median improvements on Alessandro Boulevard shall be completed and fully operational per the approved plans to the satisfaction of the City Engineer. Median construction shall include but not be limited to: paving, concrete curbs, median hardscape, median landscape, signing and striping.

189. Prior to issuance of Certificate of Occupancy, all modification work for the existing traffic signal at the intersection of Alessandro Boulevard/Alessandro Plaza (Rebecca Street) shall be completed and fully operational per the approved plans to the satisfaction of the City Engineer. Signal modifications may include, but not be limited to, signal pole replacement or relocation, new video detector installation, controller cabinet relocation, controller replacement, signing & striping, curb and gutter replacement, and ADA access ramp replacement.The applicant shall demonstrate that additional right-of-way/easement from the adjacent property owner at the south west corner of the intersection has been obtained.

190. Prior to issuance of Certificate of Occupancy, a bus turnout shall be installed for eastbound traffic and shall be located on the south side of Alessandro Boulevard, between the project driveway and Alessandro Boulevard/Alessandro Plaza (Rebecca Street) intersection.

191. Prior to acceptance of streets into the City-maintained road system, all approved signing and striping shall be installed per current City Standards and the approved plans.

Attachment: Exhibit A Conditions of Approval PEN18-0028 (3285 : PAMA Business Center)

Yorke
ENGINEERING, LLC
www.YorkeEngr.com

May 8, 2018

Mr. Ryan Liu
Chief Financial Officer
PAMA Management Inc.
4900 Santa Anita Avenue, Suite 2C
El Monte, CA 91731
Work: (626) 575-3070 x231
Fax: (626) 246-1011
E-mail: Ryan@PAMAMgt.com

Subject: Air Quality, Greenhouse Gas, and Construction Noise Analysis Report for Alessandro Industrial Center / PAMA Business Park in Moreno Valley, California

Dear Mr. Liu:

Yorke Engineering, LLC (Yorke) is pleased to provide this letter Air Quality (AQ) and Greenhouse Gas (GHG) Report, and Noise Analysis. This AQ/GHG Report includes CalEEMod emissions estimates, criteria pollutant analysis, and GHG analysis for the proposed business park and industrial/warehouse facility located at between Alessandro and Rebecca Streets in Moreno Valley, California. The Noise Analysis includes background on noise analyses in general, applicable regulations / policies for this location, as well as background and construction noise level assessment for the proposed facility. These evaluations will support a Categorical Exemption or a Mitigated Negative Declaration (MND) from the City under the California Environmental Quality Act (CEQA). It will also show noise levels that are below local thresholds during the construction and ongoing operation phase.

The project site is located within the South Coast Air Basin (SCAB) and the jurisdiction of the South Coast Air Quality Management District (SCAQMD, or District). The project site comprises a flat vacant 15.29-acre parcel where approximately 252,000 square feet of warehouse, 32,000 square feet of office space, 246,000 square feet of parking or loading area, 33,000 square feet of stormwater detention basin, and 103,000 square feet of landscaping will be developed. The total estimated area for this development is approximately 666,000 square feet that includes approximately 284,000 square feet of new building space. No demolition is required.

Proposed stockpiling of earthen materials on the project site prior to construction activities would not change the significance findings since peak daily NO_X and PM_{10} emissions are associated with the site preparation and grading phases that use heavy-duty off-road equipment (e.g., bulldozers, scrapers, and excavators). Stockpiling emissions, mainly from on-road haul and dump trucks, would not exceed the peak construction emissions.

ASSUMPTIONS

The following basic assumptions were used in developing the emission estimates for the proposed project using the California Emissions Estimator Model® (CalEEMod):

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

- Some project design features including size of some building features were defined by the Applicant or Architectural Drawings.
- Default construction equipment horsepower ratings and load factors contained in CalEEMod were applied to all phases of the project.
- Construction site watering for fugitive dust control was set to three times daily. Street sweeping around the construction site was assumed to control track-out dust. These measures substantially reduce fugitive dust impacts.
- Per the CalEEMod User's Guide, some on-road water trucks used during construction were counted in the on-road vendor trip survey that was conducted for all the phases of construction (e.g., site preparation, grading, building construction, etc.) during program development.
- Consumer product usage as applicable to land use.
- Energy efficiency and water conservation measures as generally required by codes.
- Building coatings (e.g. primer, paint, window coatings etc.) will be applied in phases over no less than 40 days and contain no more than 100 g/L Volatile Organic Chemicals (VOCs).
- The Default equipment from CalEEMod for each construction phase, is representative of actual construction equipment used during construction.
- For the construction noise analysis, U.S. Department of Transportation (DOT) equipment categories were correlated with CalEEMod equipment categories as applicable.

LIST OF TABLES

The project analyses and results are summarized in the following tables:

- Table 1: Land Use Data for CalEEMod Input – Alessandro Industrial Center
- Table 2: SCAQMD CEQA Thresholds of Significance
- Table 3: Construction Emissions Summary and Significance Evaluation
- Table 4: Operational Emissions Summary and Significance Evaluation
- Table 5: Construction Localized Significance Threshold Evaluation
- Table 6: Operational Localized Significance Threshold Evaluation
- Table 7: Greenhouse Gas Emissions Summary and Significance Evaluation
- Table 8: Typical Sound Level Characteristics
- Table 9: FHWA Noise Reference Levels and Usage Factors
- Table 10: Estimated Peak Activity Daytime Noise Impacts - Residential

AIR QUALITY AND GREENHOUSE GAS IMPACTS ANALYSES

The Air Quality Section of Appendix G of the California Environmental Quality Act (CEQA) Guidelines (Environmental Checklist Form) contains air quality and GHG significance criteria. Where applicable, quantitative significance criteria established by the local air quality

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

management district (AQMD) or air pollution control district (APCD) may be relied upon to make significance determinations based on mass emissions of criteria pollutants and GHGs, as determined in this report.

Project Emissions Estimation

The construction and operation analysis was performed using CalEEMod® (California Emissions Estimation Model, version 2016.3.2), the official statewide land use computer model designed to provide a uniform platform for estimating potential criteria pollutant and GHG emissions associated with both construction and operations of land use projects under CEQA. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The mobile source emission factors used in the model – published by the California Air Resources Board (CARB) – include the Pavley standards and Low Carbon Fuel standards. The model also identifies project design features, regulatory measures, and mitigation measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from the selected measures. CalEEMod was developed by the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the SCAQMD, the Bay Area Air Quality Management District (BAAQMD), the San Joaquin Valley Air Pollution Control District (SJVAPCD), and other California air districts. Default land use data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) were provided by the various California air districts to account for local requirements and conditions. As the official assessment methodology for land use projects in California, CalEEMod is relied upon herein for construction and operational emissions quantification, which forms the basis for the impact analysis.

Based on information received from the Applicant, land use data used for CalEEMod input is presented in Table 1. The SCAQMD quantitative significance thresholds shown in Table 2 were used to evaluate project emissions impacts (SCAQMD 2015).

Table 1: Land Use Data for CalEEMod Input - Alessandro Industrial Center

Project Element	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage (footprint)	Square Feet (est.)
Offices	Commercial	Office Park	32.00	1,000 sq ft	0.73	32,000
Warehouses	Industrial	Unrefrigerated Warehouse - No Rail	252	1,000 sq ft	5.79	252,000
Parking	Parking	Parking Lot	136	1,000 sq ft	3.12	135,880
Landscaping and Detention Pond	Parking	Other Non-Asphalt Surfaces	246.06	1,000 sq ft	5.65	246,060
Project Site					**15.29**	**665,940**

Source: Applicant 2018, CalEEMod version 2016.3.2
Notes: Gas and Electric – Southern California Edison; Climate Zone – 10, SRA – Perris Valley (24); all square footages approximate.

Table 2: SCAQMD CEQA Thresholds of Significance

Pollutant	Project Construction	Project Operation
	lbs/day	lbs/day
ROG (VOC)	75	55
NO_X	100	55
CO	550	550
SO_X	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
24-hour $PM_{2.5}$ Increment	10.4 µg/m^3	2.5 µg/m^3
24-hour PM_{10} Increment	10.4 µg/m^3	2.5 µg/m^3
Annual PM_{10} Increment	1.0 µg/m^3 annual average	
1-hour NO_2 Increment	0.18 ppm (state)	
Annual NO_2 Increment	0.03 ppm (state) & 0.0534 ppm (federal)	
1-hour SO_2 Increment	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile)	
24-hour SO_2 Increment	0.04 ppm (state)	
24-hour Sulfate Increment	25 ug/m^3 (state)	
1-hour CO Increment	20 ppm (state) & 35 ppm (federal)	
8-hour CO Increment	9.0 ppm (state/federal)	
Toxic Air Contaminants (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥10 in 1 million	
	Cancer Burden >0.5 excess cancer cases (in areas ≥1 in 1 million)	
	Chronic & Acute Hazard Index ≥1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to Rule 402	
Greenhouse Gases	10,000 MT/yr CO_2e for industrial facilities	
	3,000 MT/yr CO_2e for land use projects (draft proposal)	

Source: SCAQMD 2015

Criteria Pollutants from Project Construction

A project's construction phase produces many types of emissions, but PM_{10} (including $PM_{2.5}$) in fugitive dust and diesel engine exhaust are the pollutants of greatest concern. Fugitive dust emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle exhaust. Construction-related emissions can cause substantial increases in localized concentrations of PM_{10}, as well as affecting PM_{10} compliance with ambient air quality standards on a regional basis. Particulate emissions from construction activities can lead to adverse health effects as well as nuisance

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

concerns such as reduced visibility and soiling of exposed surfaces. The use of diesel-powered construction equipment emits ozone precursors oxides of nitrogen (NO_x) and reactive organic gases (ROG), and diesel particulate matter (DPM), the latter being a composite of toxic air contaminants (TACs) containing a variety of hazardous substances. Large construction projects using multiple large earthmoving equipment are evaluated to determine if operations may exceed the District's daily threshold for NO_x emissions and could temporarily expose area residents to hazardous levels of DPM. Use of architectural coatings and other materials associated with finishing buildings may also emit ROG and TACs. CEQA significance thresholds address the impacts of construction activity emissions on local and regional air quality. Thresholds are also provided for other potential impacts related to project construction, such as odors and TACs.

The SCAQMD's approach to CEQA analyses of fugitive dust impacts is to require implementation of effective and comprehensive dust control measures rather than to require detailed quantification of emissions. PM_{10} emitted during construction can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors, making quantification difficult. Despite this variability in emissions, experience has shown that there are several feasible control measures that can be reasonably implemented to significantly reduce fugitive dust emissions from construction. For larger projects, the SCAQMD has determined that compliance with an approved fugitive dust control plan comprising Best Management Practices (BMPs), primarily through frequent water application, constitutes sufficient mitigation to reduce PM_{10} impacts to a level considered less than significant.

Criteria Pollutants from Project Operation

The term "project operations" refers to the full range of activities that can or may generate criteria pollutant, GHG, and TAC emissions when the project is functioning in its intended use. For projects, such as office parks, shopping centers, apartment buildings, residential subdivisions, and other indirect sources, motor vehicles traveling to and from the project represents the primary source of air pollutant emissions. For industrial projects and some commercial projects, equipment operation and manufacturing processes, i.e., permitted stationary sources, can be of greatest concern from an emissions standpoint. CEQA significance thresholds address the impacts of operational emission sources on local and regional air quality. Thresholds are also provided for other potential impacts related to project operations, such as odors.

Results of Criteria Emissions Analyses

Table 3 shows unmitigated and mitigated criteria construction emissions and evaluates mitigated emissions against SCAQMD significance thresholds.

Table 4 shows unmitigated and mitigated criteria operational emissions and evaluates mitigated emissions against SCAQMD significance thresholds.

As shown in Tables 3 and 4, mass emissions of criteria pollutants from construction and operation are below applicable SCAQMD significance thresholds, i.e., Less Than Significant (LTS).

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Table 3: Construction Emissions Summary and Significance Evaluation

Criteria Pollutants	Unmitigated	Mitigated	Threshold	Significance
	lbs/day	lbs/day	lbs/day	
ROG (VOC)	69.0	69.0	75	LTS
NO_X	59.6	59.6	100	LTS
CO	36.1	36.1	550	LTS
SO_X	0.1	0.1	150	LTS
Total PM_{10}	20.9	9.7	150	LTS
Total $PM_{2.5}$	12.4	6.3	55	LTS

Sources: SCAQMD 2015, CalEEMod version 2016.3.2

Notes:

lbs/day are winter or summer maxima for planned land use

Total PM_{10} / $PM_{2.5}$ comprises fugitive dust plus engine exhaust

LTS - Less Than Significant

LTSM - Less Than Significant with Mitigation Incorporated

PS - Potentially Significant

Table 4: Operational Emissions Summary and Significance Evaluation

Criteria Pollutants	Unmitigated	Mitigated	Threshold	Significance
	lbs/day	lbs/day	lbs/day	
ROG (VOC)	8.2	8.2	55	LTS
NO_X	9.1	9.1	55	LTS
CO	24.1	24.1	550	LTS
SO_X	0.1	0.1	150	LTS
Total PM_{10}	6.6	6.6	150	LTS
Total $PM_{2.5}$	1.8	1.8	55	LTS

Sources: SCAQMD 2015, CalEEMod version 2016.3.2

Notes:

lbs/day are winter or summer maxima for planned land use

Total PM_{10} / $PM_{2.5}$ comprises fugitive dust plus engine exhaust

LTS - Less Than Significant

LTSM - Less Than Significant with Mitigation Incorporated

PS - Potentially Significant

Localized Significance Threshold Analysis

The SCAQMD's Localized Significance Threshold (LST) methodology (2008) was used to analyze the neighborhood scale impacts of NO_X, CO, PM_{10}, and $PM_{2.5}$ associated with project-specific mass emissions. Introduced in 2003, the LST methodology was revised in 2008 to include the $PM_{2.5}$ significance threshold methodology and update the LST mass rate lookup tables for the new 1-hour NO_2 standard.

For determining localized air quality impacts from small projects in a defined geographic source-receptor area (SRA), the LST methodology provides mass emission rate lookup tables for 1-acre, 2-acre, and 5-acre parcels by SRA. The tabulated LSTs represent the maximum mass emissions from a project that will not cause or contribute to an exceedance of state or national ambient air quality standards (CAAQS or NAAQS) for the above pollutants and were developed based on ambient concentrations of these pollutants for each SRA in the South Coast Air Basin. (SCAQMD 2008a)

For most land use projects, the highest daily emission rates occur during the site preparation and grading phases of construction – due to the use of heavy earthmoving equipment. For this reason, a construction LST analysis was performed.

Since land use operational emissions – mainly from associated traffic – are dispersed over a wide area, localized impacts from project operation are substantially lower than during project construction. However, an Operational LST analysis was also performed. For the purposes of this analysis it is assumed that all traffic is "local" and affects the localized significance threshold. This is a very conservative method, and still gives less than significant results.

The proposed project site is 15.29 acres in Source-Receptor Area (SRA) Zone 24 – Perris Valley. The peak daily soil disturbance occurs during the site preparation phase and equates to a maximum soil disturbance of more than 5 acres on any given day. Thus, the 5-acre (the largest category) screening lookup tables were used to evaluate NO_x, CO, PM_{10}, and $PM_{2.5}$ impacts on nearby receptors. The closest sensitive receptor was located 325 meters away so in the LST tables of appendix c, 200 meters was used. (SCAQMD 2016)

Results of Localized Significance Threshold Analysis

The LST results provided in Tables 5 and 6 show that on-site emissions from construction and operations meet the LST passing criteria at the nearest receptors (325 meters). Thus, impacts would be less than significant.

Table 5: Construction Localized Significance Threshold Evaluation

Criteria Pollutants	Mitigated	Threshold	Percent of Threshold	Result
	lbs/day	lbs/day		
NO_X	59.6	488.0	12%	Pass
CO	36.1	6860.0	1%	Pass
PM_{10}	9.7	96.0	10%	Pass
$PM_{2.5}$	6.3	31.0	20%	Pass

Sources: SCAQMD 2015, CalEEMod version 2016.3.2

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Table 6: Operations Localized Significance Threshold Evaluation

Criteria Pollutants	Mitigated	Threshold	Percent of Threshold	Result
	lbs/day	lbs/day		
NO_X	9.1	488.0	2%	Pass
CO	24.1	6860.0	0%	Pass
PM_{10}	6.6	23.0	29%	Pass
$PM_{2.5}$	1.8	8.0	23%	Pass

Sources: SCAQMD 2015, CalEEMod version 2016.3.2

Greenhouse Gas Emissions from Construction and Operation

Greenhouse gases – primarily carbon dioxide (CO_2), methane (CH_4), and nitrous (N_2O) oxide, collectively reported as carbon dioxide equivalents (CO_2e) – are directly emitted from stationary source combustion of natural gas in equipment such as water heaters, boilers, process heaters, and furnaces. GHGs are also emitted from mobile sources such as on-road vehicles and off-road construction equipment burning fuels such as gasoline, diesel, biodiesel, propane, or natural gas (compressed or liquefied). Indirect GHG emissions result from electric power generated elsewhere (i.e., power plants) used to operate process equipment, lighting, and utilities at a facility. Also, included in GHG quantification is electric power used to pump the water supply (e.g., aqueducts, wells, pipelines) and disposal and decomposition of municipal waste in landfills. (CARB 2008)

California's Building Energy Efficiency Standards are updated on an approximately three-year cycle. The 2016 standards improved upon the 2013 standards for new construction of, and additions and alterations to, residential, commercial, and industrial buildings. The 2016 standards went into effect on January 1, 2017 (CEC 2017).

Since the Title 24 standards require energy conservation features in new construction (e.g., high-efficiency lighting, high-efficiency heating, ventilating, and air-conditioning (HVAC) systems, thermal insulation, double-glazed windows, water conserving plumbing fixtures, etc.), they indirectly regulate and reduce GHG emissions.

Using CalEEMod, direct onsite and offsite GHG emissions were estimated for construction and operation, and indirect offsite GHG emissions were estimated to account for electric power used by the proposed project, water conveyance, and solid waste disposal.

Results of Greenhouse Gas Emissions Analyses

The SCAQMD officially adopted an industrial facility mass emissions threshold of 10,000 metric tons (MT) CO_2e per year (SCAQMD 2015) and has proposed a residential/commercial mass emissions threshold of 3,000 metric tons (MT) CO_2e per year. (SCAQMD 2008b)

Table 6 shows unmitigated and mitigated GHG emissions and evaluates mitigated emissions against SCAQMD significance thresholds. Operational mitigation measures incorporate typical code-required energy and water conservation features. Off-site traffic impacts are included in these emissions estimates, along with construction emissions amortized over 30 years.

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

As shown in Table 7, mitigated GHG emissions are below the proposed GHG significance threshold for land use projects, i.e., Less Than Significant (LTS).

Table 7: Greenhouse Gas Emissions Summary and Significance Evaluation

Greenhouse Gases	Unmitigated	Mitigated	Threshold	Significance
	MT/yr	MT/yr	MT/yr	
CO_2	923.9	893.3	—	—
CH_4	2.0	1.9	—	—
N_2O	0.02	0.02	—	—
CO_2e	980	945	10,000	LTS

Sources: SCAQMD 2008, CalEEMod version 2016.3.2

Notes:

Comprises annual operational emissions plus construction emissions amortized over 30 years

LTS - Less Than Significant

LTSM - Less Than Significant with Mitigation Incorporated

PS - Potentially Significant

NOISE IMPACT ANALYSIS

Noise Analysis Methodology

The screening-level noise analysis for Project construction was based on methodology developed by the U.S. Department of Transportation Federal Highway Administration (DOT FHWA) at the John A. Volpe National Transportation Systems Center and other technical references consistent with CalEEMod™ outputs (equipment utilization). The DOT FHWA methodology uses actual noise measurement data collected during the Boston "Big Dig" project (1991-2006) as reference levels for a wide variety of construction equipment in common use, such as on the proposed Project. Noise impacts were evaluated against community noise standards contained in the City or County General Plan or other state or federal agency as applicable to the vicinity of the Project site. The noise study did not include field measurements of ambient noise in the vicinity of the Project site.

For this Project, the noise element of the City of Moreno Valley General Plan was determined to contain applicable evaluation criteria.

During construction activities, the Project would generate noise due to operation of off-road equipment, portable equipment, and vehicles at or near the Project site. Screening-level Project-generated noise is evaluated in relation to established thresholds of significance. Additionally, the same methods are used to determine noise impacts on the nearest sensitive receptor from a 20 percent road utilization (traffic) increase on Heacock Avenue. A 20 percent traffic increase is not expected (the Project traffic study report is not completed at the time of this writing) but is evaluated as a worst-case scenario for noise increases. Since no extensive excavation or

earthmoving will be required for the flat site, no strong sources of vibrations are planned to be used during construction activities.

There is an airport within 2 miles from the Project site (March Air Reserve Base). An evaluation of aircraft noise upon the area was completed by the City of Moreno Valley, and is included in the Environmental Impact Report (EIR) for its General Plan. The Project site and the nearest sensitive receptors are outside the range of significant noise impact of the airport, because of the parallel runway geometry (EIR of City of Moreno Valley General Plan, Figure 5.4-1).

Environmental Setting

Noise Descriptors

Noise is typically described as any unwanted or objectionable sound. Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity, the A-weighted decibel scale (dBA). Table 5-1 lists common sources of sound and their intensities in dBA.

In most situations, a 3-dBA change in sound pressure is considered a "just-detectable" difference. A 5-dBA change (either louder or quieter) is readily noticeable, and 10-dBA change is a doubling (if louder) or halving (if quieter) of the subjective loudness. Sound from a small localized source (a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (drops off) at a rate of 6 dBA for each doubling of the distance.

The duration of noise and the time period at which it occurs are important factors in determining the impact of noise on sensitive receptors. A single number called the equivalent continuous noise level (L_{eq}) may be used to describe sound that is changing in level. It is also used to describe the acoustic range of the noise source being measured, which is accomplished through the maximum L_{eq} (L_{max}) and minimum L_{eq} (L_{min}) indicators.

In determining the daily measure of community noise, it is important to account for the difference in human response to daytime and nighttime noise. Noise is more disturbing at night than during the day, and noise indices have been developed to account for the varying duration of noise events over time, as well as community response to them. The Community Noise Equivalent Level (CNEL) adds a 5-dB penalty to the "nighttime" hourly noise levels (HNLs) (i.e., 7:00 p.m. to 10:00 p.m.) and the Day-Night Average Level (L_{dn}) adds a 10-dB penalty to the evening HNLs (Caltrans 2013; FTA 2006).

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Table 8: Typical Sound Level Characteristics

Pressure N/m^2	Level dB	Sound Level Characteristic
2000	160	Rocket Launch
600	150	Military Jet Plane Takeoff
200	140	Threshold of Pain
60	130	Commercial Jet Plane Takeoff
20	120	Industrial Chipper or Punch Press
6	110	Loud Automobile Horn
2	100	Passing Diesel Truck
0.6	90	Factory - Heavy Manufacturing
0.2	80	Factory - Light Manufacturing
0.06	70	Open Floor Office - Cubicles
0.02	60	Conversational Speech
0.006	50	Private Office - Walled
0.002	40	Residence in Daytime
0.0006	30	Bedroom at Night
0.0002	20	Recording or Broadcasting Studio
0.00006	10	Threshold of Good Hearing - Adult
0.00002	0	Threshold of Excellent Hearing - Child

Sources: Broch 1971, Plog 1988

Notes:

Reference Level P_O = 0.00002 N/m^2 = 0.0002 µbar

N/m^2 = Newtons per square meter (the Newton is the unit of force derived in the metric system); it is equal to the amount of net force required to accelerate a mass of one kilogram at a rate of one meter per second per second (1 kg • 1 m/s^2).

Vibration Descriptors

Vibration is a unique form of noise because its energy is carried through structures and the earth, whereas noise is carried through the air. Thus, vibration is generally felt rather than heard. Typically, ground borne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases. Actual human and structural response to different vibration levels is influenced by a combination of factors, including soil type, distance between the source and receptor, duration, and the number of perceived events.

While not a direct health hazard, the energy transmitted through the ground as vibration may result in structural damage, which may be costly to repair and dangerous in the event of structural failure. To assess the potential for structural damage associated with vibration, the vibratory ground motion in the vicinity of the affected structure is measured in terms of point peak velocity/peak particle velocity (PPV) in the vertical and horizontal directions (vector sum). A freight train passing at 100 feet may cause PPVs of 0.1 inch per second, while a strong earthquake may produce

PPVs in the range of 10 inches per second. Minor cosmetic damage to buildings may begin in the range of 0.5 inch per second (Caltrans 2013; FTA 2006).

Existing Noise Environment

The Project site is located in the City of Moreno, Riverside County, in a characteristically suburban and densely populated area subject to noise from local traffic on public streets (Heacock Street and Alessandro Boulevard among others), aircraft flyovers, construction, and small power equipment (e.g., lawn mowers, edgers, etc.). The city of Moreno Valley estimates the ambient noise at the nearest sensitive receptor to the proposed project to be 60 dBA, this can be found in its general plan Figure 6-2.

Sensitive Receptors

Some land uses are generally regarded as being more sensitive to noise than others due to the types of population groups or activities involved. Sensitive population groups include children and the elderly. The City of Moreno Valley Noise Element also includes residential areas as noise-sensitive land uses. Other sensitive land uses generally include hospitals, schools, child care facilities, senior facilities, libraries, churches, and parks.

The nearest sensitive receptors to the Project site are residences across Heacock Street, approximately 325 meters east of the central construction zone. All construction activities would be short-term (i.e., temporary). All construction work is planned to be conducted during daylight hours; no nighttime work is planned to be performed. Upon completion of construction, temporary generation of noise would permanently cease. Additional traffic also has the potential to generate Project-related noise more long term. However, there are several factors that make any additional traffic less of an issue. All the streets surrounding the project are in or industrial or commercial areas except for Heacock Street. There is a wall between Heacock Street and the adjacent homes that provides some attenuation of noise from the street.

Regulatory Setting

California

The State of California does not promulgate statewide standards for environmental noise but requires each city and county to include a noise element in its general plan [California Government Code Section 65302(f)]. In addition, Title 4 of the CCR has guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. In general, the guidelines require that community noise standards:

- Protect residents from the harmful and annoying effects of exposure to excessive noise;
- Prevent incompatible land uses from encroaching upon existing or programmed land uses likely to create significant noise impacts; and
- Encourage the application of state-of-the-art land use planning methodologies in the area of managing and minimizing potential noise conflicts.

Construction vibration is regulated at the state level in accordance with standards established by the *Transportation and Construction-Induced Vibration Guidance Manual* issued by Caltrans in 2004. Continuous sources include the use of vibratory compaction equipment and other construction equipment that creates vibration other than in single events. Transient sources create

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

a single isolated vibration event, such as blasting. Thresholds for continuous sources are 0.5 and 0.1 inch per second PPV for structural damage and annoyance, respectively. Thresholds for transient sources are 1.0 and 0.9 PPV for structural damage and annoyance, respectively (Caltrans 2013).

City of Moreno Valley General Plan Noise Element

Based on information from the City of Moreno Valley, and its General Plan, a significant impact would occur if some activity were to:

- Expose persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Expose persons to or generation of excessive groundborne vibration or groundborne noise levels.
- Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- For a project located within an airport land use plan, or, where such a plan has not been adopted, within two miles of an airport, expose people residing or working in the project area to excessive noise levels.

The local daytime threshold for exterior noise at a residence is 65 dBA according to the General Plan. No construction activities would occur at night.

Results

Use of off-road equipment, on-road vehicles, and portable equipment would generate noise due to engine mechanicals, engine exhaust, driveline mechanicals, shaft-driven devices and accessories, hydraulics operation, ground friction and displacement, and gravity drops (dumping, unloading). Since no intense percussive actions (strikes, impacts) would occur during the site work, no strong vibrations are planned to be generated that could affect nearby structures.

Types of equipment (FHWA 2006) to be used during the Project and noise-emitting characteristics (i.e., usage factors, reference dBA, and percussive source) are shown in Table 9 consistent with CalEEMod outputs (Attachment 1). The Project is expected to require less than one year of planned work activities comprising six construction phases:

1) Site Preparation;
2) Grading;
3) Building construction;
4) Paving; and
5) Architectural coating.

Deviations from this schedule would not affect the noise analysis because noise does not persist or accumulate in the environment.

Table 9: FHWA Noise Reference Levels and Usage Factors

CalEEMod Construction Detail			FHWA Equipment Type	Ref	Usage Factor	Ref. Level
Phase Name	Equipment Description	Qty.			percent	dBA
Site Preparation (1)	Rubber Tired Dozers	3	Tractor [or Skidder] (rubber tire)	1	40%	84
	Tractors/ Loaders/ Backhoes	4	Backhoe (with loader)	1	40%	80
Grading (2)	Excavator	2	Excavator (hydraulic)	1	40%	85
	Grader	1	Grader	1	40%	85
	Rubber Tired Dozers	1	Tractor [or Skidder] (rubber tire)	1	40%	84
	Tractors/ Loaders/ Backhoes	2	Backhoe (with loader)	1	40%	80
	Scraper	2	Scraper	1	40%	85
Building Construction (3)	Cranes	1	Crane	1	16%	85
	Forklifts	3	All Other Equipment > 5 HP	1	50%	85
	Tractors/ Loaders/ Backhoes	3	Backhoe (with loader)	1	40%	80
	Generator	1	Generator (general purpose utility)	1	50%	82
	Welders	1	Welding [or Cutting] Torch	1	40%	73
Paving (4)	Paving Equipment	2	All Other Equipment > 5 HP	1	50%	85
	Pavers	2	Paver (asphalt)	1	50%	85
	Rollers	2	Roller	1	20%	85
Architectural Coating (5)	Air Compressors	1	Compressor (air)	1	40%	80

Source: CalEEMod v2013.2.2, FHWA 2006

Table 10 shows a comparison of: screening-level estimated daytime exterior noise impacts for peak construction activities at designated receptors, and quantitative threshold for exceeding the conditionally acceptable criteria in the City of Moreno Valley Noise Element, using FHWA attenuation algorithms.

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Table 10: Estimated Peak Activity Daytime Noise Impacts - Residential

Construction Phases	Normal Acceptance Criteria		
	Modeled Noise Level (L_{eq} dBA)	Normally Unacceptable Threshold (CNEL dBA)	Exceeds Threshold (Yes/No)?
Background	60.0	-	No
Site Preparation	61.3	65	No
Grading	62.1	65	No
Building Construction	61.9	65	No
Paving	62.0	65	No
Architectural Coating	60.2	65	No
20% Increase in Road Utilization	61.3	65	No

Sources: CalEEMod v2013.2.2, FHWA 2006, Broch 1971, Plog 1988, City of Moreno Valley Noise Element

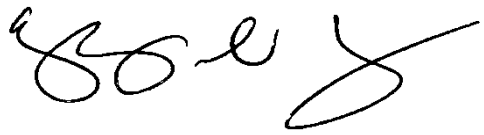
ANALYSIS: The noise impacts from project construction on nearby receptors would not reach significant levels, based on criteria outlined above from the City of Moreno Valley Noise Element.

- The local threshold of significance (65 dBA) would not be exceeded at the nearest sensitive receptor, and the state category of "conditionally acceptable" applies to the location of the nearest sensitive receptor before, during, and after the project.
- No equipment that generates significant vibrational energy will be used.
- Worst-case scenario traffic increases would cause an increase of about 1.3 dBA, which is below the typical threshold of human detectability of 3.0 dBA.
- The temporary increase in noise from construction would be about 2.1 dBA, which is below the typical threshold of human detectability.
- According to the City's General Plan, the project area is zoned for business parks, which means airport noise levels should be acceptable. An EIR of the General Plan determined this area to be outside the area that experience 60 dBA noises from airport operations.

CONCLUSION

Thank you very much for the opportunity to be of assistance to the PAMA Management. Should you have any questions, please contact me at (805) 376-0088 or James Yorke at (949) 482-8528.

Sincerely,



Bradford L. Boyes
Senior Engineer
Yorke Engineering, LLC
BBoyes@YorkeEngr.com

cc: Brian Yorke, Yorke Engineering, LLC

Enclosures/Attachments:

1. CalEEMod Outputs

AIR QUALITY AND GHG REFERENCES

California Air Resources Board (CARB). 2008. Climate Change Scoping Plan. Website (http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm) accessed February 20, 2018.

California Department of Resources Recycling and Recovery (CalRecycle). 2016. Solid Waste Cleanup Program Weights and Volumes for Project Estimates. Website (http://www.calrecycle.ca.gov/swfacilities/cdi/Tools/Calculations.htm) accessed February 19, 2018.

California Emissions Estimation Model (CalEEMod™). 2016. Version 2016.3.2. Website (http://www.caleemod.com/) accessed February 21, 2018.

California Energy Commission (CEC). 2017. Building Energy Efficiency Program. Website (http://www.energy.ca.gov/title24/) accessed February 19, 2018.

South Coast Air Quality Management District (SCAQMD). 2015. Air Quality Significance Thresholds. Website (http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2) accessed February 16, 2018.

South Coast Air Quality Management District (SCAQMD). 2008a. Localized Significance Threshold Methodology. Website (http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2) accessed February 16, 2018.

South Coast Air Quality Management District (SCAQMD). 2008b. Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. Website (http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2) accessed February 19, 2018.

NOISE REFERENCES

Broch, Jens. 1971. Acoustic Noise Measurements. Bruel & Kjaer.

California Department of Transportation (Caltrans). 2013. Transportation and Construction Vibration Guidance Manual. Website (http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf) accessed March 30, 2018.

City of Moreno Valley. 2006. EIR for City of Moreno Valley's General Plan. P&D Consultants. Website (http://www.moreno-valley.ca.us/city_hall/general-plan/06gpfinal/ieir/eir-tot.pdf) accessed April 25, 2018.

City of Moreno Valley General Plan. 2006. Website (http://www.moreno-valley.ca.us/city_hall/general-plan/06gpfinal/gp/gp-tot.pdf) accessed April 25, 2018.

Plog, Barbara, Ed. 1988. Fundamentals of Industrial Hygiene – 3rd Edition, National Safety Council.

U.S. Department of Transportation – Federal Highway Administration (FHWA). 2006. Roadway Construction Noise Model User's Guide. Website (https://www.fhwa.dot.gov/Environment/noise/construction_noise/rcnm/) accessed March 30, 2018.

U.S. Department of Transportation – Federal Transit Authority (FTA). 2006. Transit Noise and Vibration Impact Assessment. Website (https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf) accessed March 30, 2018.

ATTACHMENT 1 – CALEEMOD OUTPUTS

PAMA Business Park

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	32.00	1000sqft	0.73	32,000.00	0
Parking Lot	246.06	1000sqft	5.65	246,060.00	0
Unrefrigerated Warehouse-No Rail	252.00	1000sqft	5.79	252,000.00	0
Other Non-Asphalt Surfaces	135.88	1000sqft	3.12	135,880.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Project Characteristics -

Land Use - Per Applicant

Construction Phase - Per applicant. No demolition.

Land Use Change -

Construction Off-road Equipment Mitigation - Per Applicant

Mobile Land Use Mitigation -

Area Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	PhaseEndDate	11/14/2019	12/12/2019

2.0 Emissions Summary

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.2073	59.6064	35.9976	0.0863	18.2675	2.6355	20.8460	9.9840	2.4247	12.3563	0.0000	8,720.4549	8,720.4549	1.9518	0.0000	8,744.7459
2019	69.0321	34.5901	31.7102	0.0850	3.7827	1.3978	5.1805	1.0190	1.3151	2.3341	0.0000	8,565.0773	8,565.0773	0.9407	0.0000	8,588.5938
Maximum	**69.0321**	**59.6064**	**35.9976**	**0.0863**	**18.2675**	**2.6355**	**20.8460**	**9.9840**	**2.4247**	**12.3563**	**0.0000**	**8,720.4549**	**8,720.4549**	**1.9518**	**0.0000**	**8,744.7459**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.2073	59.6064	35.9976	0.0863	7.1596	2.6355	9.7381	3.9049	2.4247	6.2771	0.0000	8,720.4549	8,720.4549	1.9518	0.0000	8,744.7459
2019	69.0321	34.5901	31.7102	0.0850	2.1931	1.3978	3.5908	0.6288	1.3151	1.9440	0.0000	8,565.0773	8,565.0773	0.9407	0.0000	8,588.5938
Maximum	**69.0321**	**59.6064**	**35.9976**	**0.0863**	**7.1596**	**2.6355**	**9.7381**	**3.9049**	**2.4247**	**6.2771**	**0.0000**	**8,720.4549**	**8,720.4549**	**1.9518**	**0.0000**	**8,744.7459**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**57.58**	**0.00**	**48.79**	**58.80**	**0.00**	**44.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.5153	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555
Energy	0.0179	0.1625	0.1365	9.8000e-004		0.0124	0.0124		0.0124	0.0124		195.0040	195.0040	3.7400e-003	3.5800e-003	196.1628
Mobile	1.6105	8.9376	22.2922	0.0783	6.4833	0.0810	6.5643	1.7348	0.0761	1.8109		7,960.4903	7,960.4903	0.4072		7,970.6713
Total	**8.1437**	**9.1007**	**22.4971**	**0.0793**	**6.4833**	**0.0936**	**6.5769**	**1.7348**	**0.0887**	**1.8235**		**8,155.6401**	**8,155.6401**	**0.4114**	**3.5800e-003**	**8,166.9896**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.5153	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555
Energy	0.0179	0.1625	0.1365	9.8000e-004		0.0124	0.0124		0.0124	0.0124		195.0040	195.0040	3.7400e-003	3.5800e-003	196.1628
Mobile	1.6105	8.9376	22.2922	0.0783	6.4833	0.0810	6.5643	1.7348	0.0761	1.8109		7,960.4903	7,960.4903	0.4072		7,970.6713
Total	**8.1437**	**9.1007**	**22.4971**	**0.0793**	**6.4833**	**0.0936**	**6.5769**	**1.7348**	**0.0887**	**1.8235**		**8,155.6401**	**8,155.6401**	**0.4114**	**3.5800e-003**	**8,166.9896**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2018	6/14/2018	5	10	
2	Grading	Grading	6/15/2018	7/26/2018	5	30	
3	Building Construction	Building Construction	7/27/2018	9/19/2019	5	300	
4	Paving	Paving	9/20/2019	10/17/2019	5	20	
5	Architectural Coating	Architectural Coating	10/18/2019	12/12/2019	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 8.77

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 426,000; Non-Residential Outdoor: 142,000; Striped Parking Area: 22,916 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	276.00	109.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	55.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.2 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.2 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1055	0.0762	0.8174	2.0600e-003	0.1137	1.6000e-003	0.1153	0.0319	1.4800e-003	0.0334		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.1137**	**1.6000e-003**	**0.1153**	**0.0319**	**1.4800e-003**	**0.0334**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**8.6733**	**2.6337**	**11.3071**	**3.5965**	**2.4230**	**6.0195**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1172	0.0846	0.9082	2.2900e-003	0.2236	1.7800e-003	0.2253	0.0593	1.6400e-003	0.0609		228.1358	228.1358	7.7800e-003		228.3305
Total	**0.1172**	**0.0846**	**0.9082**	**2.2900e-003**	**0.2236**	**1.7800e-003**	**0.2253**	**0.0593**	**1.6400e-003**	**0.0609**		**228.1358**	**228.1358**	**7.7800e-003**		**228.3305**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**3.3826**	**2.6337**	**6.0163**	**1.4026**	**2.4230**	**3.8257**	**0.0000**	**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1172	0.0846	0.9082	2.2900e-003	0.1264	1.7800e-003	0.1282	0.0354	1.6400e-003	0.0371		228.1358	228.1358	7.7800e-003		228.3305
Total	**0.1172**	**0.0846**	**0.9082**	**2.2900e-003**	**0.1264**	**1.7800e-003**	**0.1282**	**0.0354**	**1.6400e-003**	**0.0371**		**228.1358**	**228.1358**	**7.7800e-003**		**228.3305**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4841	13.2311	3.6516	0.0277	0.6976	0.0980	0.7956	0.2008	0.0937	0.2946		2,951.2452	2,951.2452	0.2221		2,956.7973
Worker	1.6170	1.1681	12.5330	0.0316	3.0850	0.0246	3.1096	0.8182	0.0227	0.8408		3,148.2746	3,148.2746	0.1074		3,150.9604
Total	**2.1010**	**14.3992**	**16.1846**	**0.0594**	**3.7827**	**0.1226**	**3.9053**	**1.0190**	**0.1164**	**1.1354**		**6,099.5198**	**6,099.5198**	**0.3295**		**6,107.7576**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**	**0.0000**	**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4841	13.2311	3.6516	0.0277	0.4491	0.0980	0.5470	0.1398	0.0937	0.2336		2,951.2452	2,951.2452	0.2221		2,956.7973
Worker	1.6170	1.1681	12.5330	0.0316	1.7440	0.0246	1.7686	0.4890	0.0227	0.5117		3,148.2746	3,148.2746	0.1074		3,150.9604
Total	**2.1010**	**14.3992**	**16.1846**	**0.0594**	**2.1931**	**0.1226**	**2.3156**	**0.6288**	**0.1164**	**0.7452**		**6,099.5198**	**6,099.5198**	**0.3295**		**6,107.7576**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4390	12.4810	3.3578	0.0275	0.6976	0.0839	0.7815	0.2008	0.0803	0.2811		2,924.6473	2,924.6473	0.2141		2,929.9991
Worker	1.4717	1.0303	11.1886	0.0306	3.0850	0.0240	3.1090	0.8182	0.0221	0.8403		3,048.8499	3,048.8499	0.0953		3,051.2312
Total	**1.9107**	**13.5113**	**14.5464**	**0.0581**	**3.7827**	**0.1079**	**3.8906**	**1.0190**	**0.1024**	**1.1214**		**5,973.4972**	**5,973.4972**	**0.3093**		**5,981.2303**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4390	12.4810	3.3578	0.0275	0.4490	0.0839	0.5330	0.1398	0.0803	0.2201		2,924.6473	2,924.6473	0.2141		2,929.9991
Worker	1.4717	1.0303	11.1886	0.0306	1.7440	0.0240	1.7680	0.4890	0.0221	0.5111		3,048.8499	3,048.8499	0.0953		3,051.2312
Total	**1.9107**	**13.5113**	**14.5464**	**0.0581**	**2.1931**	**0.1079**	**2.3010**	**0.6288**	**0.1024**	**0.7312**		**5,973.4972**	**5,973.4972**	**0.3093**		**5,981.2303**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.7402					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1946**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.7402					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1946**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.0948	1.3000e-003	0.0961	0.0266	1.2000e-003	0.0278		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.0948**	**1.3000e-003**	**0.0961**	**0.0266**	**1.2000e-003**	**0.0278**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	68.4724					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**68.7388**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2933	0.2053	2.2296	6.1000e-003	0.6148	4.7800e-003	0.6196	0.1630	4.4100e-003	0.1675		607.5607	607.5607	0.0190		608.0352
Total	**0.2933**	**0.2053**	**2.2296**	**6.1000e-003**	**0.6148**	**4.7800e-003**	**0.6196**	**0.1630**	**4.4100e-003**	**0.1675**		**607.5607**	**607.5607**	**0.0190**		**608.0352**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	68.4724					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**68.7388**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2933	0.2053	2.2296	6.1000e-003	0.3475	4.7800e-003	0.3523	0.0975	4.4100e-003	0.1019		607.5607	607.5607	0.0190		608.0352
Total	**0.2933**	**0.2053**	**2.2296**	**6.1000e-003**	**0.3475**	**4.7800e-003**	**0.3523**	**0.0975**	**4.4100e-003**	**0.1019**		**607.5607**	**607.5607**	**0.0190**		**608.0352**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.6105	8.9376	22.2922	0.0783	6.4833	0.0810	6.5643	1.7348	0.0761	1.8109		7,960.4903	7,960.4903	0.4072		7,970.6713
Unmitigated	1.6105	8.9376	22.2922	0.0783	6.4833	0.0810	6.5643	1.7348	0.0761	1.8109		7,960.4903	7,960.4903	0.4072		7,970.6713

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Office Park	365.44	52.48	24.32	918,993	918,993
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	423.36	423.36	423.36	1,814,401	1,814,401
Total	788.80	475.84	447.68	2,733,394	2,733,394

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Office Park	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Office Park	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Parking Lot	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0179	0.1625	0.1365	9.8000e-004		0.0124	0.0124		0.0124	0.0124		195.0040	195.0040	3.7400e-003	3.5800e-003	196.1628
NaturalGas Unmitigated	0.0179	0.1625	0.1365	9.8000e-004		0.0124	0.0124		0.0124	0.0124		195.0040	195.0040	3.7400e-003	3.5800e-003	196.1628

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Office Park	256	2.7600e-003	0.0251	0.0211	1.5000e-004		1.9100e-003	1.9100e-003		1.9100e-003	1.9100e-003		30.1177	30.1177	5.8000e-004	5.5000e-004	30.2966
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1401.53	0.0151	0.1374	0.1154	8.2000e-004		0.0104	0.0104		0.0104	0.0104		164.8864	164.8864	3.1600e-003	3.0200e-003	165.8662
Total		**0.0179**	**0.1625**	**0.1365**	**9.7000e-004**		**0.0124**	**0.0124**		**0.0124**	**0.0124**		**195.0040**	**195.0040**	**3.7400e-003**	**3.5700e-003**	**196.1628**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Office Park	0.256	2.7600e-003	0.0251	0.0211	1.5000e-004		1.9100e-003	1.9100e-003		1.9100e-003	1.9100e-003		30.1177	30.1177	5.8000e-004	5.5000e-004	30.2966
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.40153	0.0151	0.1374	0.1154	8.2000e-004		0.0104	0.0104		0.0104	0.0104		164.8864	164.8864	3.1600e-003	3.0200e-003	165.8662
Total		**0.0179**	**0.1625**	**0.1365**	**9.7000e-004**		**0.0124**	**0.0124**		**0.0124**	**0.0124**		**195.0040**	**195.0040**	**3.7400e-003**	**3.5700e-003**	**196.1628**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.5153	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555
Unmitigated	6.5153	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.7504					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.7585					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.4400e-003	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555
Total	**6.5153**	**6.3000e-004**	**0.0684**	**1.0000e-005**		**2.5000e-004**	**2.5000e-004**		**2.5000e-004**	**2.5000e-004**		**0.1457**	**0.1457**	**3.9000e-004**		**0.1555**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.7504					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.7585					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.4400e-003	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555
Total	**6.5153**	**6.3000e-004**	**0.0684**	**1.0000e-005**		**2.5000e-004**	**2.5000e-004**		**2.5000e-004**	**2.5000e-004**		**0.1457**	**0.1457**	**3.9000e-004**		**0.1555**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

PAMA Business Park

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	32.00	1000sqft	0.73	32,000.00	0
Parking Lot	246.06	1000sqft	5.65	246,060.00	0
Unrefrigerated Warehouse-No Rail	252.00	1000sqft	5.79	252,000.00	0
Other Non-Asphalt Surfaces	135.88	1000sqft	3.12	135,880.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Project Characteristics -

Land Use - Per Applicant

Construction Phase - Per applicant. No demolition.

Land Use Change -

Construction Off-road Equipment Mitigation - Per Applicant

Mobile Land Use Mitigation -

Area Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	PhaseEndDate	11/14/2019	12/12/2019

2.0 Emissions Summary

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.1979	59.5991	36.0929	0.0893	18.2675	2.6355	20.8460	9.9840	2.4247	12.3563	0.0000	9,023.7183	9,023.7183	1.9523	0.0000	9,047.8083
2019	69.0082	34.4916	32.5805	0.0879	3.7827	1.3965	5.1792	1.0190	1.3139	2.3329	0.0000	8,861.9047	8,861.9047	0.9325	0.0000	8,885.2169
Maximum	**69.0082**	**59.5991**	**36.0929**	**0.0893**	**18.2675**	**2.6355**	**20.8460**	**9.9840**	**2.4247**	**12.3563**	**0.0000**	**9,023.7183**	**9,023.7183**	**1.9523**	**0.0000**	**9,047.8083**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.1979	59.5991	36.0929	0.0893	7.1596	2.6355	9.7381	3.9049	2.4247	6.2771	0.0000	9,023.7183	9,023.7183	1.9523	0.0000	9,047.8083
2019	69.0082	34.4916	32.5805	0.0879	2.1931	1.3965	3.5895	0.6288	1.3139	1.9427	0.0000	8,861.9047	8,861.9047	0.9325	0.0000	8,885.2169
Maximum	**69.0082**	**59.5991**	**36.0929**	**0.0893**	**7.1596**	**2.6355**	**9.7381**	**3.9049**	**2.4247**	**6.2771**	**0.0000**	**9,023.7183**	**9,023.7183**	**1.9523**	**0.0000**	**9,047.8083**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**57.58**	**0.00**	**48.79**	**58.80**	**0.00**	**44.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.5153	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555
Energy	0.0179	0.1625	0.1365	9.8000e-004		0.0124	0.0124		0.0124	0.0124		195.0040	195.0040	3.7400e-003	3.5800e-003	196.1628
Mobile	1.6881	8.7126	23.9257	0.0827	6.4833	0.0806	6.5639	1.7348	0.0757	1.8105		8,406.1950	8,406.1950	0.4098		8,416.4405
Total	**8.2213**	**8.8757**	**24.1306**	**0.0837**	**6.4833**	**0.0932**	**6.5765**	**1.7348**	**0.0883**	**1.8231**		**8,601.3448**	**8,601.3448**	**0.4140**	**3.5800e-003**	**8,612.7588**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.5153	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555
Energy	0.0179	0.1625	0.1365	9.8000e-004		0.0124	0.0124		0.0124	0.0124		195.0040	195.0040	3.7400e-003	3.5800e-003	196.1628
Mobile	1.6881	8.7126	23.9257	0.0827	6.4833	0.0806	6.5639	1.7348	0.0757	1.8105		8,406.1950	8,406.1950	0.4098		8,416.4405
Total	**8.2213**	**8.8757**	**24.1306**	**0.0837**	**6.4833**	**0.0932**	**6.5765**	**1.7348**	**0.0883**	**1.8231**		**8,601.3448**	**8,601.3448**	**0.4140**	**3.5800e-003**	**8,612.7588**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2018	6/14/2018	5	10	
2	Grading	Grading	6/15/2018	7/26/2018	5	30	
3	Building Construction	Building Construction	7/27/2018	9/19/2019	5	300	
4	Paving	Paving	9/20/2019	10/17/2019	5	20	
5	Architectural Coating	Architectural Coating	10/18/2019	12/12/2019	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 8.77

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 426,000; Non-Residential Outdoor: 142,000; Striped Parking Area: 22,916 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	276.00	109.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	55.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.2 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.2 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0970	0.0695	0.9032	2.2100e-003	0.1137	1.6000e-003	0.1153	0.0319	1.4800e-003	0.0334		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.1137**	**1.6000e-003**	**0.1153**	**0.0319**	**1.4800e-003**	**0.0334**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**8.6733**	**2.6337**	**11.3071**	**3.5965**	**2.4230**	**6.0195**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1078	0.0773	1.0035	2.4500e-003	0.2236	1.7800e-003	0.2253	0.0593	1.6400e-003	0.0609		243.8703	243.8703	8.3200e-003		244.0782
Total	**0.1078**	**0.0773**	**1.0035**	**2.4500e-003**	**0.2236**	**1.7800e-003**	**0.2253**	**0.0593**	**1.6400e-003**	**0.0609**		**243.8703**	**243.8703**	**8.3200e-003**		**244.0782**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**3.3826**	**2.6337**	**6.0163**	**1.4026**	**2.4230**	**3.8257**	**0.0000**	**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1078	0.0773	1.0035	2.4500e-003	0.1264	1.7800e-003	0.1282	0.0354	1.6400e-003	0.0371		243.8703	243.8703	8.3200e-003		244.0782
Total	**0.1078**	**0.0773**	**1.0035**	**2.4500e-003**	**0.1264**	**1.7800e-003**	**0.1282**	**0.0354**	**1.6400e-003**	**0.0371**		**243.8703**	**243.8703**	**8.3200e-003**		**244.0782**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4638	13.2091	3.2896	0.0285	0.6976	0.0965	0.7942	0.2008	0.0923	0.2932		3,037.3726	3,037.3726	0.2067		3,042.5406
Worker	1.4871	1.0662	13.8485	0.0338	3.0850	0.0246	3.1096	0.8182	0.0227	0.8408		3,365.4106	3,365.4106	0.1148		3,368.2794
Total	**1.9509**	**14.2753**	**17.1381**	**0.0624**	**3.7827**	**0.1211**	**3.9038**	**1.0190**	**0.1150**	**1.1340**		**6,402.7832**	**6,402.7832**	**0.3215**		**6,410.8200**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**	**0.0000**	**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4638	13.2091	3.2896	0.0285	0.4491	0.0965	0.5456	0.1398	0.0923	0.2322		3,037.3726	3,037.3726	0.2067		3,042.5406
Worker	1.4871	1.0662	13.8485	0.0338	1.7440	0.0246	1.7686	0.4890	0.0227	0.5117		3,365.4106	3,365.4106	0.1148		3,368.2794
Total	**1.9509**	**14.2753**	**17.1381**	**0.0624**	**2.1931**	**0.1211**	**2.3142**	**0.6288**	**0.1150**	**0.7438**		**6,402.7832**	**6,402.7832**	**0.3215**		**6,410.8200**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4202	12.4722	3.0151	0.0283	0.6976	0.0826	0.7802	0.2008	0.0790	0.2799		3,010.7948	3,010.7948	0.1992		3,015.7751
Worker	1.3517	0.9406	12.4017	0.0327	3.0850	0.0240	3.1090	0.8182	0.0221	0.8403		3,259.5297	3,259.5297	0.1019		3,262.0783
Total	**1.7719**	**13.4128**	**15.4167**	**0.0610**	**3.7827**	**0.1066**	**3.8893**	**1.0190**	**0.1012**	**1.1202**		**6,270.3245**	**6,270.3245**	**0.3012**		**6,277.8534**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4202	12.4722	3.0151	0.0283	0.4490	0.0826	0.5317	0.1398	0.0790	0.2189		3,010.7948	3,010.7948	0.1992		3,015.7751
Worker	1.3517	0.9406	12.4017	0.0327	1.7440	0.0240	1.7680	0.4890	0.0221	0.5111		3,259.5297	3,259.5297	0.1019		3,262.0783
Total	**1.7719**	**13.4128**	**15.4167**	**0.0610**	**2.1931**	**0.1066**	**2.2997**	**0.6288**	**0.1012**	**0.7300**		**6,270.3245**	**6,270.3245**	**0.3012**		**6,277.8534**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.7402					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1946**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.7402					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1946**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.0948	1.3000e-003	0.0961	0.0266	1.2000e-003	0.0278		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.0948**	**1.3000e-003**	**0.0961**	**0.0266**	**1.2000e-003**	**0.0278**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	68.4724					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**68.7388**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2694	0.1874	2.4714	6.5200e-003	0.6148	4.7800e-003	0.6196	0.1630	4.4100e-003	0.1675		649.5440	649.5440	0.0203		650.0518
Total	**0.2694**	**0.1874**	**2.4714**	**6.5200e-003**	**0.6148**	**4.7800e-003**	**0.6196**	**0.1630**	**4.4100e-003**	**0.1675**		**649.5440**	**649.5440**	**0.0203**		**650.0518**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	68.4724					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**68.7388**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2694	0.1874	2.4714	6.5200e-003	0.3475	4.7800e-003	0.3523	0.0975	4.4100e-003	0.1019		649.5440	649.5440	0.0203		650.0518
Total	**0.2694**	**0.1874**	**2.4714**	**6.5200e-003**	**0.3475**	**4.7800e-003**	**0.3523**	**0.0975**	**4.4100e-003**	**0.1019**		**649.5440**	**649.5440**	**0.0203**		**650.0518**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.6881	8.7126	23.9257	0.0827	6.4833	0.0806	6.5639	1.7348	0.0757	1.8105		8,406.1950	8,406.1950	0.4098		8,416.4405
Unmitigated	1.6881	8.7126	23.9257	0.0827	6.4833	0.0806	6.5639	1.7348	0.0757	1.8105		8,406.1950	8,406.1950	0.4098		8,416.4405

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Office Park	365.44	52.48	24.32	918,993	918,993
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	423.36	423.36	423.36	1,814,401	1,814,401
Total	788.80	475.84	447.68	2,733,394	2,733,394

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Office Park	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Office Park	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Parking Lot	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0179	0.1625	0.1365	9.8000e-004		0.0124	0.0124		0.0124	0.0124		195.0040	195.0040	3.7400e-003	3.5800e-003	196.1628
NaturalGas Unmitigated	0.0179	0.1625	0.1365	9.8000e-004		0.0124	0.0124		0.0124	0.0124		195.0040	195.0040	3.7400e-003	3.5800e-003	196.1628

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Office Park	256	2.7600e-003	0.0251	0.0211	1.5000e-004		1.9100e-003	1.9100e-003		1.9100e-003	1.9100e-003		30.1177	30.1177	5.8000e-004	5.5000e-004	30.2966
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1401.53	0.0151	0.1374	0.1154	8.2000e-004		0.0104	0.0104		0.0104	0.0104		164.8864	164.8864	3.1600e-003	3.0200e-003	165.8662
Total		**0.0179**	**0.1625**	**0.1365**	**9.7000e-004**		**0.0124**	**0.0124**		**0.0124**	**0.0124**		**195.0040**	**195.0040**	**3.7400e-003**	**3.5700e-003**	**196.1628**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Office Park	0.256	2.7600e-003	0.0251	0.0211	1.5000e-004		1.9100e-003	1.9100e-003		1.9100e-003	1.9100e-003		30.1177	30.1177	5.8000e-004	5.5000e-004	30.2966
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.40153	0.0151	0.1374	0.1154	8.2000e-004		0.0104	0.0104		0.0104	0.0104		164.8864	164.8864	3.1600e-003	3.0200e-003	165.8662
Total		**0.0179**	**0.1625**	**0.1365**	**9.7000e-004**		**0.0124**	**0.0124**		**0.0124**	**0.0124**		**195.0040**	**195.0040**	**3.7400e-003**	**3.5700e-003**	**196.1628**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.5153	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555
Unmitigated	6.5153	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.7504					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.7585					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.4400e-003	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555
Total	**6.5153**	**6.3000e-004**	**0.0684**	**1.0000e-005**		**2.5000e-004**	**2.5000e-004**		**2.5000e-004**	**2.5000e-004**		**0.1457**	**0.1457**	**3.9000e-004**		**0.1555**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.7504					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.7585					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.4400e-003	6.3000e-004	0.0684	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004		0.1457	0.1457	3.9000e-004		0.1555
Total	**6.5153**	**6.3000e-004**	**0.0684**	**1.0000e-005**		**2.5000e-004**	**2.5000e-004**		**2.5000e-004**	**2.5000e-004**		**0.1457**	**0.1457**	**3.9000e-004**		**0.1555**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

PAMA Business Park

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	32.00	1000sqft	0.73	32,000.00	0
Parking Lot	246.06	1000sqft	5.65	246,060.00	0
Unrefrigerated Warehouse-No Rail	252.00	1000sqft	5.79	252,000.00	0
Other Non-Asphalt Surfaces	135.88	1000sqft	3.12	135,880.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Project Characteristics -

Land Use - Per Applicant

Construction Phase - Per applicant. No demolition.

Land Use Change -

Construction Off-road Equipment Mitigation - Per Applicant

Mobile Land Use Mitigation -

Area Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	PhaseEndDate	11/14/2019	12/12/2019

2.0 Emissions Summary

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.3599	3.2672	2.5572	6.0500e-003	0.4328	0.1432	0.5760	0.1609	0.1337	0.2945	0.0000	554.7500	554.7500	0.0810	0.0000	556.7757
2019	1.7903	3.4696	3.2303	8.5100e-003	0.3629	0.1423	0.5052	0.0979	0.1338	0.2317	0.0000	777.4272	777.4272	0.0870	0.0000	779.6013
Maximum	**1.7903**	**3.4696**	**3.2303**	**8.5100e-003**	**0.4328**	**0.1432**	**0.5760**	**0.1609**	**0.1338**	**0.2945**	**0.0000**	**777.4272**	**777.4272**	**0.0870**	**0.0000**	**779.6013**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.3599	3.2672	2.5572	6.0500e-003	0.2093	0.1432	0.3526	0.0758	0.1337	0.2095	0.0000	554.7497	554.7497	0.0810	0.0000	556.7754
2019	1.7903	3.4696	3.2303	8.5100e-003	0.2107	0.1423	0.3530	0.0605	0.1338	0.1943	0.0000	777.4269	777.4269	0.0870	0.0000	779.6010
Maximum	**1.7903**	**3.4696**	**3.2303**	**8.5100e-003**	**0.2107**	**0.1432**	**0.3530**	**0.0758**	**0.1338**	**0.2095**	**0.0000**	**777.4269**	**777.4269**	**0.0870**	**0.0000**	**779.6010**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.21**	**0.00**	**34.74**	**47.30**	**0.00**	**23.26**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-1-2018	8-31-2018	1.7804	1.7804
2	9-1-2018	11-30-2018	1.3806	1.3806
3	12-1-2018	2-28-2019	1.2902	1.2902
4	3-1-2019	5-31-2019	1.2717	1.2717
5	6-1-2019	8-31-2019	1.2691	1.2691
6	9-1-2019	9-30-2019	0.3311	0.3311
		Highest	1.7804	1.7804

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1887	8.0000e-005	8.5500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0165	0.0165	4.0000e-005	0.0000	0.0176
Energy	3.2600e-003	0.0297	0.0249	1.8000e-004		2.2500e-003	2.2500e-003		2.2500e-003	2.2500e-003	0.0000	350.2569	350.2569	0.0138	3.3100e-003	351.5863
Mobile	0.2555	1.4762	3.6907	0.0130	1.0386	0.0132	1.0518	0.2783	0.0124	0.2907	0.0000	1,194.1076	1,194.1076	0.0598	0.0000	1,195.6037
Waste						0.0000	0.0000		0.0000	0.0000	54.1255	0.0000	54.1255	3.1987	0.0000	134.0937
Water						0.0000	0.0000		0.0000	0.0000	20.2923	277.7052	297.9975	2.0957	0.0516	365.7619
Total	**1.4474**	**1.5059**	**3.7242**	**0.0131**	**1.0386**	**0.0154**	**1.0540**	**0.2783**	**0.0146**	**0.2930**	**74.4179**	**1,822.0862**	**1,896.5041**	**5.3680**	**0.0549**	**2,047.0632**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1887	8.0000e-005	8.5500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0165	0.0165	4.0000e-005	0.0000	0.0176
Energy	3.2600e-003	0.0297	0.0249	1.8000e-004		2.2500e-003	2.2500e-003		2.2500e-003	2.2500e-003	0.0000	350.2569	350.2569	0.0138	3.3100e-003	351.5863
Mobile	0.2555	1.4762	3.6907	0.0130	1.0386	0.0132	1.0518	0.2783	0.0124	0.2907	0.0000	1,194.1076	1,194.1076	0.0598	0.0000	1,195.6037
Waste						0.0000	0.0000		0.0000	0.0000	54.1255	0.0000	54.1255	3.1987	0.0000	134.0937
Water						0.0000	0.0000		0.0000	0.0000	16.2339	224.6321	240.8659	1.6767	0.0413	295.0863
Total	**1.4474**	**1.5059**	**3.7242**	**0.0131**	**1.0386**	**0.0154**	**1.0540**	**0.2783**	**0.0146**	**0.2930**	**70.3594**	**1,769.0131**	**1,839.3725**	**4.9490**	**0.0446**	**1,976.3876**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.45**	**2.91**	**3.01**	**7.81**	**18.75**	**3.45**

3.0 Construction Detail

Construction Phase

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2018	6/14/2018	5	10	
2	Grading	Grading	6/15/2018	7/26/2018	5	30	
3	Building Construction	Building Construction	7/27/2018	9/19/2019	5	300	
4	Paving	Paving	9/20/2019	10/17/2019	5	20	
5	Architectural Coating	Architectural Coating	10/18/2019	12/12/2019	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 8.77

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 426,000; Non-Residential Outdoor: 142,000; Striped Parking Area: 22,916 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	276.00	109.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	55.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.2 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.9000e-004	4.2000e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9473	0.9473	3.0000e-005	0.0000	0.9481
Total	**4.8000e-004**	**3.9000e-004**	**4.2000e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.9473**	**0.9473**	**3.0000e-005**	**0.0000**	**0.9481**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0352	0.0000	0.0352	0.0194	0.0000	0.0194	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0352**	**0.0129**	**0.0481**	**0.0194**	**0.0119**	**0.0312**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.2 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.9000e-004	4.2000e-003	1.0000e-005	5.6000e-004	1.0000e-005	5.7000e-004	1.6000e-004	1.0000e-005	1.6000e-004	0.0000	0.9473	0.9473	3.0000e-005	0.0000	0.9481
Total	**4.8000e-004**	**3.9000e-004**	**4.2000e-003**	**1.0000e-005**	**5.6000e-004**	**1.0000e-005**	**5.7000e-004**	**1.6000e-004**	**1.0000e-005**	**1.6000e-004**	**0.0000**	**0.9473**	**0.9473**	**3.0000e-005**	**0.0000**	**0.9481**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0764	0.8928	0.5263	9.3000e-004		0.0395	0.0395		0.0364	0.0364	0.0000	84.9728	84.9728	0.0265	0.0000	85.6341
Total	**0.0764**	**0.8928**	**0.5263**	**9.3000e-004**	**0.1301**	**0.0395**	**0.1696**	**0.0540**	**0.0364**	**0.0903**	**0.0000**	**84.9728**	**84.9728**	**0.0265**	**0.0000**	**85.6341**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-003	1.3000e-003	0.0140	3.0000e-005	3.2900e-003	3.0000e-005	3.3200e-003	8.7000e-004	2.0000e-005	9.0000e-004	0.0000	3.1575	3.1575	1.1000e-004	0.0000	3.1602
Total	**1.5900e-003**	**1.3000e-003**	**0.0140**	**3.0000e-005**	**3.2900e-003**	**3.0000e-005**	**3.3200e-003**	**8.7000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**3.1575**	**3.1575**	**1.1000e-004**	**0.0000**	**3.1602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0507	0.0000	0.0507	0.0210	0.0000	0.0210	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0764	0.8928	0.5263	9.3000e-004		0.0395	0.0395		0.0364	0.0364	0.0000	84.9727	84.9727	0.0265	0.0000	85.6340
Total	**0.0764**	**0.8928**	**0.5263**	**9.3000e-004**	**0.0507**	**0.0395**	**0.0903**	**0.0210**	**0.0364**	**0.0574**	**0.0000**	**84.9727**	**84.9727**	**0.0265**	**0.0000**	**85.6340**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-003	1.3000e-003	0.0140	3.0000e-005	1.8600e-003	3.0000e-005	1.8900e-003	5.2000e-004	2.0000e-005	5.5000e-004	0.0000	3.1575	3.1575	1.1000e-004	0.0000	3.1602
Total	**1.5900e-003**	**1.3000e-003**	**0.0140**	**3.0000e-005**	**1.8600e-003**	**3.0000e-005**	**1.8900e-003**	**5.2000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**3.1575**	**3.1575**	**1.1000e-004**	**0.0000**	**3.1602**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1501	1.3098	0.9845	1.5100e-003		0.0840	0.0840		0.0790	0.0790	0.0000	133.1497	133.1497	0.0326	0.0000	133.9652
Total	**0.1501**	**1.3098**	**0.9845**	**1.5100e-003**		**0.0840**	**0.0840**		**0.0790**	**0.0790**	**0.0000**	**133.1497**	**133.1497**	**0.0326**	**0.0000**	**133.9652**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0265	0.7547	0.1944	1.5800e-003	0.0385	5.4400e-003	0.0439	0.0111	5.2000e-003	0.0163	0.0000	152.4680	152.4680	0.0109	0.0000	152.7393
Worker	0.0822	0.0672	0.7214	1.8000e-003	0.1696	1.3800e-003	0.1710	0.0450	1.2700e-003	0.0463	0.0000	162.6749	162.6749	5.5500e-003	0.0000	162.8136
Total	**0.1086**	**0.8219**	**0.9158**	**3.3800e-003**	**0.2081**	**6.8200e-003**	**0.2149**	**0.0561**	**6.4700e-003**	**0.0626**	**0.0000**	**315.1429**	**315.1429**	**0.0164**	**0.0000**	**315.5529**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1501	1.3098	0.9845	1.5100e-003		0.0840	0.0840		0.0790	0.0790	0.0000	133.1495	133.1495	0.0326	0.0000	133.9650
Total	**0.1501**	**1.3098**	**0.9845**	**1.5100e-003**		**0.0840**	**0.0840**		**0.0790**	**0.0790**	**0.0000**	**133.1495**	**133.1495**	**0.0326**	**0.0000**	**133.9650**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0265	0.7547	0.1944	1.5800e-003	0.0249	5.4400e-003	0.0303	7.7600e-003	5.2000e-003	0.0130	0.0000	152.4680	152.4680	0.0109	0.0000	152.7393
Worker	0.0822	0.0672	0.7214	1.8000e-003	0.0961	1.3800e-003	0.0975	0.0270	1.2700e-003	0.0283	0.0000	162.6749	162.6749	5.5500e-003	0.0000	162.8136
Total	**0.1086**	**0.8219**	**0.9158**	**3.3800e-003**	**0.1209**	**6.8200e-003**	**0.1277**	**0.0348**	**6.4700e-003**	**0.0412**	**0.0000**	**315.1429**	**315.1429**	**0.0164**	**0.0000**	**315.5529**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2220	1.9814	1.6134	2.5300e-003		0.1213	0.1213		0.1140	0.1140	0.0000	220.9979	220.9979	0.0538	0.0000	222.3439
Total	**0.2220**	**1.9814**	**1.6134**	**2.5300e-003**		**0.1213**	**0.1213**		**0.1140**	**0.1140**	**0.0000**	**220.9979**	**220.9979**	**0.0538**	**0.0000**	**222.3439**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0403	1.1947	0.2996	2.6200e-003	0.0646	7.8200e-003	0.0724	0.0186	7.4800e-003	0.0261	0.0000	253.6613	253.6613	0.0176	0.0000	254.1001
Worker	0.1253	0.0995	1.0817	2.9300e-003	0.2846	2.2600e-003	0.2869	0.0756	2.0800e-003	0.0777	0.0000	264.4451	264.4451	8.2600e-003	0.0000	264.6518
Total	**0.1656**	**1.2942**	**1.3813**	**5.5500e-003**	**0.3492**	**0.0101**	**0.3593**	**0.0942**	**9.5600e-003**	**0.1038**	**0.0000**	**518.1064**	**518.1064**	**0.0258**	**0.0000**	**518.7518**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2220	1.9814	1.6134	2.5300e-003		0.1213	0.1213		0.1140	0.1140	0.0000	220.9977	220.9977	0.0538	0.0000	222.3436
Total	**0.2220**	**1.9814**	**1.6134**	**2.5300e-003**		**0.1213**	**0.1213**		**0.1140**	**0.1140**	**0.0000**	**220.9977**	**220.9977**	**0.0538**	**0.0000**	**222.3436**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0403	1.1947	0.2996	2.6200e-003	0.0417	7.8200e-003	0.0495	0.0130	7.4800e-003	0.0205	0.0000	253.6613	253.6613	0.0176	0.0000	254.1001
Worker	0.1253	0.0995	1.0817	2.9300e-003	0.1613	2.2600e-003	0.1635	0.0453	2.0800e-003	0.0474	0.0000	264.4451	264.4451	8.2600e-003	0.0000	264.6518
Total	**0.1656**	**1.2942**	**1.3813**	**5.5500e-003**	**0.2030**	**0.0101**	**0.2131**	**0.0583**	**9.5600e-003**	**0.0679**	**0.0000**	**518.1064**	**518.1064**	**0.0258**	**0.0000**	**518.7518**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	7.4000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0219**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.8000e-004	6.2500e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5289	1.5289	5.0000e-005	0.0000	1.5301
Total	**7.2000e-004**	**5.8000e-004**	**6.2500e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5289**	**1.5289**	**5.0000e-005**	**0.0000**	**1.5301**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	7.4000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0219**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.8000e-004	6.2500e-003	2.0000e-005	9.3000e-004	1.0000e-005	9.5000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	1.5289	1.5289	5.0000e-005	0.0000	1.5301
Total	**7.2000e-004**	**5.8000e-004**	**6.2500e-003**	**2.0000e-005**	**9.3000e-004**	**1.0000e-005**	**9.5000e-004**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**1.5289**	**1.5289**	**5.0000e-005**	**0.0000**	**1.5301**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3695					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3300e-003	0.0367	0.0368	6.0000e-005		2.5800e-003	2.5800e-003		2.5800e-003	2.5800e-003	0.0000	5.1065	5.1065	4.3000e-004	0.0000	5.1173
Total	**1.3748**	**0.0367**	**0.0368**	**6.0000e-005**		**2.5800e-003**	**2.5800e-003**		**2.5800e-003**	**2.5800e-003**	**0.0000**	**5.1065**	**5.1065**	**4.3000e-004**	**0.0000**	**5.1173**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3100e-003	4.2200e-003	0.0459	1.2000e-004	0.0121	1.0000e-004	0.0122	3.2100e-003	9.0000e-005	3.2900e-003	0.0000	11.2122	11.2122	3.5000e-004	0.0000	11.2210
Total	**5.3100e-003**	**4.2200e-003**	**0.0459**	**1.2000e-004**	**0.0121**	**1.0000e-004**	**0.0122**	**3.2100e-003**	**9.0000e-005**	**3.2900e-003**	**0.0000**	**11.2122**	**11.2122**	**3.5000e-004**	**0.0000**	**11.2210**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3695					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3300e-003	0.0367	0.0368	6.0000e-005		2.5800e-003	2.5800e-003		2.5800e-003	2.5800e-003	0.0000	5.1065	5.1065	4.3000e-004	0.0000	5.1173
Total	**1.3748**	**0.0367**	**0.0368**	**6.0000e-005**		**2.5800e-003**	**2.5800e-003**		**2.5800e-003**	**2.5800e-003**	**0.0000**	**5.1065**	**5.1065**	**4.3000e-004**	**0.0000**	**5.1173**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3100e-003	4.2200e-003	0.0459	1.2000e-004	6.8400e-003	1.0000e-004	6.9300e-003	1.9200e-003	9.0000e-005	2.0100e-003	0.0000	11.2122	11.2122	3.5000e-004	0.0000	11.2210
Total	**5.3100e-003**	**4.2200e-003**	**0.0459**	**1.2000e-004**	**6.8400e-003**	**1.0000e-004**	**6.9300e-003**	**1.9200e-003**	**9.0000e-005**	**2.0100e-003**	**0.0000**	**11.2122**	**11.2122**	**3.5000e-004**	**0.0000**	**11.2210**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2555	1.4762	3.6907	0.0130	1.0386	0.0132	1.0518	0.2783	0.0124	0.2907	0.0000	1,194.1076	1,194.1076	0.0598	0.0000	1,195.6037
Unmitigated	0.2555	1.4762	3.6907	0.0130	1.0386	0.0132	1.0518	0.2783	0.0124	0.2907	0.0000	1,194.1076	1,194.1076	0.0598	0.0000	1,195.6037

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Office Park	365.44	52.48	24.32	918,993	918,993
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	423.36	423.36	423.36	1,814,401	1,814,401
Total	788.80	475.84	447.68	2,733,394	2,733,394

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Office Park	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Office Park	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Parking Lot	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Unrefrigerated Warehouse-No Rail	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	317.9718	317.9718	0.0131	2.7200e-003	319.1093
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	317.9718	317.9718	0.0131	2.7200e-003	319.1093
NaturalGas Mitigated	3.2600e-003	0.0297	0.0249	1.8000e-004		2.2500e-003	2.2500e-003		2.2500e-003	2.2500e-003	0.0000	32.2851	32.2851	6.2000e-004	5.9000e-004	32.4770
NaturalGas Unmitigated	3.2600e-003	0.0297	0.0249	1.8000e-004		2.2500e-003	2.2500e-003		2.2500e-003	2.2500e-003	0.0000	32.2851	32.2851	6.2000e-004	5.9000e-004	32.4770

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Office Park	93440	5.0000e-004	4.5800e-003	3.8500e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9863	4.9863	1.0000e-004	9.0000e-005	5.0160
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	511560	2.7600e-003	0.0251	0.0211	1.5000e-004		1.9100e-003	1.9100e-003		1.9100e-003	1.9100e-003	0.0000	27.2988	27.2988	5.2000e-004	5.0000e-004	27.4610
Total		**3.2600e-003**	**0.0297**	**0.0249**	**1.8000e-004**		**2.2600e-003**	**2.2600e-003**		**2.2600e-003**	**2.2600e-003**	**0.0000**	**32.2851**	**32.2851**	**6.2000e-004**	**5.9000e-004**	**32.4770**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Office Park	93440	5.0000e-004	4.5800e-003	3.8500e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9863	4.9863	1.0000e-004	9.0000e-005	5.0160
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	511560	2.7600e-003	0.0251	0.0211	1.5000e-004		1.9100e-003	1.9100e-003		1.9100e-003	1.9100e-003	0.0000	27.2988	27.2988	5.2000e-004	5.0000e-004	27.4610
Total		**3.2600e-003**	**0.0297**	**0.0249**	**1.8000e-004**		**2.2600e-003**	**2.2600e-003**		**2.2600e-003**	**2.2600e-003**	**0.0000**	**32.2851**	**32.2851**	**6.2000e-004**	**5.9000e-004**	**32.4770**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Office Park	317120	101.0412	4.1700e-003	8.6000e-004	101.4027
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	86121	27.4400	1.1300e-003	2.3000e-004	27.5382
Unrefrigerated Warehouse-No Rail	594720	189.4905	7.8200e-003	1.6200e-003	190.1684
Total		**317.9718**	**0.0131**	**2.7100e-003**	**319.1093**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Office Park	317120	101.0412	4.1700e-003	8.6000e-004	101.4027
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	86121	27.4400	1.1300e-003	2.3000e-004	27.5382
Unrefrigerated Warehouse-No Rail	594720	189.4905	7.8200e-003	1.6200e-003	190.1684
Total		**317.9718**	**0.0131**	**2.7100e-003**	**319.1093**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1887	8.0000e-005	8.5500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0165	0.0165	4.0000e-005	0.0000	0.0176
Unmitigated	1.1887	8.0000e-005	8.5500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0165	0.0165	4.0000e-005	0.0000	0.0176

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1369					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0509					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-004	8.0000e-005	8.5500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0165	0.0165	4.0000e-005	0.0000	0.0176
Total	**1.1887**	**8.0000e-005**	**8.5500e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0165**	**0.0165**	**4.0000e-005**	**0.0000**	**0.0176**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1369					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0509					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-004	8.0000e-005	8.5500e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0165	0.0165	4.0000e-005	0.0000	0.0176
Total	**1.1887**	**8.0000e-005**	**8.5500e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0165**	**0.0165**	**4.0000e-005**	**0.0000**	**0.0176**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	240.8659	1.6767	0.0413	295.0863
Unmitigated	297.9975	2.0957	0.0516	365.7619

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Office Park	5.68748 / 3.48587	37.7400	0.1868	4.6800e-003	43.8058
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	58.275 / 0	260.2575	1.9089	0.0469	321.9562
Total		**297.9975**	**2.0957**	**0.0516**	**365.7619**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Office Park	4.54998 / 3.48587	32.6599	0.1496	3.7700e-003	37.5214
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	46.62 / 0	208.2060	1.5271	0.0375	257.5649
Total		**240.8659**	**1.6767**	**0.0413**	**295.0863**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	54.1255	3.1987	0.0000	134.0937
Unmitigated	54.1255	3.1987	0.0000	134.0937

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Office Park	29.76	6.0410	0.3570	0.0000	14.9664
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	236.88	48.0845	2.8417	0.0000	119.1273
Total		**54.1255**	**3.1987**	**0.0000**	**134.0937**

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Office Park	29.76	6.0410	0.3570	0.0000	14.9664
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	236.88	48.0845	2.8417	0.0000	119.1273
Total		**54.1255**	**3.1987**	**0.0000**	**134.0937**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality, GHG, and Construction Noise Analysis Report (3285 : PAMA Business Center)

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

GEOTECHNICAL ENGINEERING INVESTIGATION

PROPOSED BUSINESS PARK MORENO VALLEY
SEC ALESSANDRO BLVD. & REBECCA ST.
MORENO VALLEY, CALIFORNIA

CCI PROJECT NO. 1217-0318
JANUARY 9, 2017

PREPARED FOR:

MR. RYAN LIU
PAMA MANAGEMENT INC.
4900 SANTA ANITA AVE., STE. 2C
EL MONTE, CALIFORNIA

PREPARED BY:

CQUEST CONSULTANTS INC.
1342 N. BENSON AVE., UNIT B
UPLAND, CA 91786
PHONE | FAX: (909) 767-6300

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

TABLE OF CONTENTS

INTRODUCTION **1**

PURPOSE AND SCOPE **1**

PROPOSED CONSTRUCTION **2**

SITE LOCATION AND SITE DESCRIPTION **2**

GEOLOGIC SETTING **3**

FAULT RUPTURE HAZARD ZONES **3**

SEISMIC HAZARDS ZONES **3**

FIELD AND LABORATORY INVESTIGATIONS **4**

SOIL PROFILE AND SUBSURFACE CONDITIONS **4**

GROUNDWATER **5**

SOIL LIQUEFACTION **5**

CONCLUSIONS AND RECOMMENDATIONS **6**

Administrative Summary 7
Groundwater Influence 8
Site Preparation 8
Engineered Fill 10
Drainage and Landscaping 10
Temporary Excavation Stability 11
Utility Trench Backfill 11
Foundations 12
Floor Slabs and Exterior Flatwork 12
Lateral Earth Pressures and Retaining Walls 13
Seismic Parameters – 2007 CBC 14
Pavement Design 15
Infiltration Testing 17
Soil Cement Reactivity 18
Compacted Material Acceptance 18
Testing and Inspection 19

LIMITATIONS **19**

FIGURES ..... **Following Text**
LOGS OF BORINGS ..... **Appendix A**
GENERAL EARTHWORK SPECIFICATIONS ..... **Appendix B**
GENERAL PAVING SPECIFICATIONS ..... **Appendix C**
DESIGN MAPS SUMMARY REPORT ..... **Appendix D**

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

January 9, 2018

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED BUSINESS PARK MORENO VALLEY
SEC ALESSANDRO BOULEVARD & REBECCA STREET
MORENO VALLEY, CALIFORNIA

INTRODUCTION

This report presents the results of our Geotechnical Engineering Investigation for the proposed business park to be constructed at the subject site in the city of Moreno Valley, California. A storm water retention evaluation for the above-referenced project is also included in this report. Discussions regarding site conditions are presented herein, together with conclusions and recommendations pertaining to site preparation, Engineered Fill, utility trench backfill, drainage and landscaping, foundations, concrete floor slabs and exterior flatwork, retaining walls, soil cement reactivity, and pavement design.

A site plan showing the approximate boring locations is presented following the text of this report. A description of the field investigation, boring logs, and the boring log legend are presented in Appendix A. Appendix A contains a description of the laboratory testing phase of this study, along with the laboratory test results. Appendices B and C contain guides to earthwork and pavement specifications. If conflicts in the text of the report occur with the general specifications in the appendices, the recommendations in the text of the report have precedence.

PURPOSE AND SCOPE

This investigation was conducted to evaluate the soil and groundwater conditions at the site, to make geotechnical engineering recommendations for use in the design of specific construction elements, and to provide criteria for site preparation and Engineered Fill construction.

Our scope of services was outlined in our proposal dated November 30, 2017 and included the following:

- A site reconnaissance by a member of our engineering staff to evaluate the surface conditions at the project site.
- A field investigation consisting of drilling fourteen (14) borings to depths ranging from approximately ten (10) to fifty (50) feet below existing site grades for evaluation of the subsurface conditions at the project site.
- Performance of three (3) infiltration tests in order to determine approximate infiltration rates for the near surface soil conditions encountered.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

- Performance of laboratory tests on representative soil samples obtained from the borings to evaluate the physical and index properties of the subsurface soils.

- Evaluation of the data obtained from the investigation and an engineering analysis to provide recommendations for use in the project design and preparation of construction specifications.

- Preparation of this report summarizing the results, conclusions, recommendations, and findings of our investigation.

Environmental services, such as a chemical analysis of soil and groundwater for possible environmental contaminates, were not in our scope of services.

PROPOSED CONSTRUCTION

We understand that design of the proposed development is currently underway and as such, structural load information and other final details pertaining to the proposed structure are unavailable. On a preliminary basis, it is understood that the proposed development will include construction of a new business park, and associated site improvements at the subject site. It is anticipated that the proposed development will include construction of eight (8) buildings ranging in size from approximately 18,500 to 46,000 square feet. The proposed buildings will be of concrete tilt-up construction and supported on shallow foundation systems. The proposed development is understood to include trash enclosures, Portland cement and asphalt pavements, and localized landscape and hardscape areas.

The anticipated finished grade elevation for the proposed structures are assumed to be relatively close to the existing site grades. As a result, only minor cuts and fills are anticipated at the site. In the event these structural or grading details are inconsistent with the final design criteria, the Soils Engineer should be notified so that we may update this writing as applicable.

SITE LOCATION AND SITE DESCRIPTION

The subject site is a roughly rectangular shaped parcel and encompasses approximately 15.7 acres. The site is located at the southeast corner of Alessandro Boulevard and Rebecca Street, in the city of Moreno Valley, California. The California Aqueduct easement runs along diagonally through the southwest corner of the subject site. An oil pipeline easement also runs along the mid portion from west to east and comes up to Alessandro Boulevard.

The subject site is bound to the north by Alessandro Boulevard and Alessandro Plaza shopping center beyond, to the east by vacant land, to the south by Brodiaea Avenue and tilt-up buildings beyond, and to the west by Rebecca Street and a combination of vacant land and tilt-up buildings beyond. The subject site is currently vacant and free from of any above grade structures. Ground cover at the site generally consists of exposed soil and localized weed growth throughout site. Sidewalks are located along the south and west perimeters of the subject site. Buried utilities are anticipated throughout and along the perimeter of the site, including but not limited to, the California Aqueduct, an oil pipeline, water and sewer lines. The site is relatively flat and level with no major changes in grade.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

GEOLOGIC SETTING

The site is located within the Peninsular Range Geomorphic Province, an area characterized by active northeast trending strike slip faults, including the San Jacinto to the northwest, and the Elsinore to the southwest. Locally the site is in the Perris Valley, an inland basin underlain by alluvium, and at depth, granitic rocks of the Southern California batholiths. The Perris Valley is situated just north of the Menifee Valley between the Santa Rosa Mountains and the San Jacinto Mountains to the east; and Santa Ana Mountains to the west and south. Groundwater is estimated to occur at a relatively great depth below existing ground surface.

The site is located in a seismically active area of Southern California. The nearest significant active faults are the San Jacinto and San Andreas fault zones, which are approximately 5.6 and 15.3 miles away from the subject site, respectively. The area in consideration shows no mapped faults on-site according to maps prepared by the California Geologic Survey and published by the International Conference of Building Officials (ICBO). No evidence of surface faulting was observed on the property during our reconnaissance.

FAULT RUPTURE HAZARD ZONES

The Alquist-Priolo Geologic Hazard Zones Act went into effect in March, 1973. Since that time, the Act has been amended 11 times (Hart, 2007). The purpose of the Act, as provided in California Geologic Survey (CGS) Special Publication 42 (SP 42), is to “prohibit the location of most structures for human occupancy across the traces of active faults and to mitigate thereby the hazard of fault-rupture." The Act was renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994, and at that time, the originally designated "Special Studies Zones" was renamed the "Earthquake Fault Zones."

The subject site is located on the Sunnymead Quadrangle, Earthquake Fault Zone Map. The nearest significant active fault is the San Andreas Fault Zone, which is located approximately 15.3 miles from the site. The area in consideration shows no mapped faults on-site according to maps prepared by the California Geologic Survey. No evidence of surface faulting was observed on the property during our reconnaissance.

SEISMIC HAZARD ZONES

In 1990, the California State Legislature passed the Seismic Hazard Mapping Act to protect public safety from the effects of strong shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes. The Act requires that the State Geologist delineate various seismic hazard zones on Seismic Hazard Zones Maps. Specifically, the maps identify areas where soil liquefaction and earthquake-induced landslides are most likely to occur. A site-specific geotechnical evaluation is required prior to permitting most urban developments within the mapped zones. The Act also requires sellers of real property within the zones to disclose this fact to potential buyers. A Seismic Hazard Zones Map has not been prepared to date for the vicinity of the subject site. As such, the vicinity of the subject site is not identified as an area designated by the State of California as a Seismic Hazard Zone.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

OTHER HAZARDS

Rockfall, Landslide, Slope Instability, and Debris Flow: The subject site is relatively flat and level. It is our understanding that there are no significant slopes proposed as part of the proposed development. Provided the recommendations presented in this report are implemented into the design and construction of the anticipated development, rockfalls, landslides, slope instability, and debris flows are not anticipated to pose a hazard to the subject site.

Seiches: Seiches are large waves generated within enclosed bodies of water. The site is not located in close proximity to any lakes or reservoirs. As such, seiches are not anticipated to pose a hazard to the subject site.

Tsunamis: Tsunamis are tidal waves generated by fault displacement or major ground movement. The site is several miles from the ocean. As such, tsunamis are not anticipated to pose a hazard to the subject site.

Hydroconsolidation: The near surface soils encountered at the subject site were found to be medium dense to very dense. Provided the recommendations in this report are incorporated into the design and construction of the proposed development, hydroconsolidation is not anticipated to be a significant concern for the subject site.

FIELD AND LABORATORY INVESTIGATION

Subsurface soil conditions were explored by drilling a total of fourteen (14) borings to depths ranging from approximately ten (10) to fifty (50) feet below existing site grade, using a truck-mounted drill rig. The approximate boring and bulk sample locations are shown on the site plan. During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency and to obtain information regarding the engineering properties of the subsurface soils. Soil samples were retained for laboratory testing. The soils encountered were continuously examined and visually classified in accordance with the Unified Soil Classification System. A more detailed description of the field investigation is presented in Appendix A.

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory testing program was formulated with emphasis on the evaluation of natural moisture, density, gradation, shear strength, consolidation potential, expansion potential, and moisture-density relationships of the materials encountered. In addition, chemical tests were performed to evaluate the corrosivity of the soils to buried concrete and metal. Details of the laboratory test program and results of the laboratory tests are summarized in Appendix A. This information, along with the field observations, was used to prepare the final boring logs in Appendix A.

SOIL PROFILE AND SUBSURFACE CONDITIONS

Based on our findings, the subsurface conditions encountered at the boring locations appear typical of those found in the geologic region of the site. In general, the subsurface soils consist of medium dense to very dense silty sands with varying amounts of clay content to the maximum depth explored, 50 feet below site grades.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Penetration resistance ranged from 20 to over 50 blows per foot. Representative samples of the near surface had internal angles of friction of 30 and 32 degrees and a cohesion value of 100 psf. Representative soil samples collected from the boring locations were tested and found to consolidate approximately 0.8 to 1.2 percent when saturated under a load of 2.0 kips per square foot.

For additional information about the soils encountered, please refer to the logs of borings in Appendix A.

GROUNDWATER

Test boring locations were checked for the presence of groundwater during and immediately following the drilling operations. Free groundwater was not encountered at any of the borings drilled as part of this investigation. In addition, based on previous drilling in the area and groundwater data for the site vicinity, the depth to groundwater is expected to be encountered at a depth in excess of fifty (50) feet below existing site grade.

It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use and climatic conditions, as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

SOIL LIQUEFACTION

Soil liquefaction is a state of soil particle suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as clean sand in which the strength is purely frictional. However, liquefaction has occurred in soils other than clean sand. Liquefaction usually occurs under vibratory conditions such as those induced by a seismic event.

To evaluate the liquefaction potential of the site, the following items were evaluated:

1) Soil type
2) Groundwater depth
3) Relative density
4) Initial confining pressure
5) Intensity and duration of groundshaking

The soils encountered within a depth of 50 feet at the project site predominately consist of medium dense to very dense silty sands. Groundwater was not encountered in any of the borings drilled at the subject site. In addition, a Liquefaction Hazard Map has not been prepared for the subject site.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Thus, the area of the subject is not identified as an area designated by the State of California as a Seismic Hazard Zone. Based on the encountered site conditions, liquefaction induced settlement is not considered a significant concern for the subject site.

EXPANSIVE SOIL

The near-surface sand soils encountered at the site have been identified through laboratory testing as having a very low expansion potential. Expansive soils have the potential to undergo volume change, or shrinkage and swelling, with changes in soil moisture. As expansive soils dry, the soil shrinks; when moisture is reintroduced into the soil, the soil swells.

SOIL CORROSIVITY

Corrosion tests were performed to evaluate the soil corrosivity to the buried structures. The tests consisted of sulfate content, chloride content, and resistivity and the results of the tests are included as follows:

Parameter	Results	Test Method
Resistivity	4,650 ohms-cm	CALTRANS
Sulfate	201 ppm	CA 417
Chloride	100 ppm	CA 422
pH	7.9	EPA 9045C

INFILTRATION

An estimated infiltration rate was determined using the results of open borehole percolation testing performed at the subject site. A total of three (3) percolation tests were performed at the subject site. Recommended infiltration rates were calculated using the reverse borehole method. The infiltration testing indicated that the near surface silty sand soil was found to have infiltration rates of approximately 0.32, 0.42, and 0.55 inch per hour. Detailed results of the infiltration testing are included in Appendix A in tabular format. The soil infiltration rates are based on tests conducted with clean water. The infiltration rates may vary with time as a result of soil clogging from water impurities. A factor of safety should be incorporated into the design of the infiltration system to compensate for these factors as determined appropriate by the designer. In addition, routine maintenance consisting of clearing the system of clogged soils and debris should be expected.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of our field and laboratory investigations, along with previous geotechnical experience in the project area, the following is a summary of our evaluations, conclusions, and recommendations.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Administrative Summary

In brief, the subject site and soil conditions, with the exception of the loose surficial soils, appear to be conducive to the development of the project.

General site clearing should include removal of vegetation; existing utilities; structures including foundations; basement walls and floors; existing stockpiled soil; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. In the event that previously unidentified debris pits or underground utilities are encountered, those objects should be removed in their entirety. Any abandoned underground utilities that are exposed and found to extend into adjacent properties should be capped.

Following stripping, fill removal, and demolition activities, it is recommended that at a minimum, the upper four (4) feet of exposed subgrade soils beneath the building pad areas be excavated, worked until uniform and free from large clods, moisture-conditioned to at least optimum moisture-content, and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. In addition, remedial grading should be performed to a minimum of two (2) feet below proposed foundation bearing grades. Within the pavement and exterior flatwork areas, the exposed subgrade should be excavated to a depth of twelve (12) inches, worked until uniform and free from large clods and moisture-conditioned to at least optimum moisture-content and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. Prior to backfilling, the bottom of the excavation should be proof-rolled and observed by a soil specialist to verify stability. This compaction effort should stabilize the upper soils and locate any unsuitable or pliant areas not found during our field investigation.

After completion of the recommended site preparation and over-excavation, the site should be suitable for shallow footing support. The proposed structure footings may be designed utilizing an allowable bearing pressure of 2,600 psf for dead-plus-live loads. Footings should have a minimum embedment of 18 inches.

Walls retaining horizontal backfill and capable of deflecting a minimum of 0.1 percent of its height at the top may be designed using an equivalent fluid active pressure of 40 pounds per square foot per foot of depth. Walls that are incapable of this deflection or walls that are fully constrained against deflection may be designed for an equivalent fluid at-rest pressure of 60 pounds per square foot per foot of depth. Expansive soils should not be used for backfill against walls. The wedge of non-expansive backfill material should extend from the bottom of each retaining wall outward and upward at a slope of 2:1 (horizontal to vertical) or flatter. The stated lateral earth pressures do not include the effects of hydrostatic water pressures generated by infiltrating surface water that may accumulate behind the retaining walls; or loads imposed by construction equipment, foundations, or roadways. All of the above earth pressures are unfactored and are, therefore, not inclusive of factors of safety.

A soil sample was obtained from the site and tested in accordance with State of California Materials Manual Test Designation 417. The sulfate concentration detected from the soil sample indicated a moderate sulfate exposure value as established by HUD/FHA and CBC. Therefore, it is recommended that concrete in contact with soil utilize Type II Cement and have a minimum compressive strength of 4,000 psi.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Groundwater Influence on Structures/Construction

During our field investigation, groundwater was not encountered in any of the borings drilled as part of this investigation. Based on the anticipated depth of construction, groundwater is not anticipated to impact the proposed construction.

However, if earthwork is performed during or soon after periods of precipitation, the subgrade soils may become saturated, "pump," or not respond to densification techniques. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material; or mixing the soil with an approved lime or cement product. Our firm should be consulted prior to implementing remedial measures to observe the unstable subgrade conditions and provide appropriate recommendations.

Site Preparation

General site clearing should include removal of vegetation; existing utilities; structures including foundations; basement walls and floors; existing stockpiled soil; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. In the event that previously unidentified debris pits or underground utilities are encountered, those objects should be removed in their entirety. Any abandoned underground utilities that are exposed and found to extend into adjacent properties should be capped.

To reduce post-construction soil movement, address near surface collapsible soil, provide uniform support for the proposed structure, and address disturbed soil anticipated as a result of demolition activities, overexcavation and recompaction within the proposed building footprint area should be performed to a minimum depth of four (4) feet below existing grades or two (2) feet below the bottom of the proposed footings, whichever is deeper. The actual depth of the overexcavation and recompaction should be determined by our field representative during construction. The overexcavation and recompaction should also extend laterally a minimum of five (5) feet beyond edges of the proposed footings and building appurtenances. Any undocumented fill encountered during grading should be removed and replaced with Engineered Fill.

Any fill soil encountered should be excavated and stockpiled so that the native soils can be properly prepared. Any clayey soils encountered at the site will not be suitable for reuse as Non-Expansive Engineered Fill. However, clayey soils will be suitable for reuse as General Engineered Fill, provided they are cleansed of excessive organics and debris, and are moisture-conditioned to a minimum of 2 percent above optimum moisture-content. Prior to fill placement a soil specialist should inspect the bottom of the excavation to verify no additional removal will be required.

Existing structures are located immediately adjacent and within the site. Associated with these structures are buried structures such as utilities, the California Aqueduct, and oil pipelines. Demolition activities should include proper removal of any buried structures. Any surface or buried structures, such as utilities or loosely backfilled excavations, encountered during construction should be properly removed and the resulting excavations backfilled with Engineered Fill. After demolition activities, it is recommended that these disturbed soils be removed and/or recompacted. Excavations, depressions, or soft and pliant areas extending below planned, finished subgrade levels should be cleaned to firm,

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

undisturbed soil and backfilled with Engineered Fill. In general, any septic tanks, debris pits, cesspools, or similar structures should be entirely removed.

Whenever excavation is made adjacent to existing streets, utilities and structures, there is the potential for movement. The adjacent structures and improvements should be inspected and documented to preclude claims for damage or settlement that are not associated with the construction of the planned development. A monitoring program should be established so excessive movement is detected early. The monitoring program should include optical surveying of the shoring and adjacent streets and buildings to detect any horizontal or vertical movement.

Any concrete footings encountered should be removed to an equivalent depth of at least three (3) feet below proposed footing elevations or as recommended by the Soils Engineer. Any other buried structures should be removed in accordance with the recommendations of the Soils Engineer. The resulting excavations should be backfilled with Engineered Fill.

Following stripping, fill removal, and demolition activities, it is recommended that at a minimum, the upper four (4) feet of exposed subgrade soils beneath the building pad areas be excavated, worked until uniform and free from large clods, moisture-conditioned to at least optimum moisture-content, and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. In addition, remedial grading should be performed to a minimum of two (2) feet below proposed foundation bearing grades. Within the pavement and exterior flatwork areas, the exposed subgrade should be excavated to a depth of twelve (12) inches, worked until uniform and free from large clods and moisture-conditioned to at least optimum moisture-content and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. Prior to backfilling, the bottom of the excavation should be proof-rolled and observed by a soils inspector to verify stability. This compaction effort should stabilize the upper soils and locate any unsuitable or pliant areas not found during our field investigation.

In areas where slab-on-grade construction will be utilized, it is recommended that the soil within proposed slab-on-grade and exterior flatwork areas consist of Non-Expansive Engineered Fill. The non-expansive fill material should be a well-graded silty sand or sandy silt soil. Imported Fill should be approved by the Soils Engineer prior to placement. The fill should be placed as specified as Engineered Fill.

The upper soils, during wet winter months, may become very moist due to the absorptive characteristics of the soil. Earthwork operations performed during winter months may encounter very moist unstable soils, which may require removal to grade a stable building foundation. Project site winterization consisting of placement of aggregate base and protecting exposed soils during the construction phase should be performed.

A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction and stability of the material. The Soils Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section and the Engineered Fill section.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Engineered Fill

The organic-free, on-site, upper native soils are predominately silty sands. These soils will be suitable for reuse as Engineered Fill, provided they are cleansed of excessive organics, debris, and fragments larger than 4 inches in maximum dimension.

The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since he has complete control of the project site at that time.

Imported Non-Expansive Fill should consist of a well-graded, slightly cohesive, fine silty sand or sandy silt soil, with relatively impervious characteristics when compacted. This material should be approved by the Soils Engineer prior to use and should typically possess the following characteristics:

Percent Passing No. 200 Sieve	20 to 50
Plasticity Index	10 maximum
UBC Standard 29-2 Expansion Index	15 maximum

Fill soils should be placed in lifts approximately 6 inches thick, moisture-conditioned to at least optimum moisture-content, and compacted to achieve at least 95 percent of the maximum dry density based on ASTM D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

Drainage and Landscaping

We understand that civil design practices typically include measures to address storm water quality issues. These often include the use of swales to allow for infiltration of the water into the site and to some extent bioremediation of the runoff water as it flows through the swale. Given the limited exposed surface area anticipated as part of the proposed development, little to no infiltration will occur after wetting of the site. The storm water system should be designed for 100 percent run-off over the entire site.

The ground surface should slope away from building pad and pavement areas toward appropriate drop inlets or other surface drainage devices. In accordance with Section 1803 of the 2016 California Building Code, it is recommended that the ground surface adjacent to foundations be sloped a minimum of 5 percent for a minimum distance of 10 feet away from structures, or to an approved alternative means of drainage conveyance. Swales used for conveyance of drainage and located within 10 feet of foundations should be sloped a minimum of 2 percent. Impervious surfaces, such as pavement and exterior concrete flatwork, within 10 feet of building foundations should be sloped a minimum of 2 percent away from the structure. Drainage gradients should be maintained to carry all surface water to collection facilities and off-site. These grades should be maintained for the life of the project.

Slots or weep holes should be placed in drop inlets or other surface drainage devices in pavement areas to allow free drainage of adjoining base course materials. Cutoff walls should be installed at

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

pavement edges adjacent to vehicular traffic areas. These walls should extend to a minimum depth of 12 inches below pavement subgrades to limit the amount of seepage water that can infiltrate the pavements. Where cutoff walls are undesirable, subgrade drains can be constructed to transport excess water away from planters to drainage interceptors. If cutoff walls can be successfully used at the site, construction of subgrade drains is considered unnecessary.

Temporary Excavation Stability

All excavations should comply with the current requirements of Occupational Safety and Health Administration (OSHA). All cuts greater than 4 feet in depth should be sloped or shored. Temporary excavations should be sloped at 1½:1 (horizontal to vertical) or flatter, up to a maximum depth of 8 feet, and at 2:1 (horizontal to vertical) for depths greater than 8 feet. Heavy construction equipment, building materials, excavated soil, and vehicular traffic should not be allowed within five feet of the top (edge) of the excavation. Where sloped excavations are not feasible due to site constraints, the excavations will require shoring. The design of the shoring system is normally the responsibility of the contractor or shoring designer, and therefore, is outside the scope of this report. The design of the temporary shoring should take into account lateral pressures exerted by the adjacent soil, and, where anticipated, surcharge loads due to adjacent buildings and any construction equipment or traffic expected to operate alongside the excavation. Shoring design and determination of surcharge loads is beyond the scope of this report and should be determined by the shoring designer.

The soil conditions encountered at the boring locations consisted of silty sand. These soil conditions are subject to sloughing and caving at excavations. In addition, the soil conditions present at the subject site are considered susceptible to erosion. Measures should be taken to prevent caving and erosion during construction activities.

The excavation/shoring recommendations provided herein are based on soil characteristics derived from our test borings within the area. Variations in soil conditions will likely be encountered during the excavations. Our Engineering firm should be afforded the opportunity to provide field review to evaluate the actual conditions and account for field condition variations, not otherwise anticipated in the preparation of this recommendation.

Utility Trench Backfill

Utility trenches should be excavated according to accepted engineering practice following OSHA (Occupational Safety and Health Administration) standards by a Contractor experienced in such work. The responsibility for the safety of open trenches should be borne by the Contractor. Traffic and vibration adjacent to trench walls should be minimized; cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced; especially during or following periods of precipitation.

Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. The utility trench backfill placed in pavement areas should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. Pipe bedding should be in accordance with pipe manufacturer's recommendations.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

The Contractor is responsible for removing all water-sensitive soils from the trench regardless of the backfill location and compaction requirements. The Contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

Foundations - Conventional

After completion of the recommended site preparation and over-excavation, the site should be suitable for shallow footing support. The proposed structure may be supported on a shallow foundation system bearing on a minimum of two (2) feet of Engineered Fill. Spread and continuous footings can be designed for the following maximum allowable soil bearing pressures:

Load	Allowable Loading
Dead Load Only	2,000 psf
Dead-Plus-Live Load	2,600 psf
Total Load, Including Wind or Seismic Loads	3,500 psf

The footings should have a minimum embedment depth of 18 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower. Footings should have a minimum width of 15 inches, regardless of load. Shallow foundation systems should be designed to tolerate the anticipated static and seismic settlement. The actual foundation design should be performed by the project structural engineer. Shallow foundation systems should be designed to tolerate the anticipated static and seismic settlement.

The footing excavations should not be allowed to dry out any time prior to pouring concrete. It is recommended that footings be reinforced by at least one No. 4 reinforcing bar in both top and bottom. The actual design of foundation design should be performed by the project structural engineer.

Resistance to lateral footing displacement can be computed using an allowable friction factor of 0.30 acting between the base of foundations and the supporting subgrade. Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 250 pounds per cubic foot acting against the appropriate vertical footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. A 1/3 increase in the value above may be used for short duration, wind, or seismic loads. All of the above earth pressures are unfactored and are, therefore, not inclusive of factors of safety.

The total static settlement is not expected to exceed 1 inch. Differential static settlement should be less than ½ inch. Most of the static settlement is expected to occur during construction, as the loads are applied. However, additional post-construction movement may occur if the foundation soils are flooded or saturated. The total and differential seismic-induced settlement is estimated to be less than ¾ inch and ½ inch, respectively. The anticipated seismic differential settlement is estimated over a distance of 30 feet.

Floor Slabs and Exterior Flatwork

Concrete slab-on-grade should be appropriate for this project. The interior floor slab should be a minimum of four (4) inches thick. In areas where it is desired to reduce floor dampness, such as office

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

areas, slab-on-grade construction should have a water vapor retarder incorporated into the floor slab design.

Concrete slab-on-grade floors should be underlain by a water vapor retarder. The water vapor retarder should be installed in accordance with ASTM Specification E1643-98. According to ASTM Guidelines, the water vapor retarder should consist of vapor retarder sheeting underlain by a minimum of 3 inches of compacted, clean, gravel of ¾-inch maximum size. To aid in concrete curing an optional 2 to 4 inches of granular fill may be placed on top of the vapor retarder. The granular fill should consist of damp clean sand with at least 10 to 30 percent of the sand passing the 100 sieve. The sand should be free of clay, silt, or organic material. Rock dust which is manufactured sand from rock crushing operations is typically suitable for the granular fill. This granular fill material should be compacted.

It is recommended that the concrete slabs be reinforced with at least No. 3 reinforcing bars, placed at 18 inches on center in each direction within the slabs middle third, to reduce crack separation and possible vertical offset at the cracks. Thicker floor slabs with increased concrete strength and reinforcement should be designed wherever heavy concentrated loads, heavy equipment, or machinery is anticipated.

The exterior floors should be poured separately in order to act independently of the walls and foundation system. Exterior finish grades should be sloped a minimum of 2 percent away from all interior slab areas to preclude ponding of water adjacent to the structures. All fills required to bring the building pads to grade should be Engineered Fills.

Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor can travel through the vapor membrane and penetrate the slab-on-grade. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To reduce moisture vapor intrusion, it is recommended that a vapor retarder be installed in accordance with ASTM guidelines. It is recommended that the utility trenches within the structure be compacted, as specified in our report, to reduce the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the building is recommended. Positive drainage should be established away from the structure and should be maintained throughout the life of the structure. Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed. In addition, ventilation of the structure (i.e. ventilation fans) is recommended to reduce the accumulation of interior moisture.

Lateral Earth Pressures and Retaining Walls

Walls retaining horizontal backfill and capable of deflecting a minimum of 0.1 percent of its height at the top may be designed using an equivalent fluid active pressure of 40 pounds per square foot per foot of depth. Walls that are incapable of this deflection or walls that are fully constrained against deflection may be designed for an equivalent fluid at-rest pressure of 60 pounds per square foot per foot of depth. Expansive soils should not be used for backfill against walls. The wedge of non-expansive backfill material should extend from the bottom of each retaining wall outward and upward at a slope of 2:1 (horizontal to vertical) or flatter. The stated lateral earth pressures do not include the

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

effects of hydrostatic water pressures generated by infiltrating surface water that may accumulate behind the retaining walls; or loads imposed by construction equipment, foundations, or roadways. All of the above earth pressures are unfactored and are, therefore, not inclusive of factors of safety.

During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall, or within a lateral distance equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

Retaining and/or below grade walls should be drained with either perforated pipe encased in free-draining gravel or a prefabricated drainage system. The gravel zone should have a minimum width of 12 inches wide and should extend upward to within 12 inches of the top of the wall. The upper 12 inches of backfill should consist of native soils, concrete pavement, asphaltic concrete pavement or other suitable backfill to minimize surface drainage into the wall drain system. The aggregate should conform to Class II permeable materials graded in accordance with the CalTrans Standard Specifications (May 2006). Prefabricated drainage systems, such as Miradrain®, Enkadrain®, or an equivalent substitute, are acceptable alternatives in lieu of gravel provided they are installed in accordance with the manufacturer's recommendations. If a prefabricated drainage system is proposed, our firm should review the system for final acceptance prior to installation.

Drainage pipes should be placed with perforations down and should discharge in a non-erosive manner away from foundations and other improvements. The pipes should be placed no higher than 6 inches above the heel of the wall in the center line of the drainage blanket and should have a minimum diameter of 4 inches. Collector pipes may be either slotted or perforated. Slots should be no wider than 1/8 inch in width, while perforations should be no more than ¼ inch in diameter. If retaining walls are less than 6 feet in height, the perforated pipe may be omitted in lieu of weep holes on 4 feet maximum spacing. The weep holes should consist of 4-inch diameter holes (concrete walls) or unmortared head joints (masonry walls) and not be higher than 18 inches above the lowest adjacent grade. Two 8-inch square overlapping patches of geotextile fabric (conforming to the CalTrans Standard Specifications for "edge drains") should be affixed to the rear wall opening of each weep hole to retard soil piping.

It is recommended that any uncertified fill material encountered within pavement areas, be removed and/or recompacted. The fill material should be moisture-conditioned to near optimum moisture-content and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. As an alternative, the Owner may elect not to recompact the existing fill within paved areas. However, the Owner should be aware that the paved areas may settle which may require annual maintenance. At a minimum, it is recommended that the upper 12 inches of subgrade soil be moisture-conditioned as necessary and recompacted to a minimum of 95 percent of the maximum density based on ASTM Test Method D1557.

Seismic Parameters – 2016 California Building Code

The Site Class per Table 1613.5.2, of the 2016 California Building Code (2016 CBC) is based upon the site soil conditions. It is our opinion that Site Class D is most consistent with the subject site soil

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

conditions. For seismic design of the structures based on the seismic provisions of the 2016 CBC, we recommend the following parameters:

Seismic Item	Value	CBC Reference
Site Class	D	Table 1613.5.2
Site Coefficient Fa	1.000	Table 1613.5.3 (1)
Ss	1.503	Figure 1613.5 (3)
SMS	1.503	Section 1613.5.3
SDS	1.002	Section 1613.5.4
Site Coefficient Fv	1.500	Table 1613.5.3 (2)
S1	0.623	Figure 1613.5 (4)
SM1	0.935	Section 1613.5.3
SD1	0.623	Section 1613.5.4

PAVEMENT DESIGN

Based on the established standard practice of designing flexible pavements in accordance with State of California Department of Transportation (Caltrans) for projects within California, we have developed pavement sections in accordance with the procedure presented in Caltrans Standard Test Method 301. This pavement design procedure is based on the volume of traffic (Traffic Index) and the soil resistance "R" Value (R-Value) of subgrade soils. The AASHTO procedure was used to evaluate rigid pavement section requirements.

Asphalt Concrete (Flexible) Pavements

Based on a review of the boring logs, the near surface soil encountered at the subject site consists of mostly sand with an R-Value of 35. If site grading exposes soil other than that assumed, we should perform additional tests to confirm or revise the recommended pavement sections for actual field conditions. Various alternative pavement sections based on the Caltrans Flexible Pavement Design Method are presented below:

ASPHALT CONCRETE (FLEXIBLE) PAVEMENTS Subgrade R-value = 35			
Traffic Index	**Asphalt Concrete (inches)**	**Class 2 Aggregate Base (inches)**	**Depth of Compacted Subgrade (inches)**
5.0	2.5	6.0	12.0
6.0	3.0	7.0	12.0
7.0	4.0	8.0	12.0
8.0	4.5	10.0	12.0

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

We recommend that the subgrade soil be prepared as discussed in this report. The compacted subgrade should be non-yielding when proof-rolled with a loaded ten-wheel truck, such as a water truck or dump truck, prior to pavement construction. Subgrade preparation should extend a minimum of 3 feet laterally beyond the edge of pavement or back of curbs.

Pavement areas should be sloped and drainage gradients maintained to carry all surface water off the site. A cross slope of 2 percent is recommended in asphalt concrete pavement areas to provide good surface drainage and to reduce the potential for water to penetrate into the pavement structure.

Unless otherwise required by local jurisdictions, paving materials should comply with the materials specifications presented in the Caltrans Standard Specifications Section. Class 2 Aggregate Base should comply with the materials requirements for Class 2 Base found in Section 26.

Where high temperatures will be prevalent, elevated to extreme pavement temperature could result in softening of the asphaltic oil (asphalt binder), which in turn could result in increased potential for rutting, shoving or raveling of the pavement surface. This would be of particular concern where harsh tire action occurs, such as at braking and acceleration locations in the travel lanes and at parking stalls. The use of higher viscosity asphalt binder will increase the relative stiffness of the asphalt concrete mix over a given temperature range than that of a low viscosity binder. With the increased viscosity of the asphalt binder and stiffness of the mix, the material will be less susceptible to for rutting, shoving or raveling.

The mineral aggregate shall be Type B, ½-inch or ¾-inch maximum, medium grading, for the wearing course and ¾-inch maximum, medium grading for the base course, and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The asphalt concrete materials should comply with and be placed in accordance with the specifications presented in Section 39 of the Caltrans Standard Specifications, latest edition. Asphalt concrete should be compacted to a minimum of 95 percent of the maximum laboratory compacted (kneading compactor) unit weight.

ASTM Test procedures should be used to assess the percent relative compaction of soils, aggregate base and asphalt concrete. Aggregate and the upper 12 inches of subgrade should be compacted to at least 95 percent based on the Modified Proctor maximum compacted unit weight obtained in accordance with ASTM Test Method D1557-00. Compacted aggregate base should also be stable and unyielding when proof-rolled with a loaded ten-wheel water truck or dump truck.

Portland Cement Concrete (Rigid) Pavement

A minimum six-inch layer of compacted Class 2 Aggregate Base should be placed over the prepared subgrade prior to placement of the concrete pavements. With the addition of the aggregate base material, we recommend that a combined modulus of subgrade/base reaction value of 150 pounds per cubic inch be used in design where the rigid pavement is to be designed by a Structural Engineer.

Rigid pavement design procedures have been developed by various agencies, including AASHTO and the Portland Cement Association (PCA). We have evaluated the required pavement sections based on the procedure presented in "AASHTO Guide for Design of Pavement Structures 1993" traffic volumes.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

RIGID PAVEMENT			
Traffic Index	**Portland Cement Concrete (inches)**	**Class 2 Aggregate Base (inches)**	**Compacted Subgrade (inches)**
5.0	5.0	6.0	12
7.0	6.5	6.0	12

Please note that the concrete modulus of rupture is based on *flexural strength*, not compressive strength, and should be specified accordingly. A *flexural strength* of 550 psi should be specified accordingly. Our experience is that the compressive strength will have to be on the order of 3,800 to 4,500 psi in order to achieve the required flexural strength. Prior to the construction of any rigid pavement, we recommend that concrete mix histories with flexural strength data be obtained from the proposed supplier. In the absence of flexural strength history, we recommend that laboratory trial batching and testing be performed to allow for confirmation that the proposed concrete mix is capable of producing the required flexural strength.

The concrete pavements should be designed with both longitudinal and transverse joints. The saw-cut or formed joints should extend to a minimum depth of one-fourth of the pavement thickness plus ¼ inch. Joint spacing should not exceed 15 feet. Steel reinforcement of all rigid pavements is recommended to keep the joints tight and to control temperature cracking.

Keyed joints are recommended at all construction joints to transfer loads across the joints. Joints should be reinforced with a minimum of ½ inch diameter by 48-inch long deformed reinforcing steel dowel bars placed at mid-slab depth on 18-inch center-to-center spacing to keep the joints tight for load transfer. The joints should be filled with a flexible sealer. Expansion joints should be constructed only where the pavements abut structures or fixed objects.

Smooth bar dowels, with a diameter of d/8, where d equals the thickness of the concrete, at least 14 inches in length, placed at a spacing of 12 inches on center, may also be considered for construction joints to transfer loads across the joints. The dowels should be centered across the joints with one side of the dowel lubricated to reduce the bond strength between the dowel and the concrete and fitted with a plastic cap to allow for bar expansion.

Infiltration Testing

The shallow soil conditions present at the subject site were evaluated by drilling shallow borings in the vicinity of the anticipated infiltration areas. The borings drilled at the site indicated the subsurface soil conditions consisted of dense to very dense silty sand.

Infiltration rates were determined using the results of open borehole infiltration testing performed at the subject site. Infiltration testing performed on the near surface silty sand soil indicates infiltration rates of approximately 0.32, 0.42, and 0.55 inch per hour. Detailed results of the percolation test and infiltration rate are attached in tabular format. The soil percolation rates are based on tests conducted with clean water. The infiltration rates may vary with time as a result of soil clogging from water impurities. A factor of safety should be incorporated into the design of the percolation system to

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

compensate for these factors as determined appropriate by the designer. In addition, periodic maintenance consisting of clearing the bottom of the system of clogged soils should be expected.

It is recommended that the location of the infiltration systems not be closer than ten feet (10') as measured laterally from the edge of the adjacent property line, ten feet (10') from the outside edge of any foundation and five (5') from the edge of any right-of way to the outside edges of the infiltration system.

If the infiltration location is within ten feet (10') from the proposed foundation, it is recommended that this infiltration system should be impervious from the finished ground surface to a depth that will achieve a diagonal distance of a minimum of ten feet (10') below the bottom of the closest footing in the project.

Soil Cement Reactivity

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete (or stucco) and the soil. HUD/FHA and UBC have developed criteria for evaluation of sulfate levels and how they relate to cement reactivity with soil and/or water.

A soil sample was obtained from the site and tested in accordance with State of California Materials Manual Test Designation 417. The sulfate concentration detected from the soil sample indicated a moderate sulfate exposure value as established by HUD/FHA and CBC. Therefore, it is recommended that concrete in contact with soil utilize Type II Cement and have a minimum compressive strength of 4,000 psi.

Electrical resistivity testing of the soils indicates that the onsite soils may have a moderate potential for metal loss from electrochemical corrosion process. A qualified corrosion engineer may be consulted regarding mitigation of the corrosion effects of the onsite soils on underground metal utilities.

Compacted Material Acceptance

Compaction specifications are not the only criteria for acceptance of the site grading or other such activities. However, the compaction test is the most universally recognized test method for assessing the performance of the Grading Contractor. The numerical test results from the compaction test cannot be solely used to predict the engineering performance of the compacted material. Therefore, the acceptance of compacted materials will also be dependent upon the stability of that material. The Soils Engineer has the option of rejecting any compacted material regardless of the degree of compaction if that material is considered to be unstable or if future instability is suspected. A specific example of rejection of fill material passing the required percent compaction is a fill which has been compacted with an in-situ moisture-content significantly less than optimum moisture. This type of dry fill (brittle fill) is susceptible to future settlement if it becomes saturated or flooded.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Testing and Inspection

A representative of our Engineering Firm should be present at the site during the earthwork activities to confirm that actual subsurface conditions are consistent with the exploratory fieldwork. This activity is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction testing and stability of the material. This representative can also verify that the intent of these recommendations is incorporated into the project design and construction. CQuest Consultants Inc. will not be responsible for grades or staking, since this is the responsibility of the Prime Contractor.

LIMITATIONS

Soils Engineering is one of the newest divisions of Civil Engineering. This branch of Civil Engineering is constantly improving as new technologies and understanding of earth sciences advance. Although your site was analyzed using the most appropriate and most current techniques and methods, undoubtedly there will be substantial future improvements in this branch of engineering. In addition to advancements in the field of Soils Engineering, physical changes in the site, either due to excavation or fill placement, new agency regulations, or possible changes in the proposed structure after the soils report is completed may require the soils report to be professionally reviewed. In light of this, the owner should be aware that there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that 2 years be considered a reasonable time for the usefulness of this report.

Foundation and earthwork construction is characterized by the presence of a calculated risk that soil and groundwater conditions have been fully revealed by the original foundation investigation. This risk is derived from the practical necessity of basing interpretations and design conclusions on limited sampling of the earth. The recommendations made in this report are based on the assumption that soil conditions do not vary significantly from those disclosed during our field investigation. If any variations or undesirable conditions are encountered during construction, the Soils Engineer should be notified so that supplemental recommendations may be made.

The conclusions of this report are based on the information provided regarding the proposed construction. If the proposed construction is relocated or redesigned, the conclusions in this report may not be valid. The Soils Engineer should be notified of any changes so the recommendations may be reviewed and re-evaluated.

This report is a Geotechnical Engineering Investigation with the purpose of evaluating the soil conditions in terms of foundation design. The scope of our services did not include any Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere; or the presence of wetlands. Any statements, or absence of statements, in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potentially hazardous and/or toxic assessment.

The geotechnical engineering information presented herein is based upon professional interpretation utilizing standard engineering practices and a degree of conservatism deemed proper for this project. It is not warranted that such information and interpretation cannot be superseded by future

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

geotechnical engineering developments. We emphasize that this report is valid for the project outlined above and should not be used for any other sites.

Respectfully submitted,
CQuest Consultants Inc.

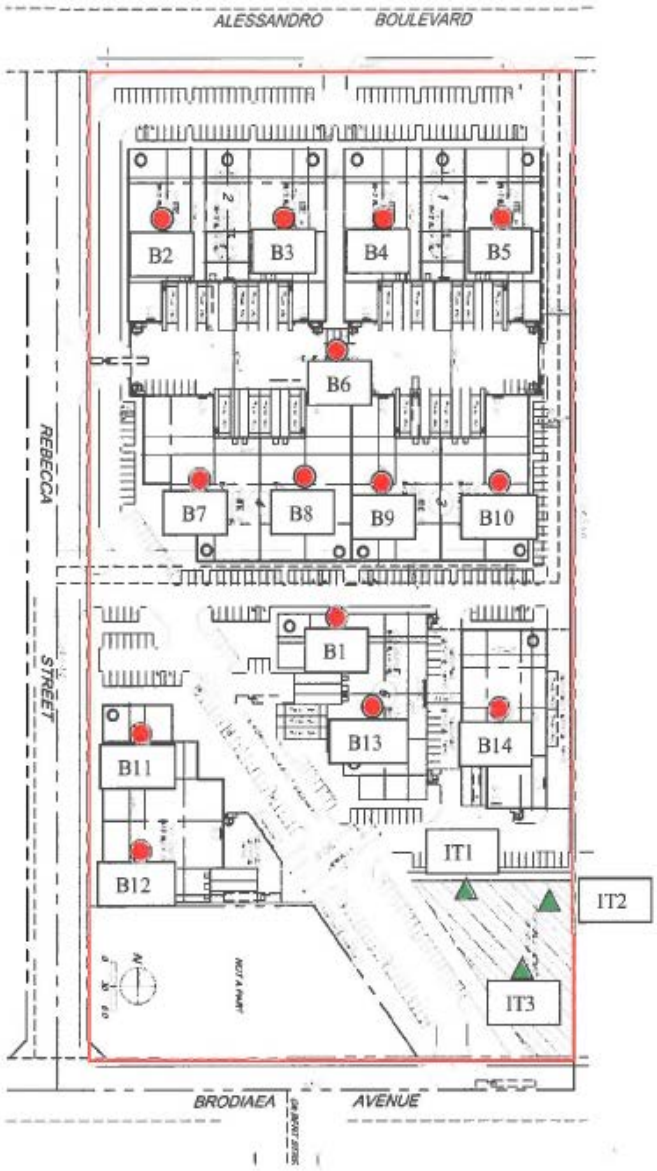
Charles A. Haran, PE
Project Engineer

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

FIGURES

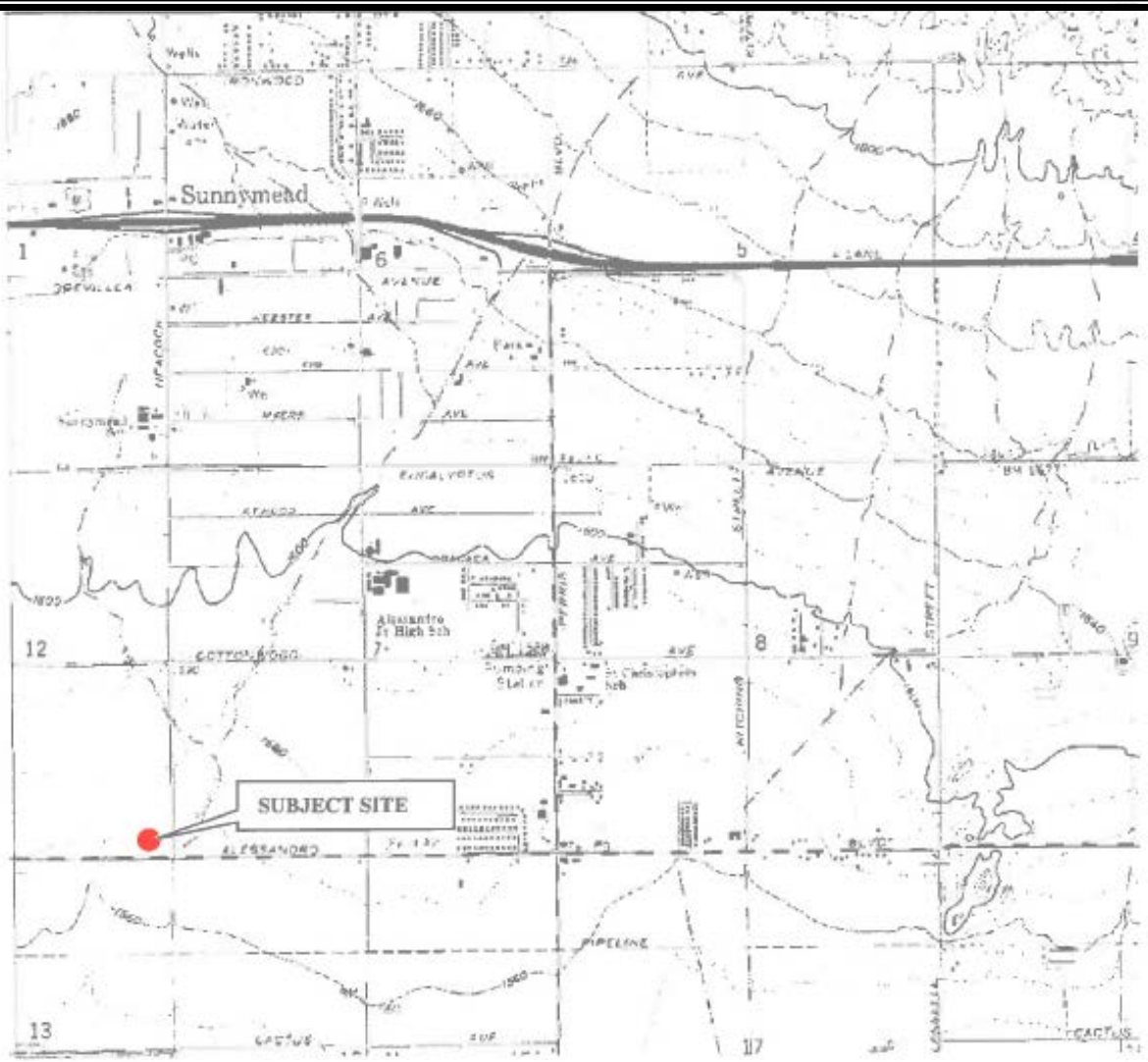
VICINITY MAP **PROPOSED BUSINESS PARK** **ALESSANDRO BLVD & REBECCA ST** **MORENO VALLEY, CALIFORNIA**	**Date:** November 2017	**Project No:** 1217-0318	CQuestConsultantsInc. ENGINEERING, TESTING, AND INSPECTION
	Scale: NTS	**Client:** PAMA Management Inc.	

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)



EXPLORATORY BORING LOCATIONS LEGEND ● APPROXIMATE BORING LOCATION ▲ APPROXIMATE INFILTRATION TEST LOCATION	Scale: NTS	Date: November 2017	SITE PLAN	CQuestConsultantsInc. ENGINEERING, TESTING, AND INSPECTION
	Project No: 1217-0318	Client: PAMA Management Inc.		

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)



MAP EXPLANATION

Potentially Active Faults

Faults considered to have been active during Quaternary time: solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed, query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Aerial photo lineaments (not field checked); based on youthful geomorphic and other features believed to be the results of Quaternary faulting.

Special Studies Zone Boundaries

These are delineated as straight-line segments that connect consecutively numbered turning points so as to define one or more special studies zone segments.

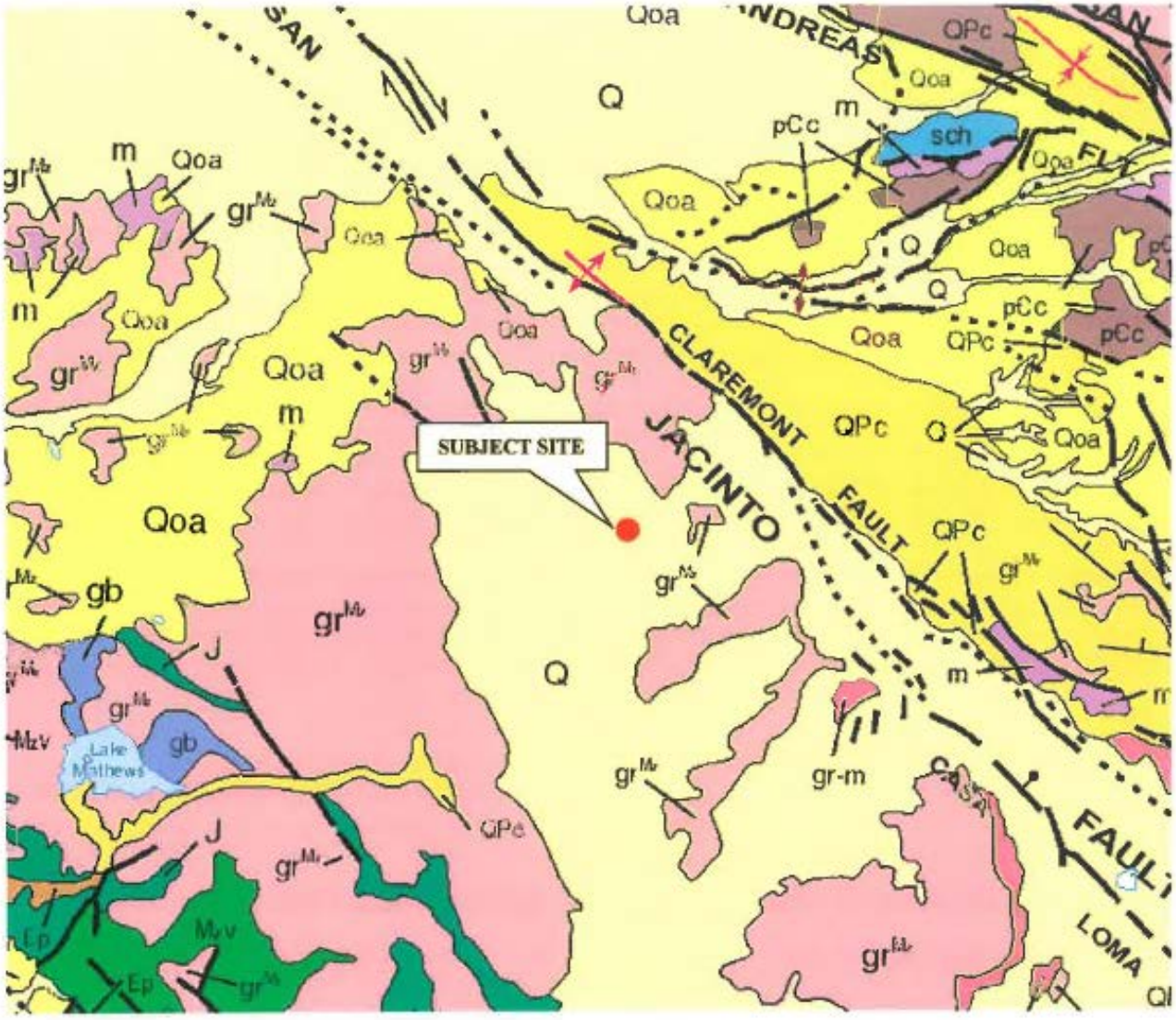
Seaward projection of zone boundary

Source: State of California Seismic Hazards Map, Sunnymead Quadrangle

N

FAULT ZONE MAP **PROPOSED BUSINESS PARK** **ALESSANDRO BLVD & REBECCA ST** **MORENO VALLEY, CA**	**Date:** November 2017	**Project No:** 1217-0318	CQuestConsultantsInc. ENGINEERING, TESTING, AND INSPECTION
	Scale: NTS	**Client:** PAMA Management Inc.	

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)



Q — Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated

Source: CGS Geologic Map of California, 2010

N

GEOLOGIC MAP **PROPOSED BUSINESS PARK** **ALESSANDRO BLVD & REBECCA ST** **MORENO VALLEY, CA**	**Date:** November 2017	**Project No:** 1217-0318	CQuestConsultantsInc. ENGINEERING, TESTING, AND INSPECTION
	Scale: NTS	**Client:** PAMA Management Inc.	

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

APPENDIX A

APPENDIX A

FIELD AND LABORATORY INVESTIGATIONS

Field Investigation

The field investigation consisted of a surface reconnaissance and a subsurface exploratory program. A total of fourteen (14) - 8½-inch diameter exploratory borings were advanced using hollow stem auger drilling equipment. The boring locations are shown on the attached site plan.

The soils encountered at the boring locations were logged in the field during the exploration and with supplementary laboratory test data are described in accordance with the Unified Soil Classification System.

Modified standard penetration tests and standard penetration tests were performed at selected depths. This test represents the resistance to driving a 2½-inch and 1½-inch diameter split barrel sampler, respectively. The driving energy was provided by a hammer weighing 140 pounds falling 30 inches. Relatively undisturbed soil samples were obtained while performing this test. Bag samples of the disturbed soil were obtained from the auger cuttings. The modified standard penetration tests are identified in the sample type on the boring logs with a full shaded in block. The standard penetration tests are identified in the sample type on the boring logs with one-half of the block shaded. All samples were returned to our laboratory for evaluation.

Laboratory Investigation

The laboratory investigation was programmed to determine the physical and mechanical properties of the foundation soil underlying the site. Test results were used as criteria for determining the engineering suitability of the surface and subsurface materials encountered.

In-situ moisture-content, dry density, consolidation, direct shear, and sieve analysis tests were completed for the undisturbed samples representative of the subsurface material. Expansion index and R-Value tests were completed for select bag samples obtained from the auger cuttings. These tests, supplemented by visual observation, comprised the basis for our evaluation of the site material.

The logs of the exploratory borings and laboratory determinations are presented in this Appendix.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

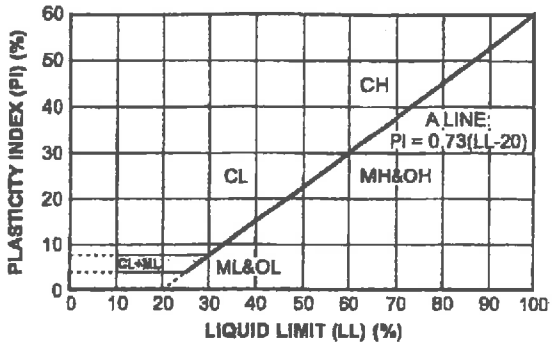
UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART			
COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

CONSISTENCY CLASSIFICATION	
Description	**Blows per Foot**
Granular Soils	
Very Loose	< 5
Loose	5 – 15
Medium Dense	16 – 40
Dense	41 – 65
Very Dense	> 65
Cohesive Soils	
Very Soft	< 3
Soft	3 – 5
Firm	6 – 10
Stiff	11 – 20
Very Stiff	21 – 40
Hard	> 40

GRAIN SIZE CLASSIFICATION		
Grain Type	*Standard Sieve Size*	*Grain Size in Millimeters*
Boulders	Above 12 inches	Above 305
Cobbles	12 to 13 inches	305 to 76.2
Gravel	3 inches to No. 4	76.2 to 4.76
Coarse-grained	3 to ¾ inches	76.2 to 19.1
Fine-grained	¾ inches to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
Coarse-grained	No. 4 to No. 10	4.76 to 2.00
Medium-grained	No. 10 to No. 40	2.00 to 0.042
Fine-grained	No. 40 to No. 200	0.042 to 0.074
Silt and Clay	Below No. 200	Below 0.074

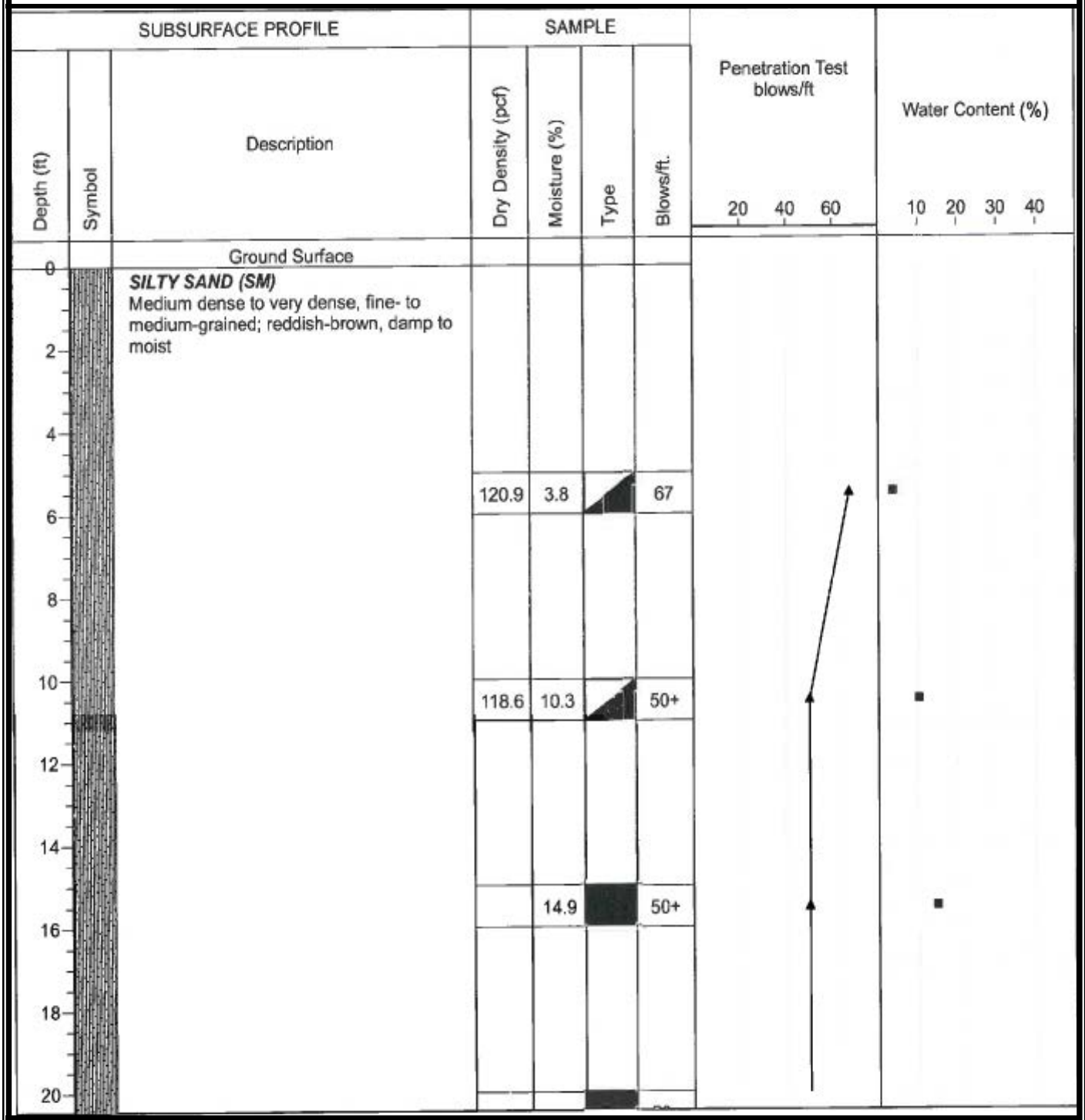
PLASTICITY CHART



Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-1

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-1
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered **Initial:** N/A	**At Completion:**	N/A



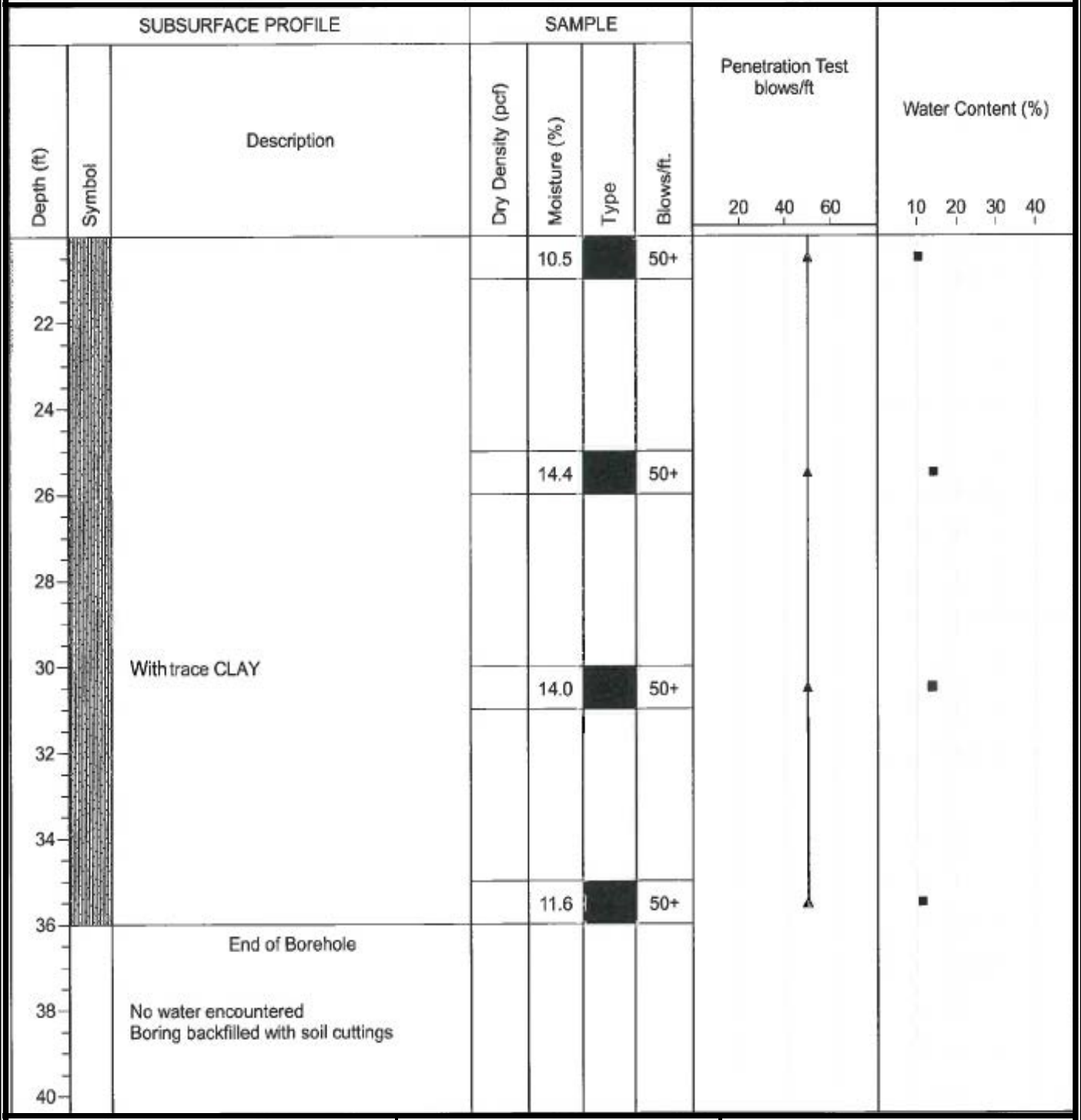
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	36 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-1

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-1
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered **Initial:** N/A	**At Completion:**	N/A



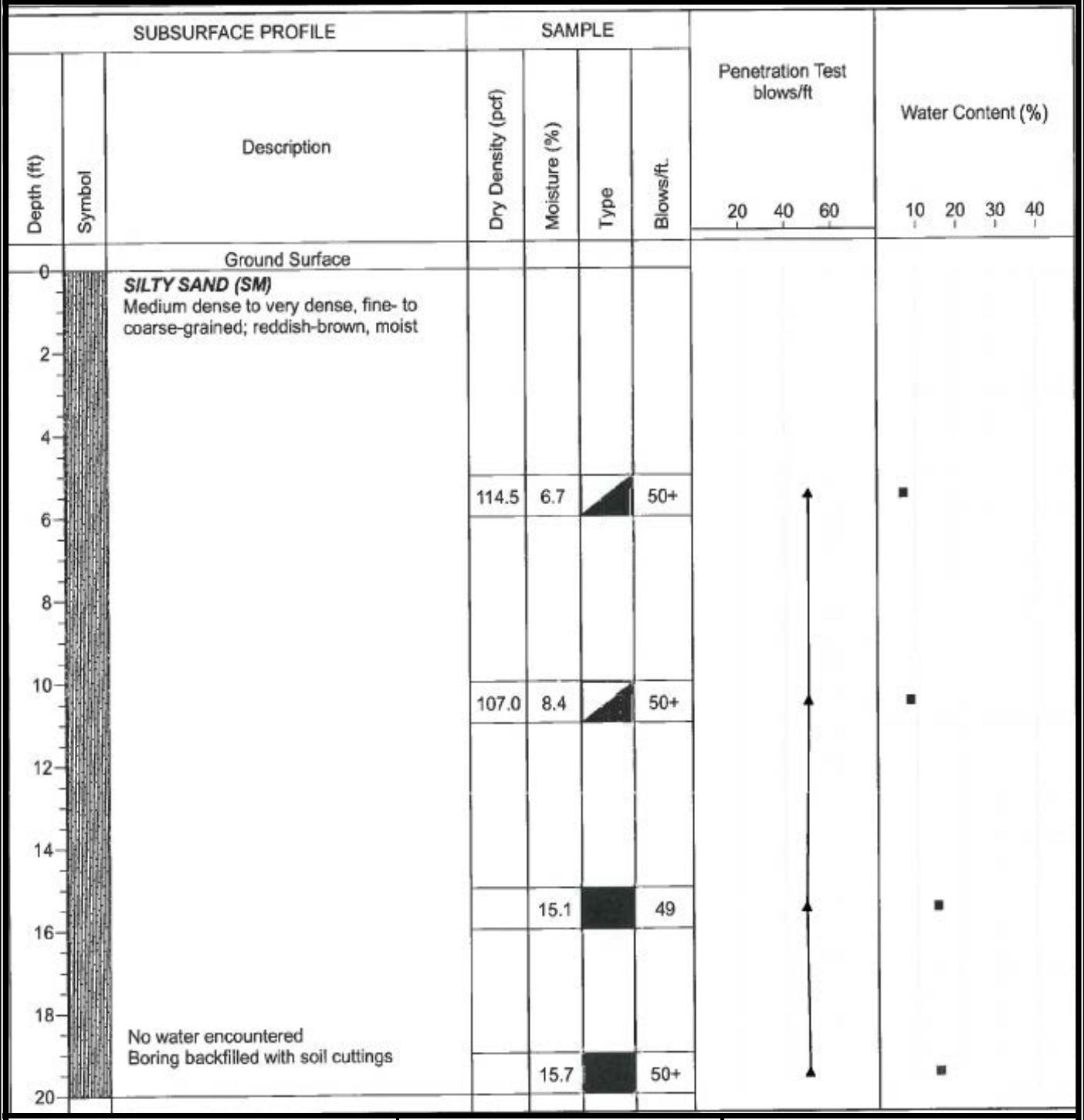
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	36 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-2

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-2
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



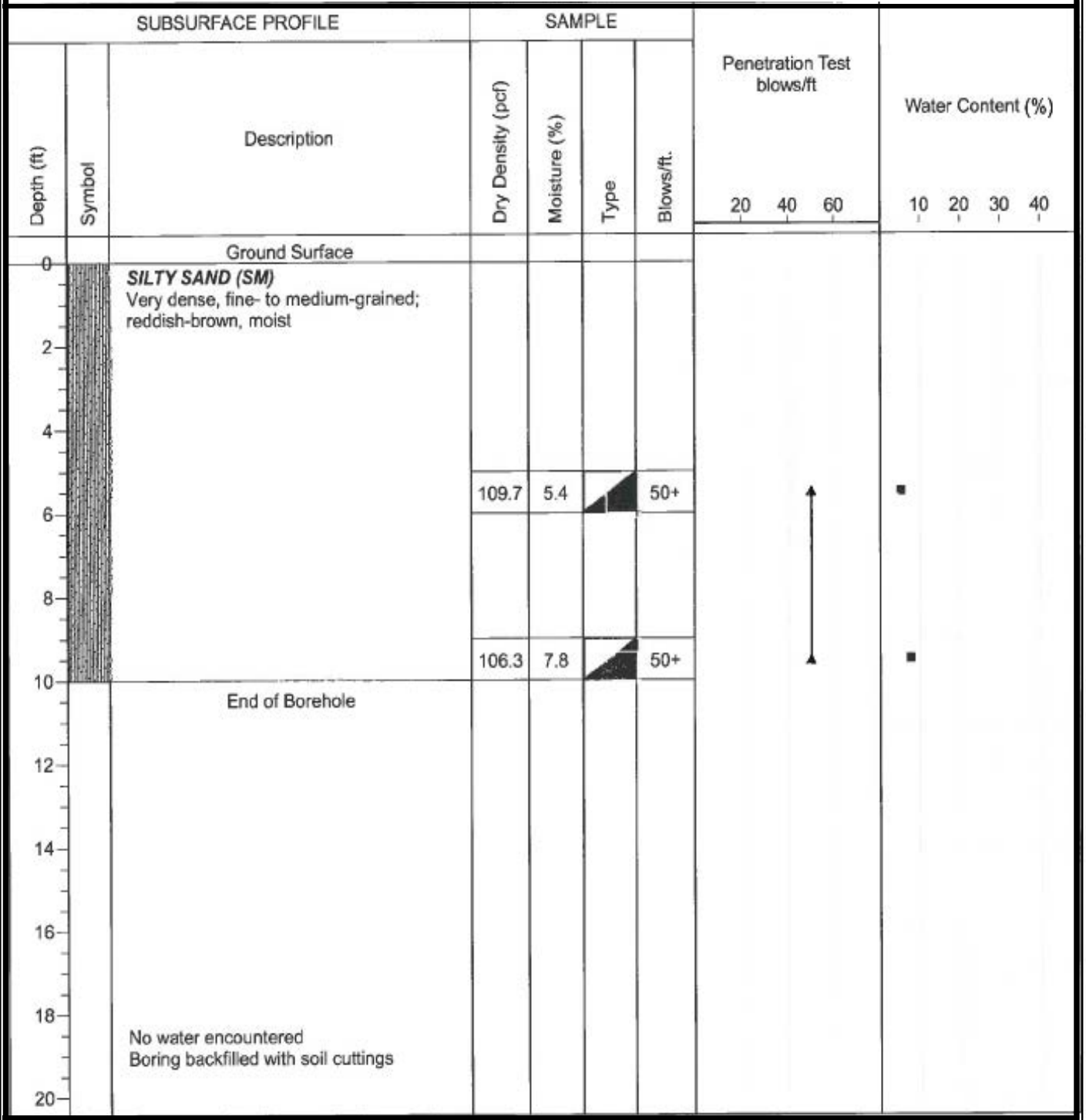
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-3

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-3
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



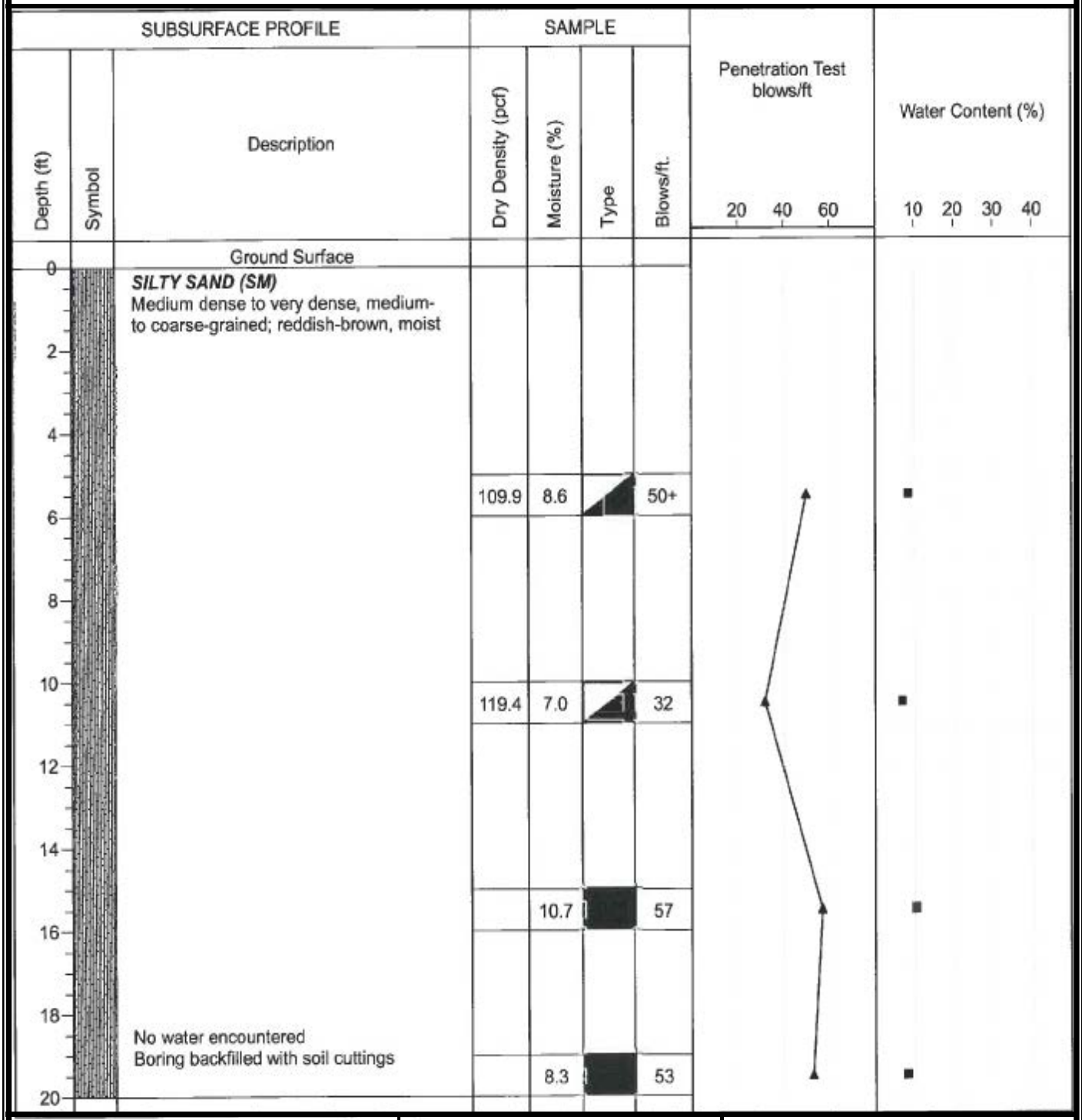
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-4

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-4
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



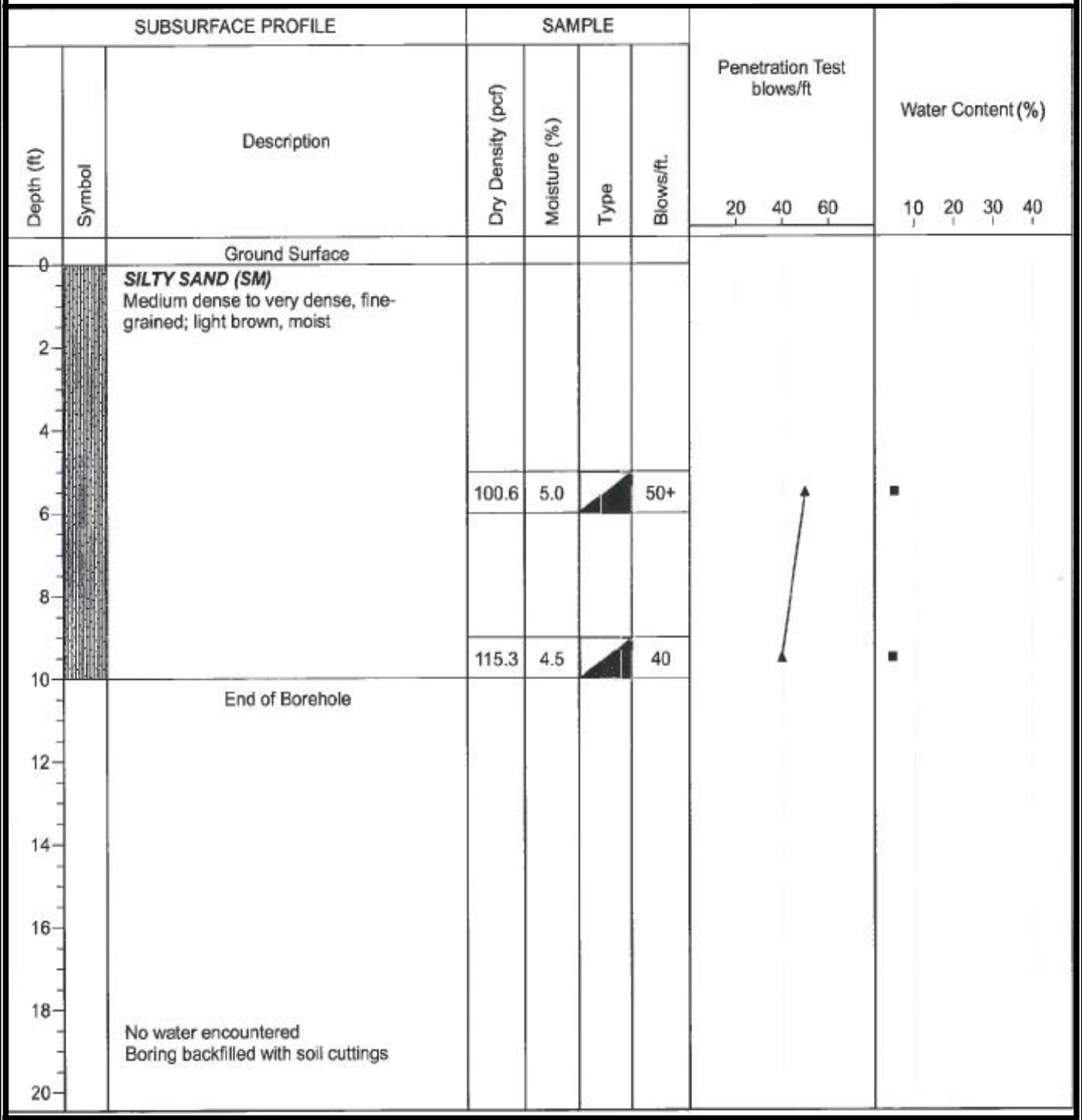
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-5

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-5
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



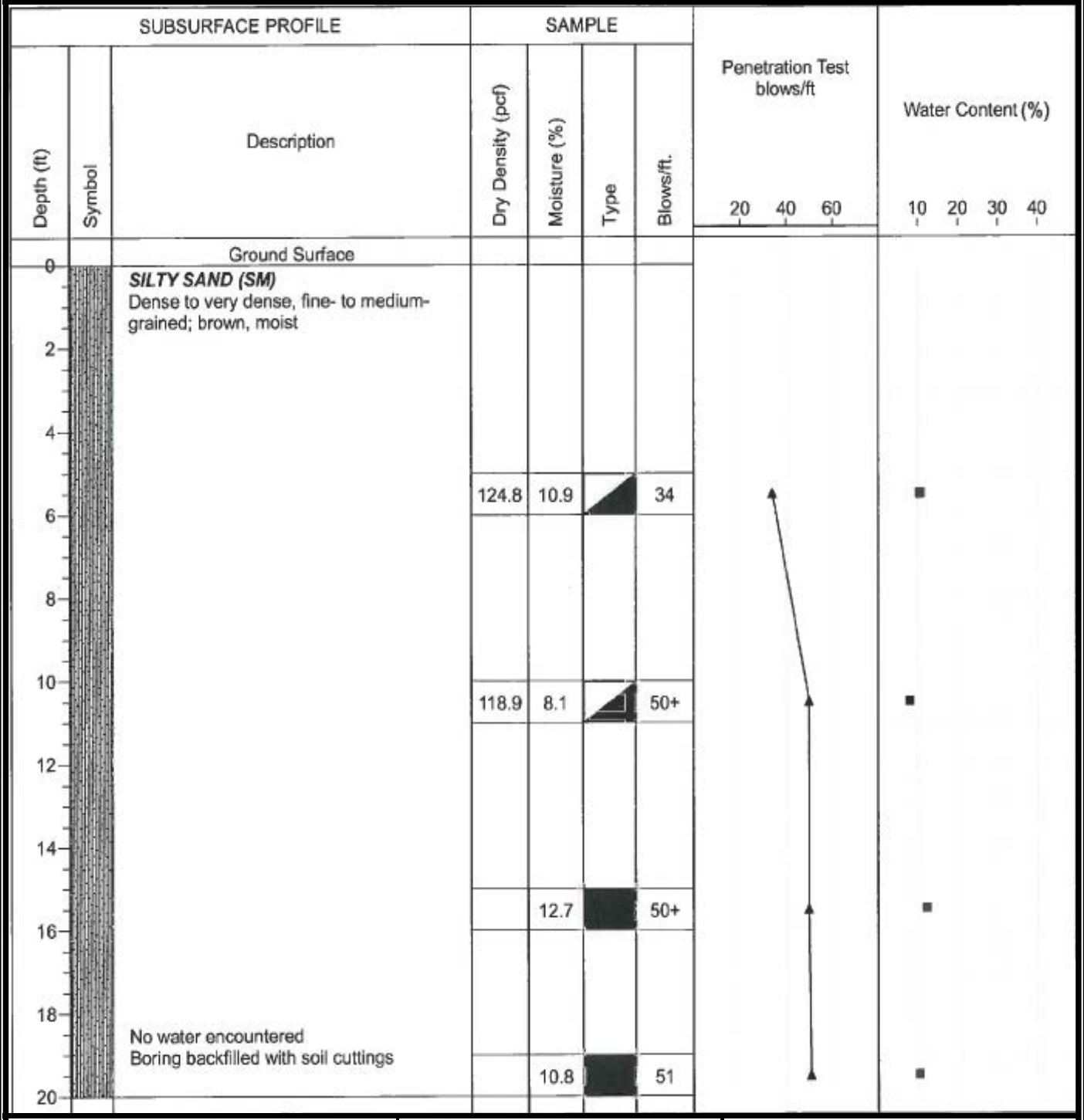
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-6

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-6
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



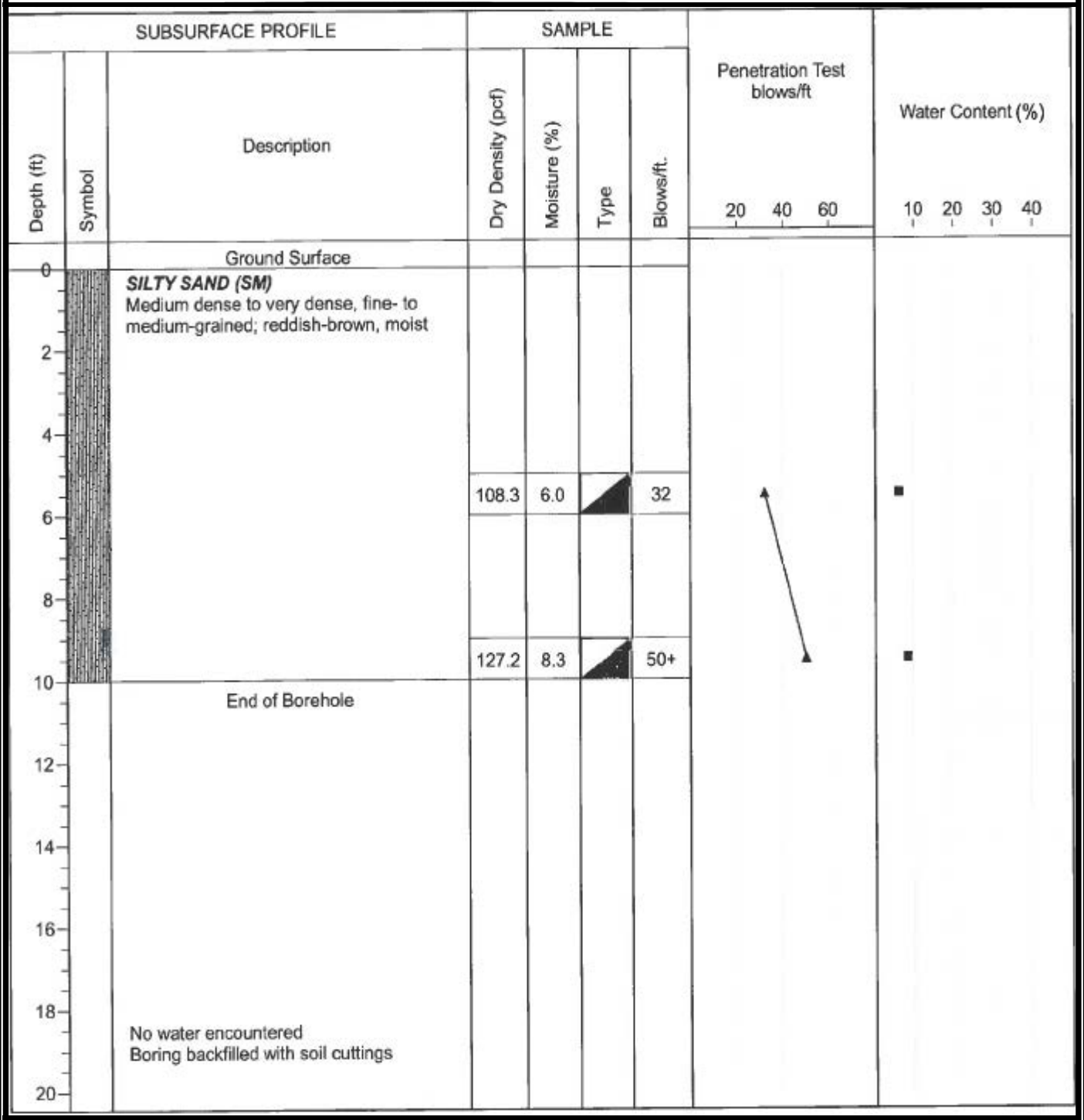
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-7

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-7
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



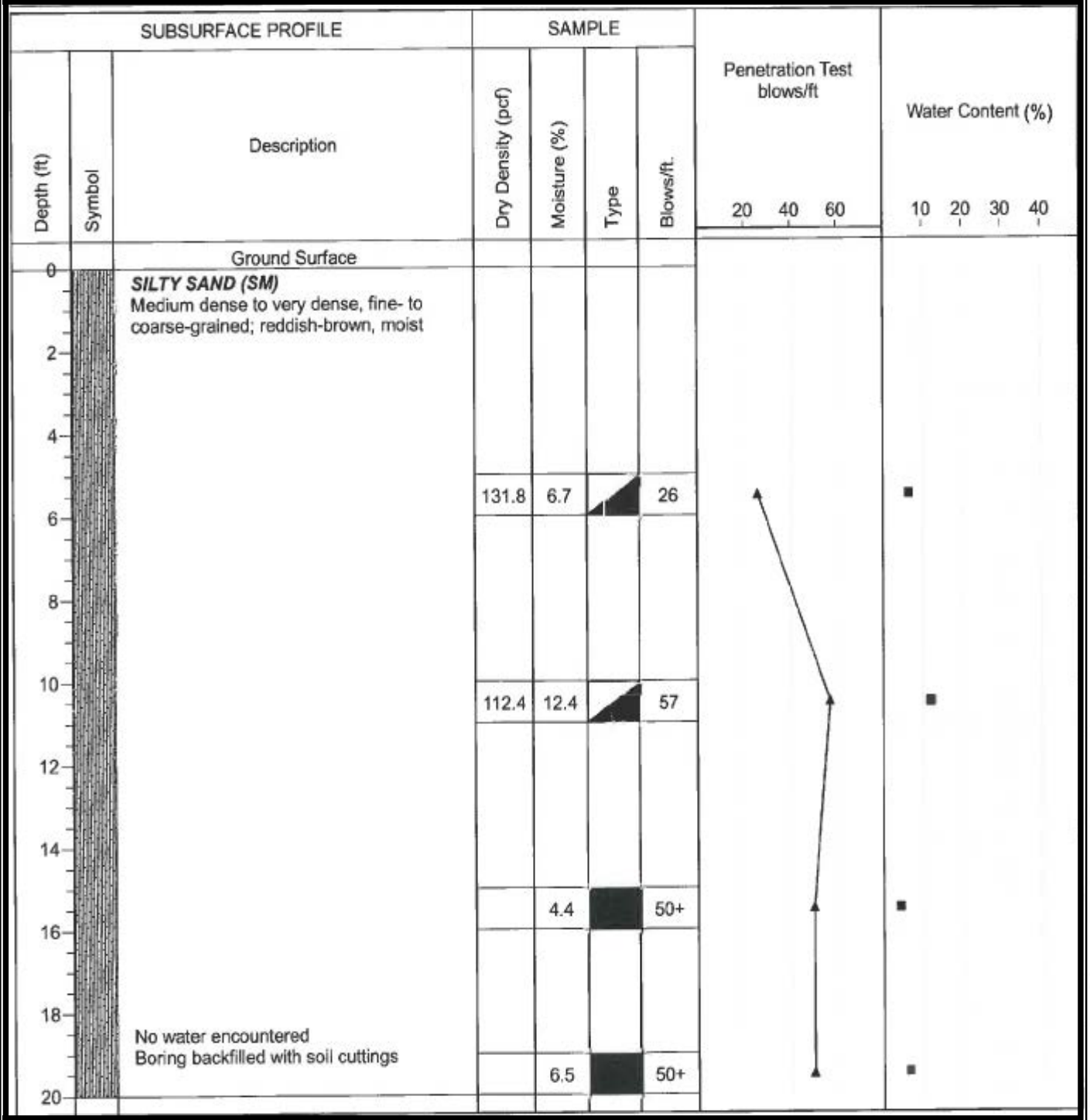
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-8

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-8
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



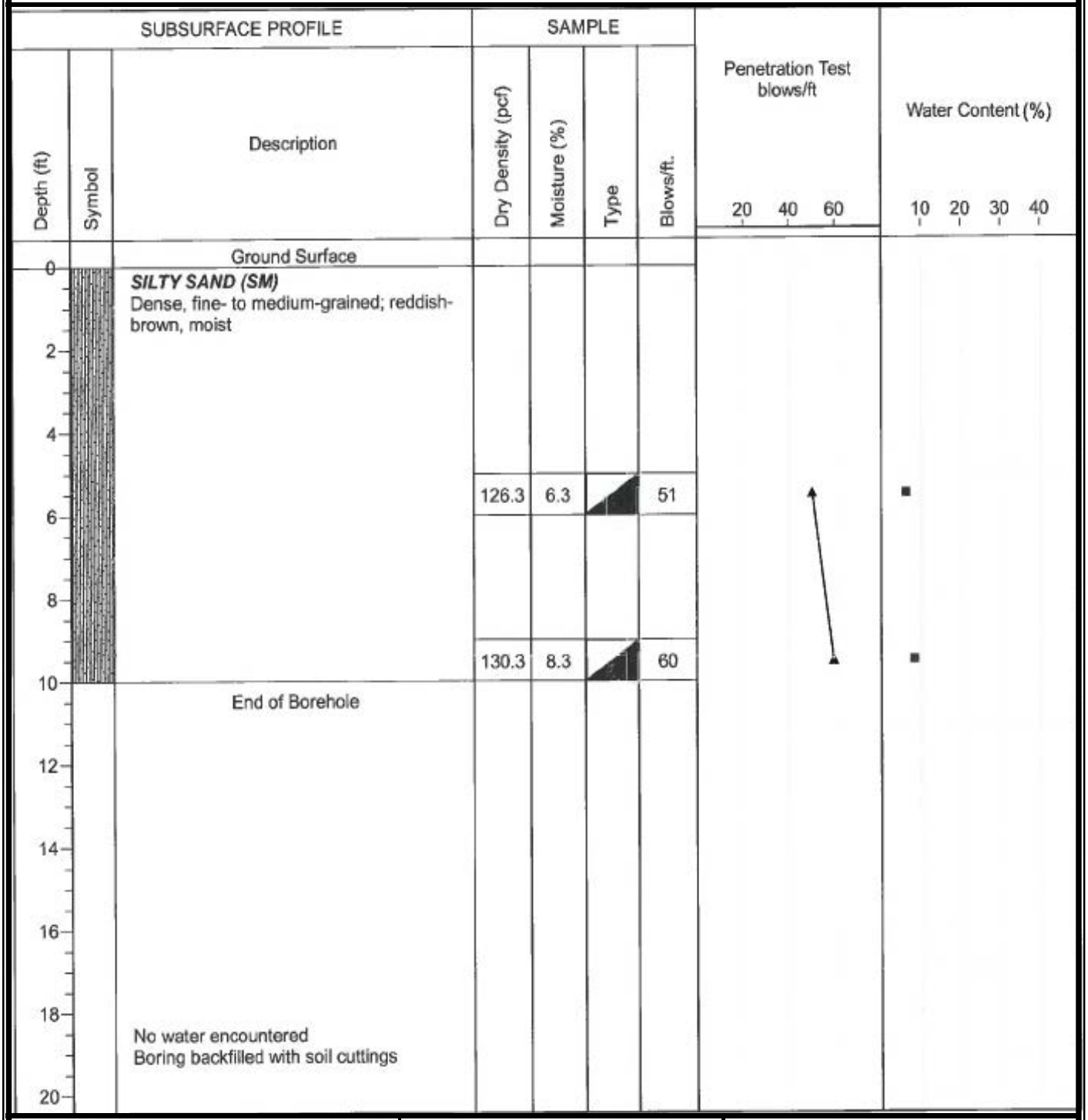
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-9

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-9
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered **Initial:** N/A	**At Completion:**	N/A



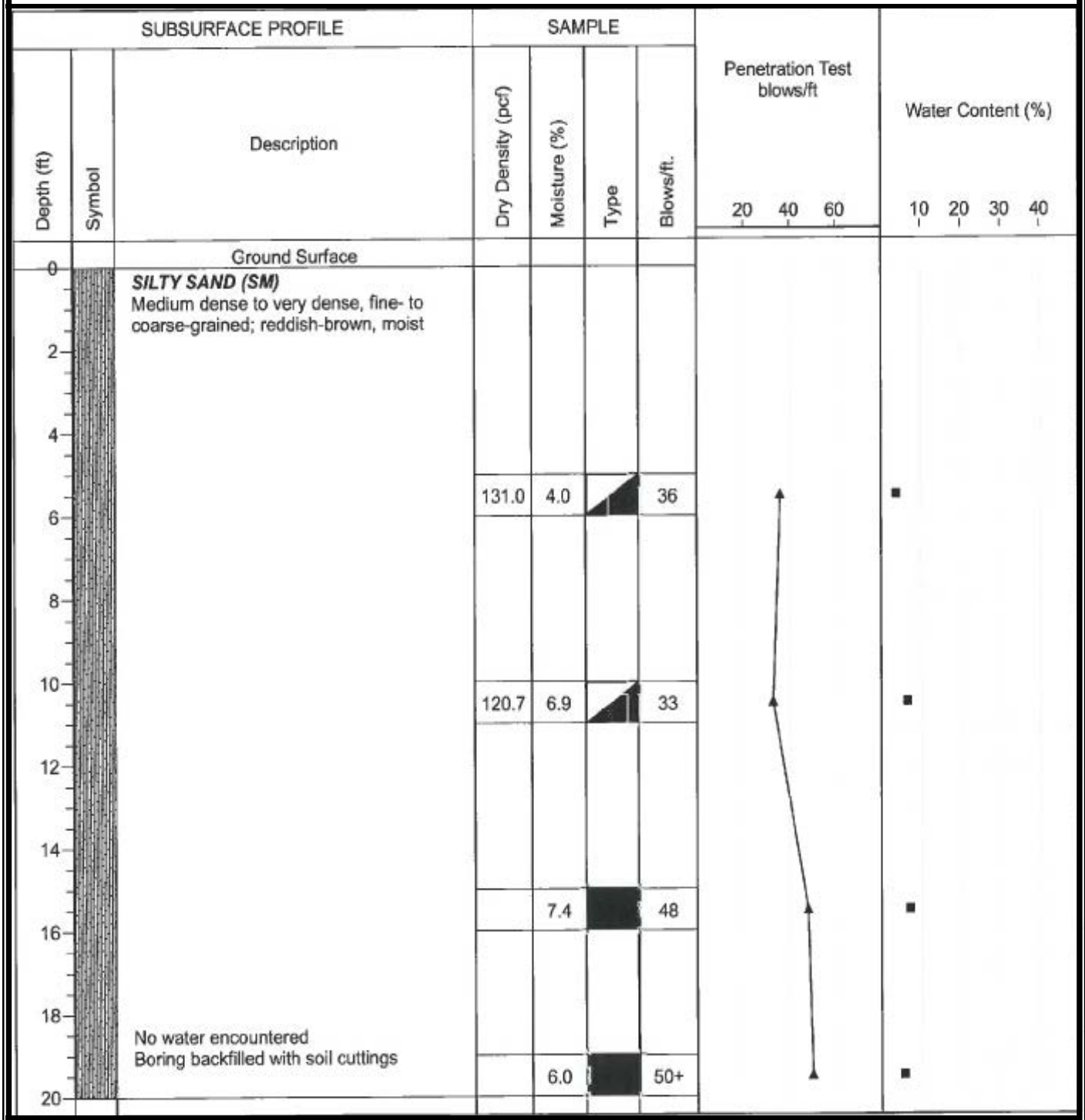
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-10

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-10
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



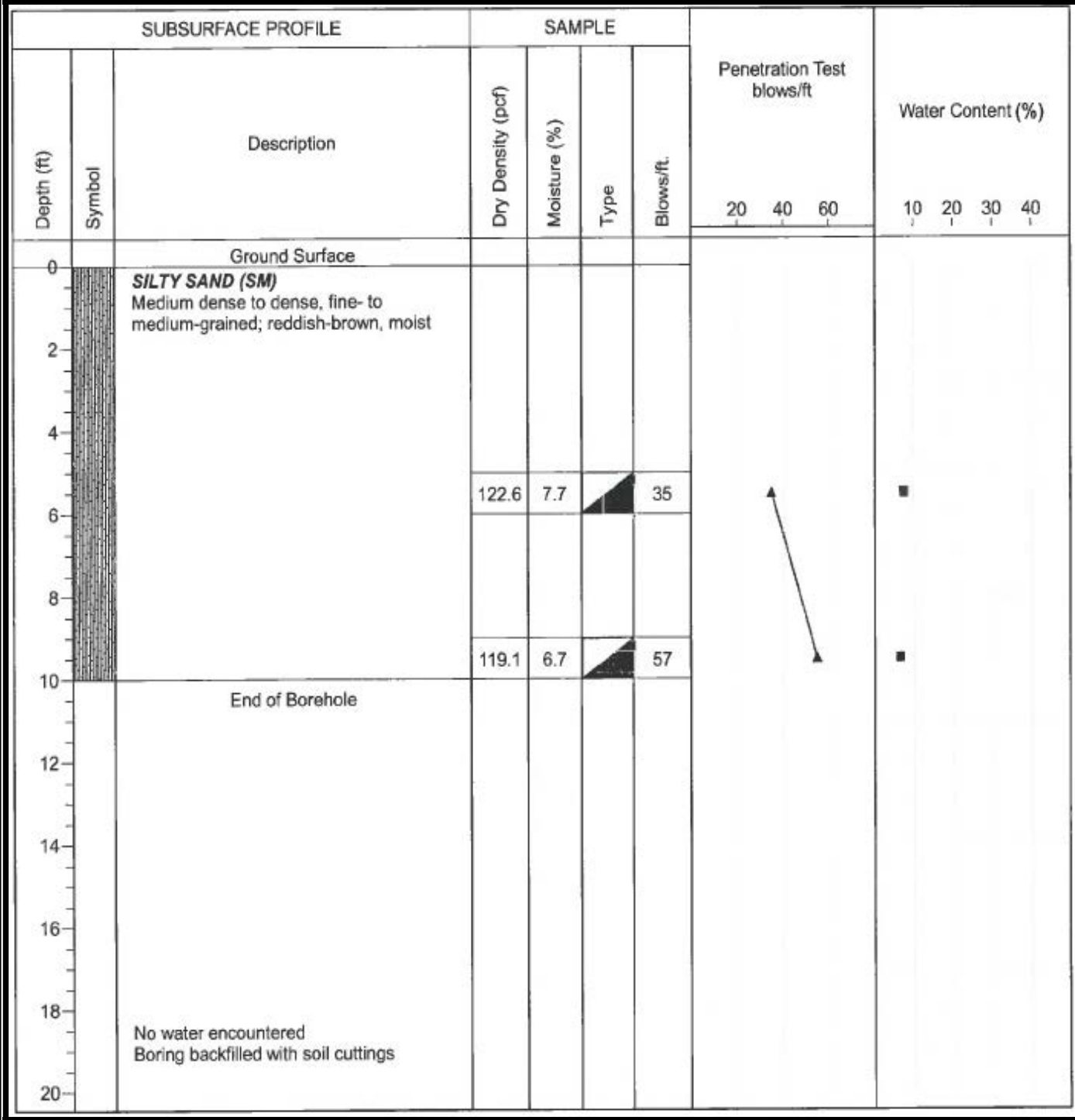
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-11

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-11
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



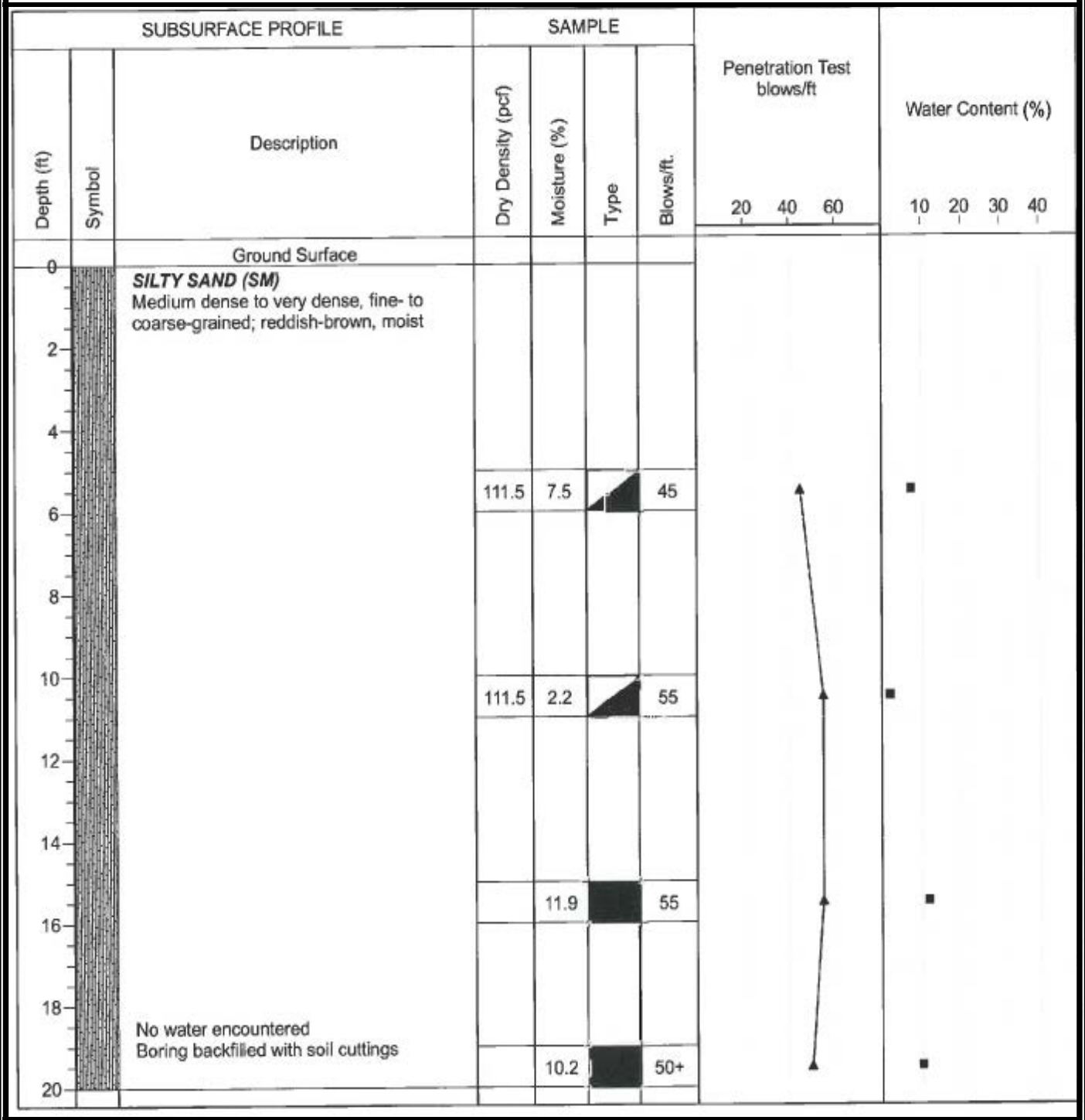
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-12

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-12
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



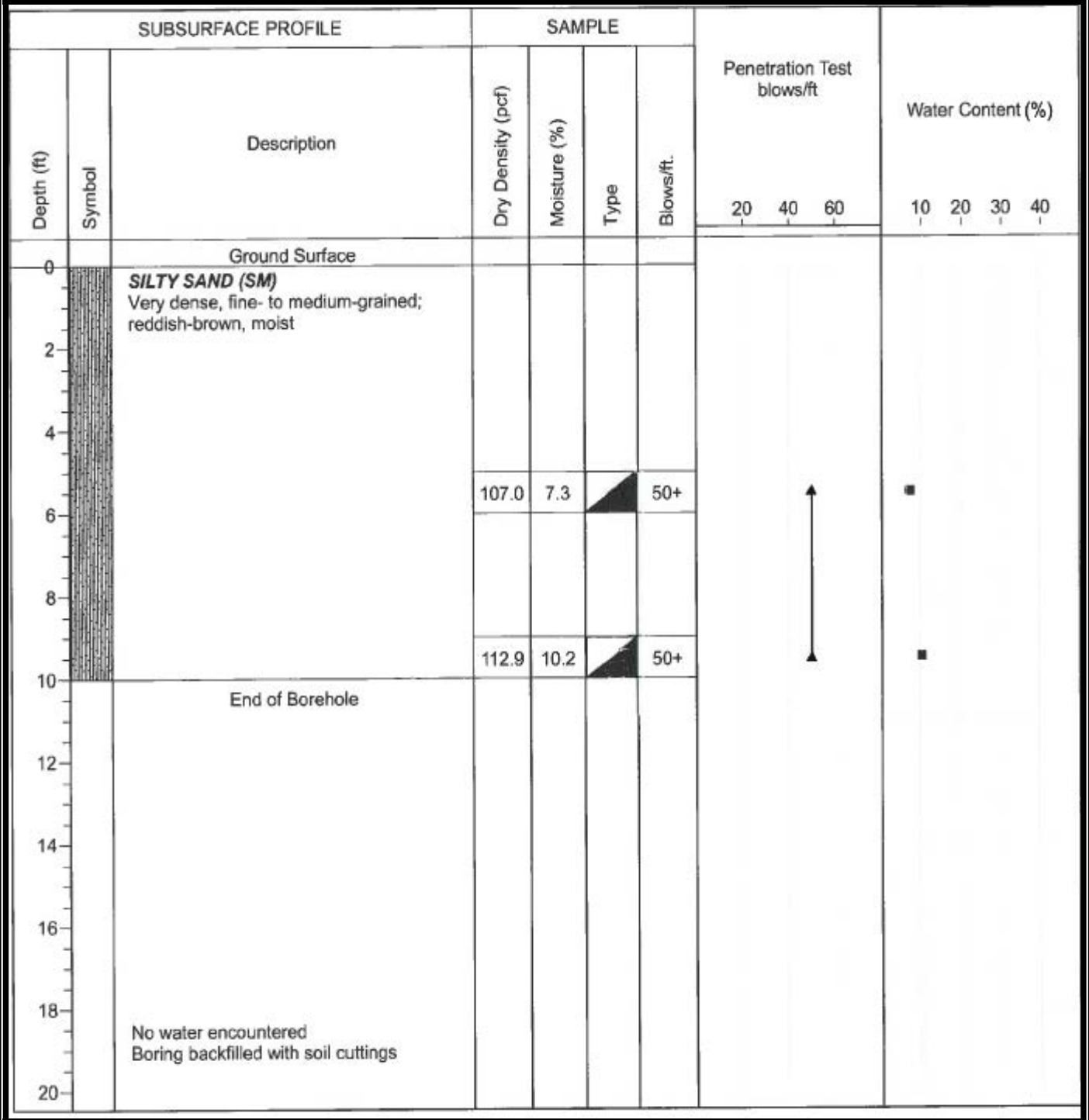
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-13

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-13
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



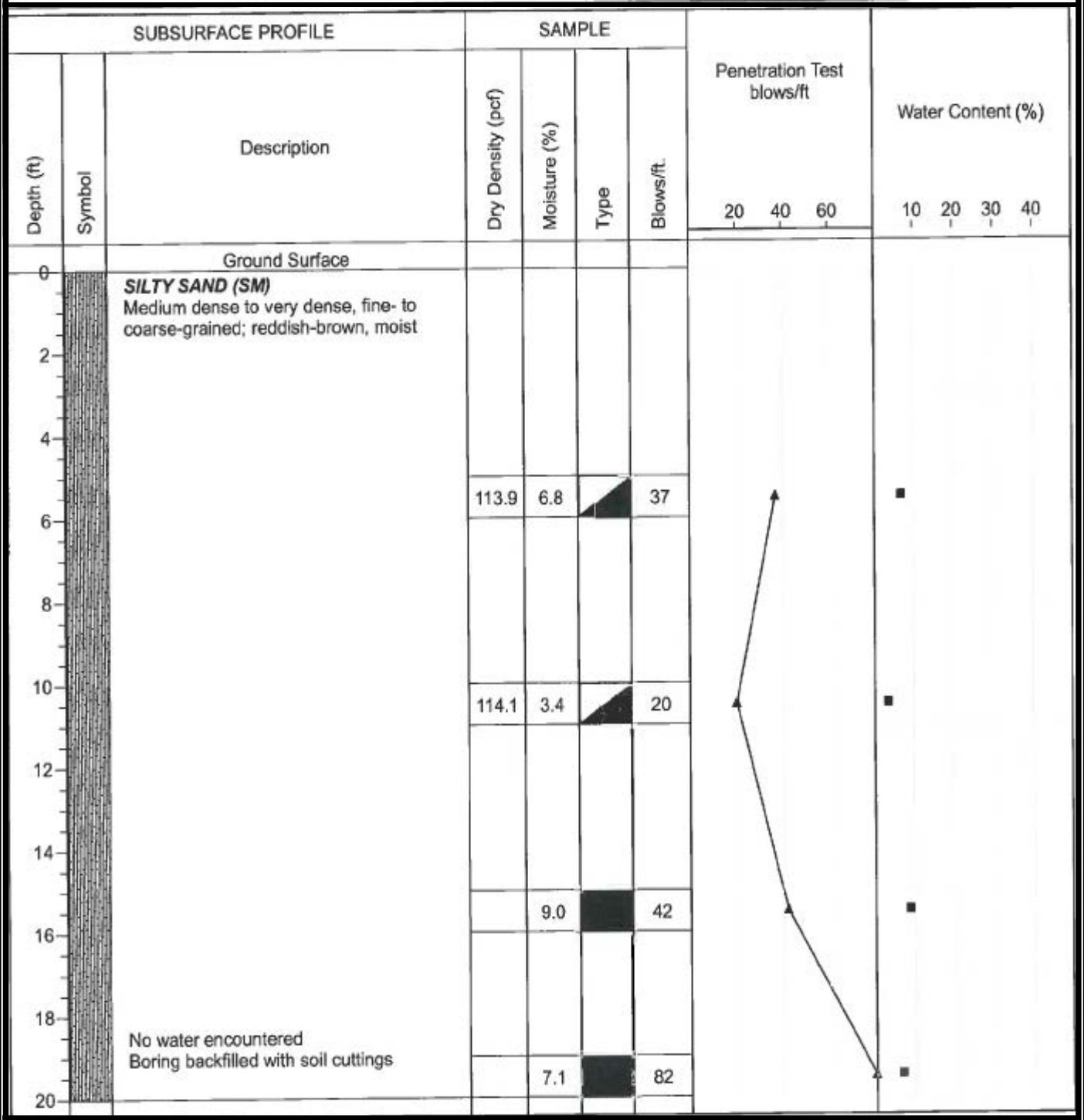
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

BORING LOG B-14

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-14
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Sieve Analysis

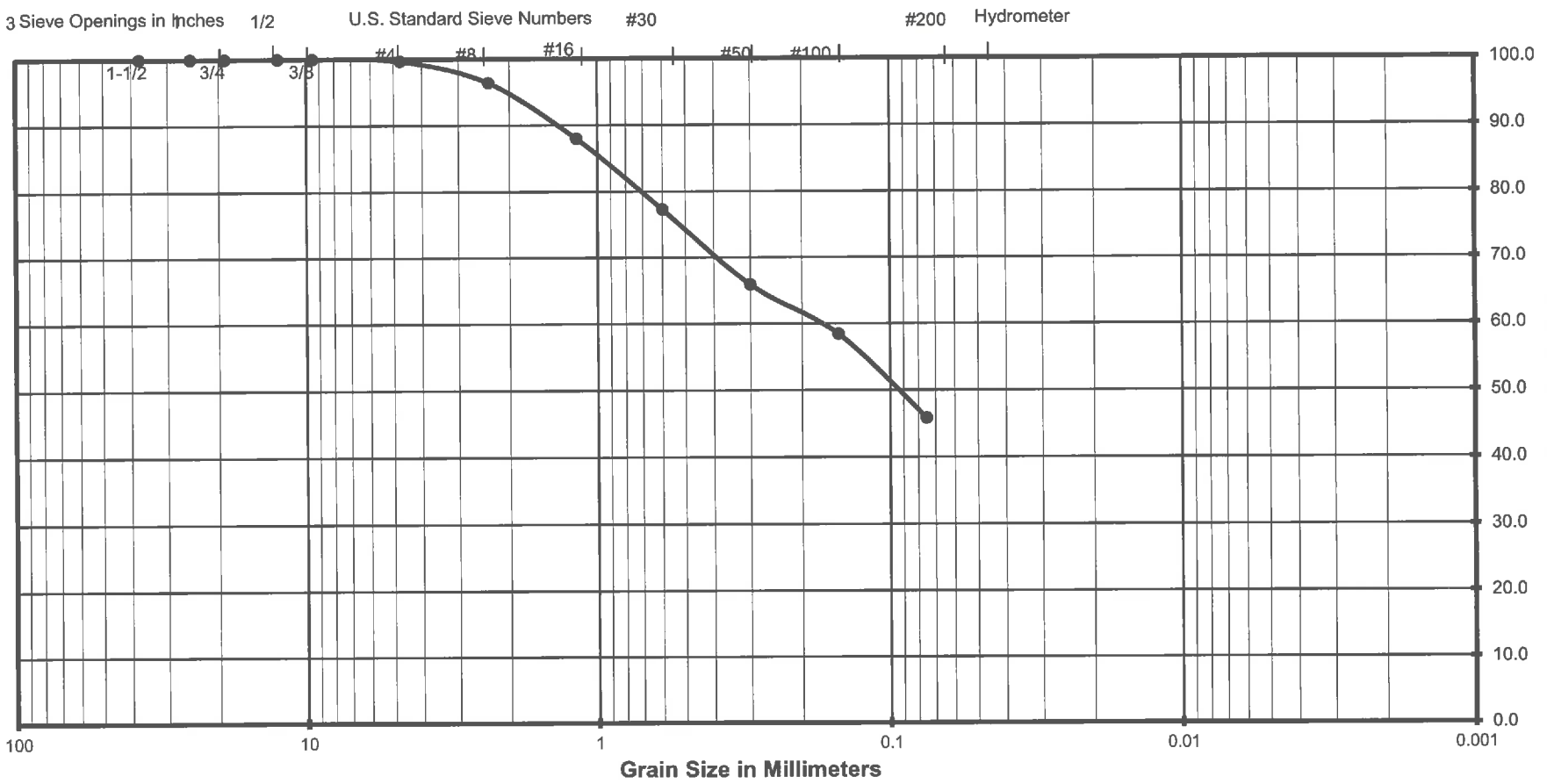
Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 5'
Soil Classification	: SM

Wet Weight	:	550.70
Dry Weight	:	550.70
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	1.9	0.3	0.3	99.7
#8	2.36	18.2	3.3	3.6	96.4
#16	1.18	46.3	8.4	12.1	87.9
#30	0.60	58.7	10.7	22.7	77.3
#50	0.30	62.9	11.4	34.1	65.9
#100	0.15	41.2	7.5	41.6	58.4
#200	0.08	68.9	12.5	54.1	45.9

Attachment: Geotechnical Engineering Investigation (3285 : PAM... Business Center)

Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 5'

Attachment: Geotechnical Engineering Investigation (3285 : PAMA I

Sieve Analysis

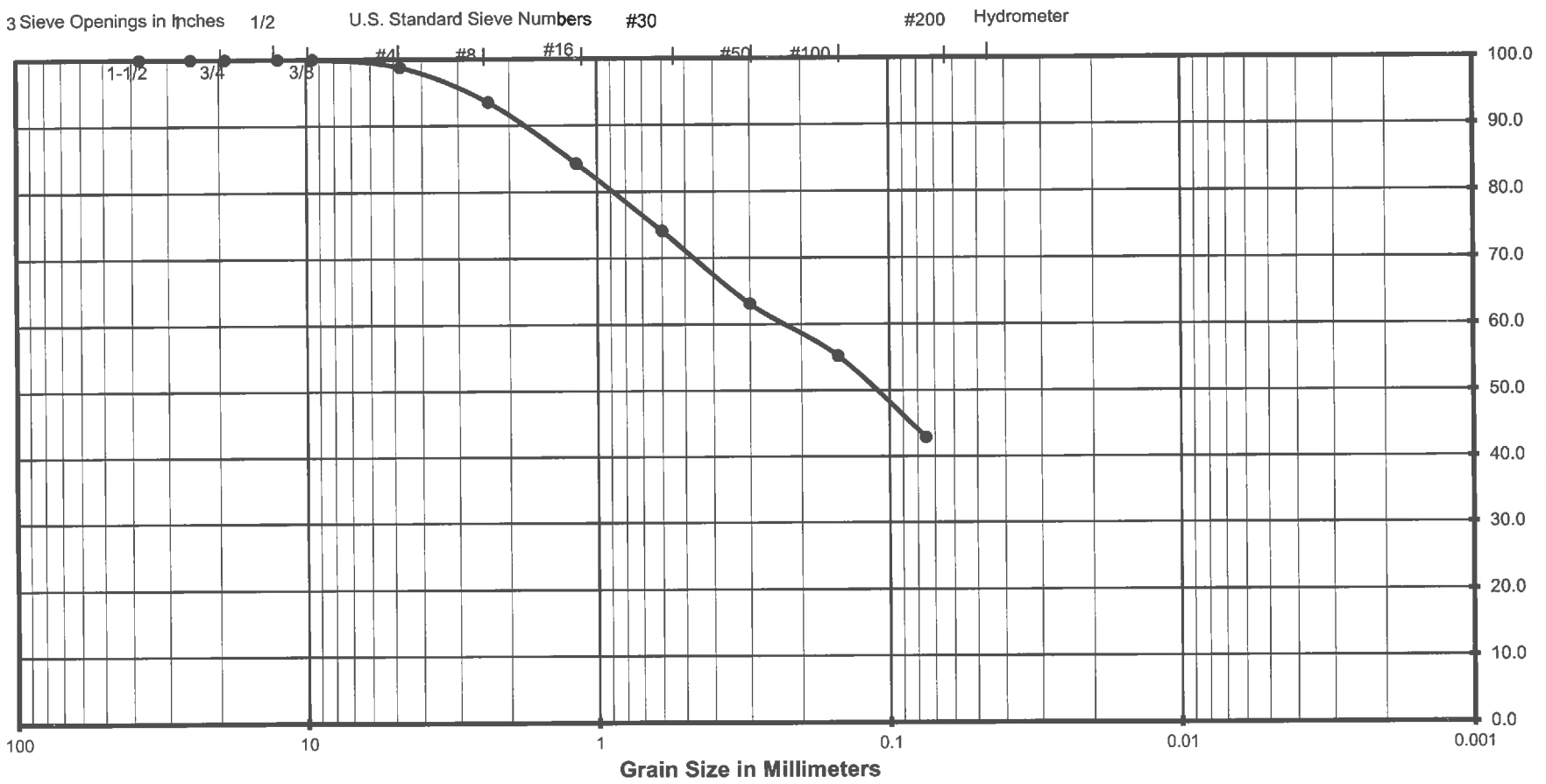
Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 10'
Soil Classification	: SM

Wet Weight	:	544.50
Dry Weight	:	544.50
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	6.7	1.2	1.2	98.8
#8	2.36	28.9	5.3	6.5	93.5
#16	1.18	50.2	9.2	15.8	84.2
#30	0.60	55.4	10.2	25.9	74.1
#50	0.30	59.9	11.0	36.9	63.1
#100	0.15	42.8	7.9	44.8	55.2
#200	0.08	67.1	12.3	57.1	42.9

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Grain Size Analysis



(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 10'

Attachment: Geotechnical Engineering Investigation (3285 : PAMA

Sieve Analysis

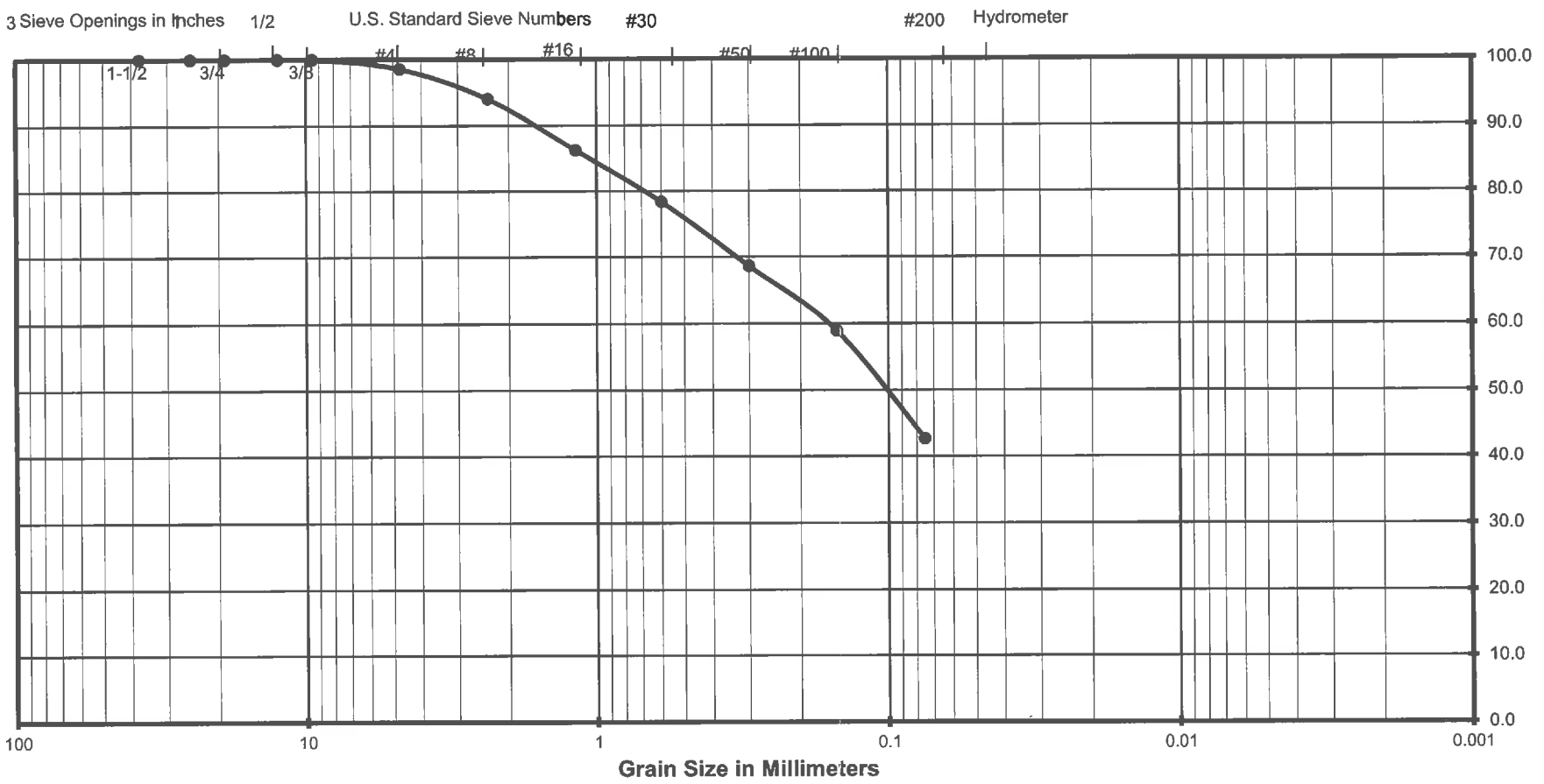
Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 15'
Soil Classification	: SM

Wet Weight	:	508.70
Dry Weight	:	508.70
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	7.2	1.4	1.4	98.6
#8	2.36	23.2	4.6	6.0	94.0
#16	1.18	39.8	7.8	13.8	86.2
#30	0.60	39.9	7.8	21.6	78.4
#50	0.30	49.7	9.8	31.4	68.6
#100	0.15	49.2	9.7	41.1	58.9
#200	0.08	82.6	16.2	57.3	42.7

Attachment: Geotechnical Engineering Investigation (3285 : PAM

Grain Size Analysis



(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 15'

Attachment: Geotechnical Engineering Investigation (3285 : PAMA I

Sieve Analysis

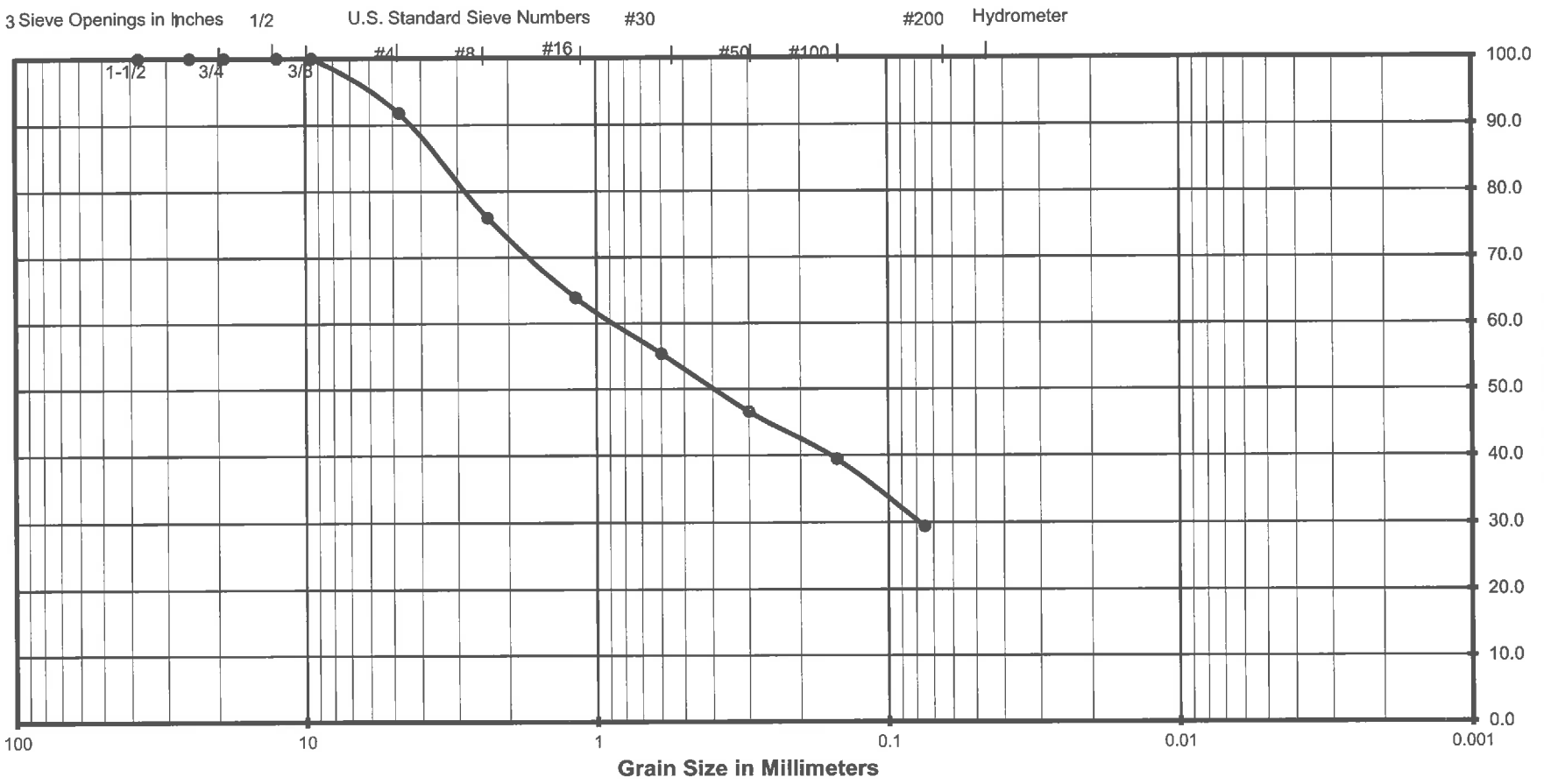
Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 20'
Soil Classification	: SM

Wet Weight	:	530.10
Dry Weight	:	530.10
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	43.6	8.2	8.2	91.8
#8	2.36	83.6	15.8	24.0	76.0
#16	1.18	64.3	12.1	36.1	63.9
#30	0.60	45.0	8.5	44.6	55.4
#50	0.30	46.7	8.8	53.4	46.6
#100	0.15	37.7	7.1	60.5	39.5
#200	0.08	53.4	10.1	70.6	29.4

Attachment: Geotechnical Engineering Investigation (3285 : PAM

Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 20'

Attachment: Geotechnical Engineering Investigation (3285 : PAMA

Sieve Analysis

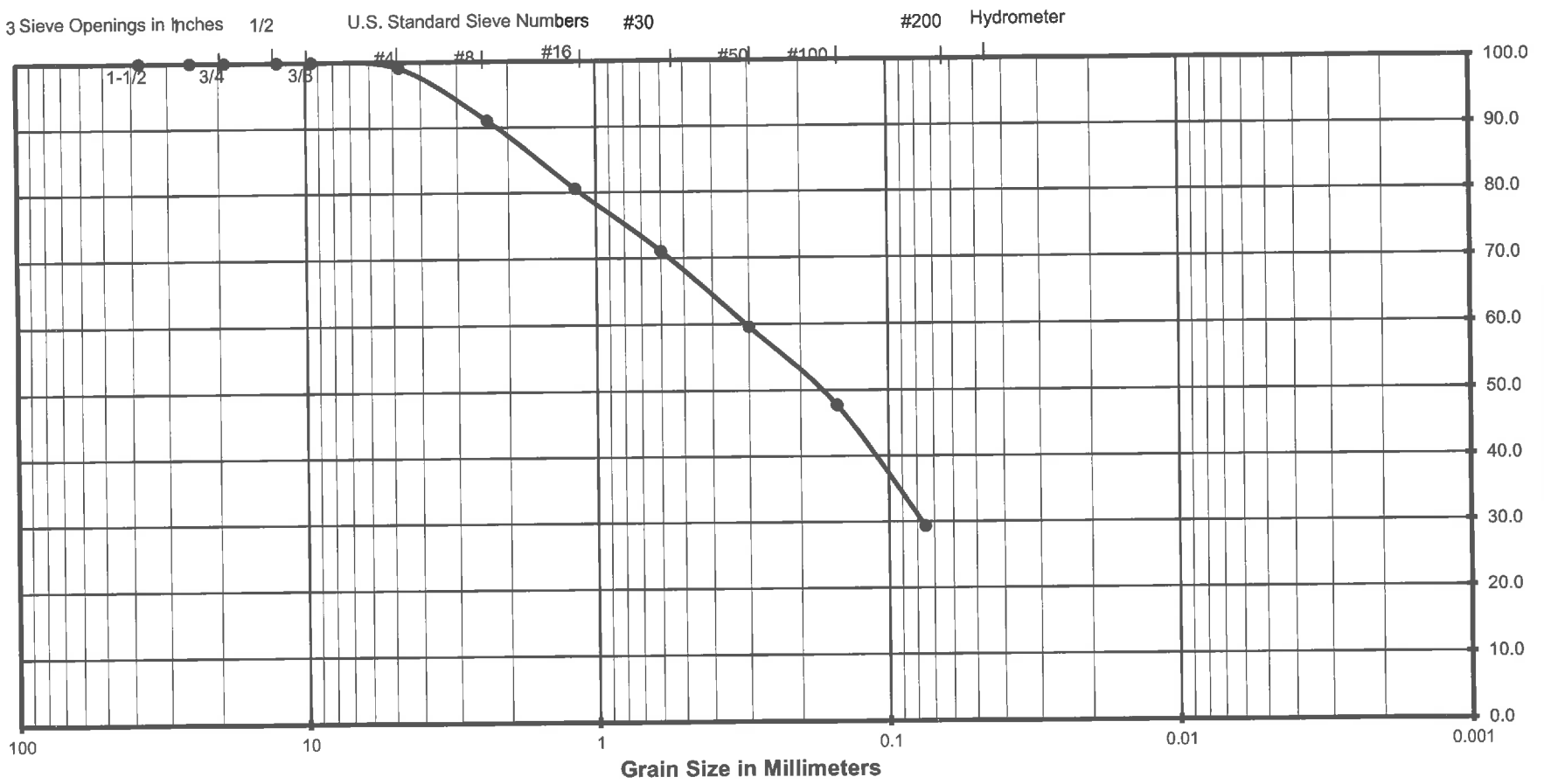
Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 25'
Soil Classification	: SM

Wet Weight	:	508.00
Dry Weight	:	508.00
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	4.6	0.9	0.9	99.1
#8	2.36	40.9	8.1	9.0	91.0
#16	1.18	53.5	10.5	19.5	80.5
#30	0.60	48.2	9.5	29.0	71.0
#50	0.30	58.1	11.4	40.4	59.6
#100	0.15	60.1	11.8	52.2	47.8
#200	0.08	93.6	18.4	70.7	29.3

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 25'

Attachment: Geotechnical Engineering Investigation (3285 : PAM... Business Center)

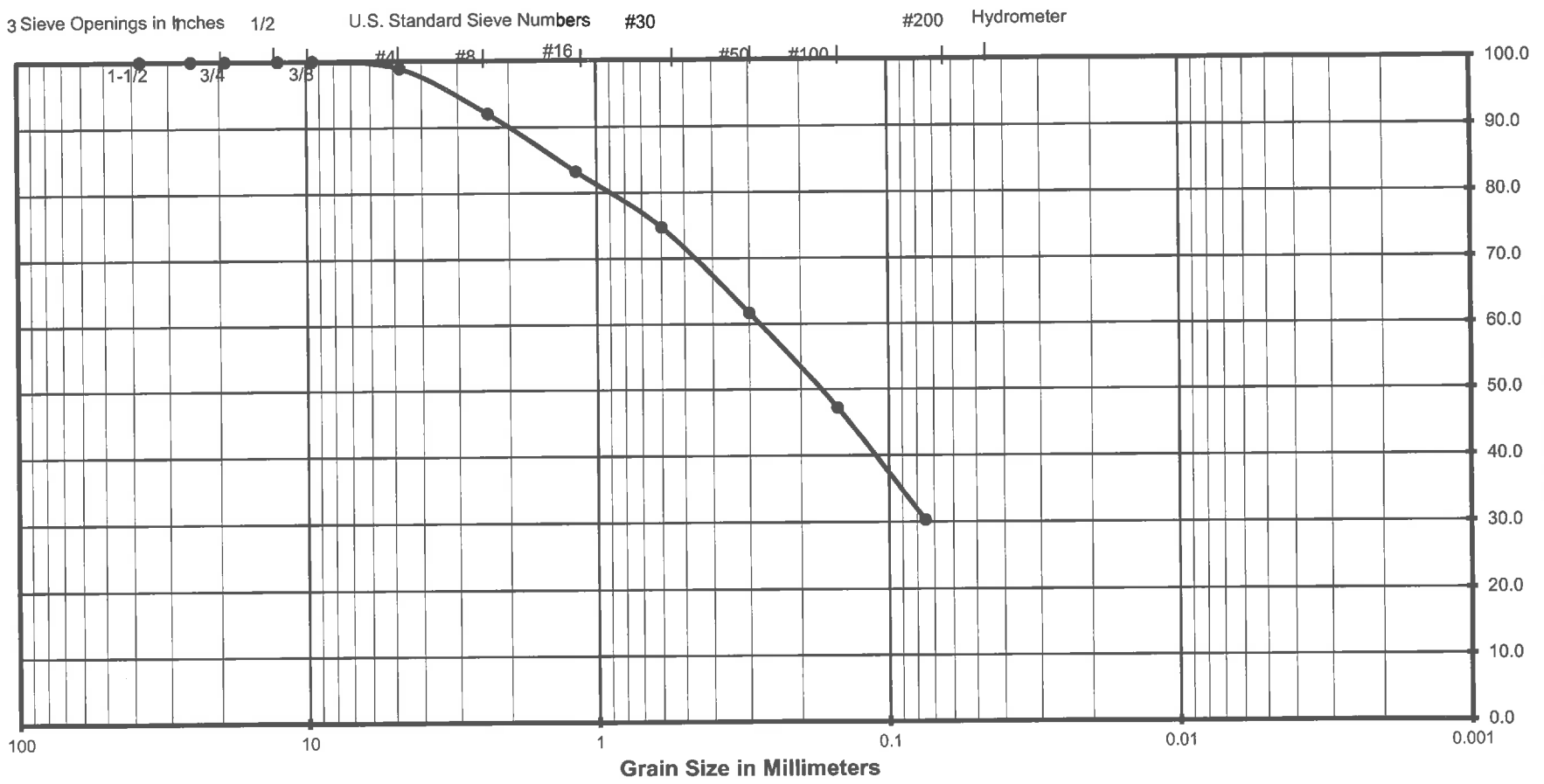
Sieve Analysis

Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 30'
Soil Classification	: SM

Wet Weight	:	512.60
Dry Weight	:	512.60
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	5.6	1.1	1.1	98.9
#8	2.36	35.3	6.9	8.0	92.0
#16	1.18	45.1	8.8	16.8	83.2
#30	0.60	43.5	8.5	25.3	74.7
#50	0.30	67.1	13.1	38.4	61.6
#100	0.15	74.0	14.4	52.8	47.2
#200	0.08	86.8	16.9	69.7	30.3

Grain Size Analysis



(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 30'

Attachment: Geotechnical Engineering Investigation (3285 : PAMA

Sieve Analysis

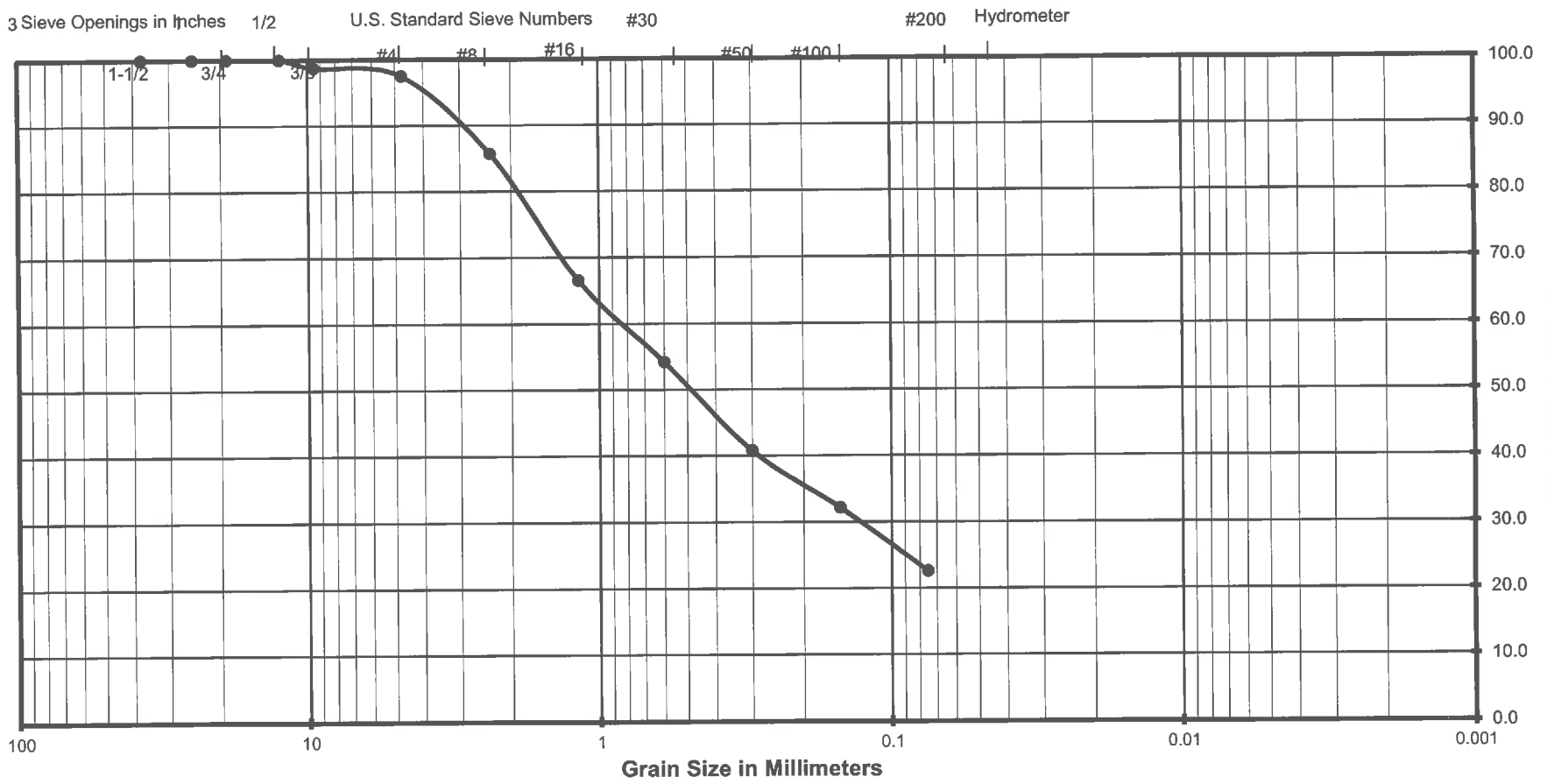
Project Name : Business Park Moreno Valley
Date : 12/28/2017
Sample Location : B-1 @ 35'
Soil Classification : SM

Wet Weight	:	398.10
Dry Weight	:	398.10
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50	5.0	1.3	1.3	98.7
#4	4.75	4.9	1.2	2.5	97.5
#8	2.36	47.4	11.9	14.4	85.6
#16	1.18	75.8	19.0	33.4	66.6
#30	0.60	49.3	12.4	45.8	54.2
#50	0.30	53.4	13.4	59.2	40.8
#100	0.15	34.3	8.6	67.8	32.2
#200	0.08	38.2	9.6	77.4	22.6

Attachment: Geotechnical Engineering Investigation (3285 : PAMA

Grain Size Analysis



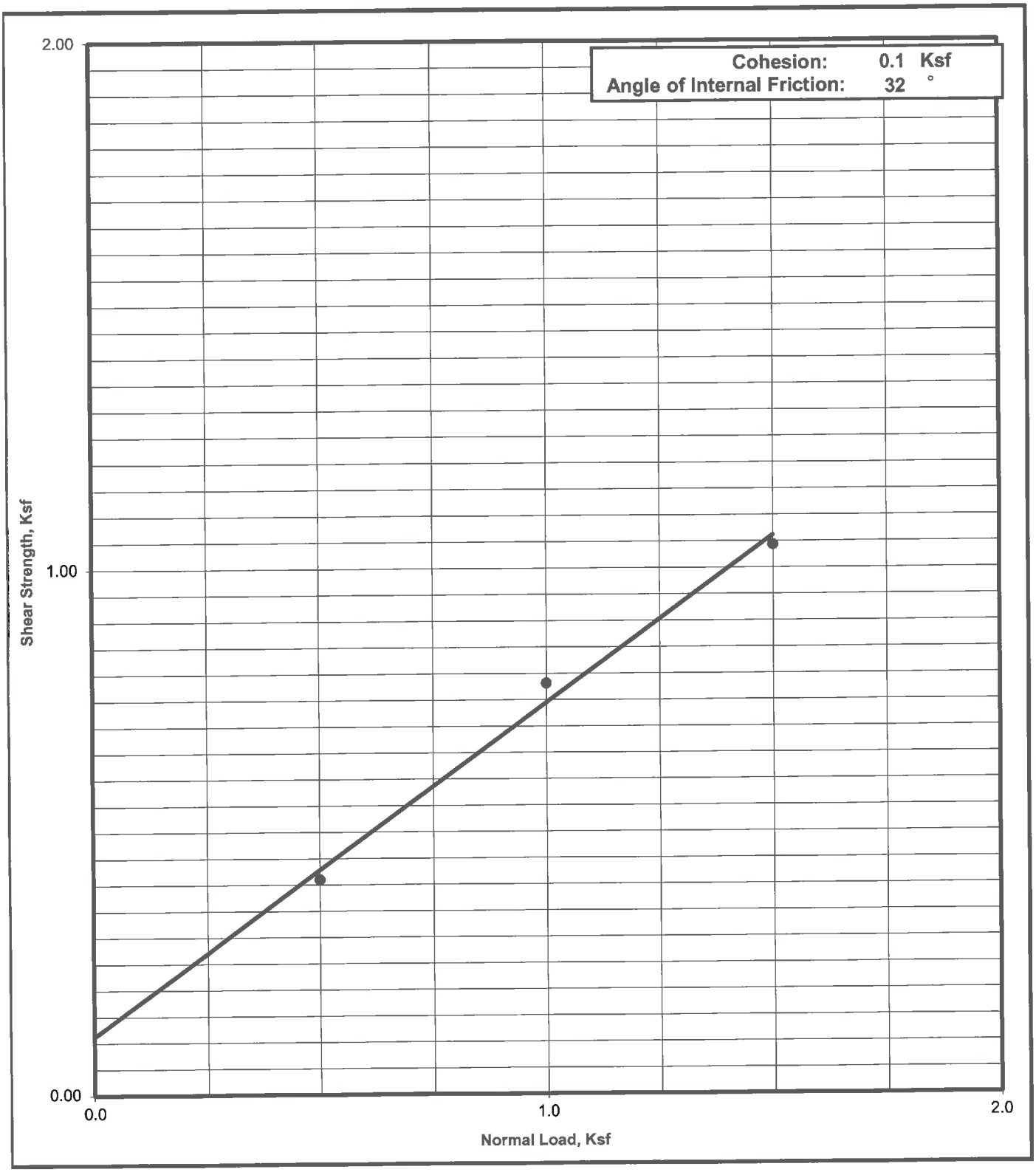
(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 35'

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

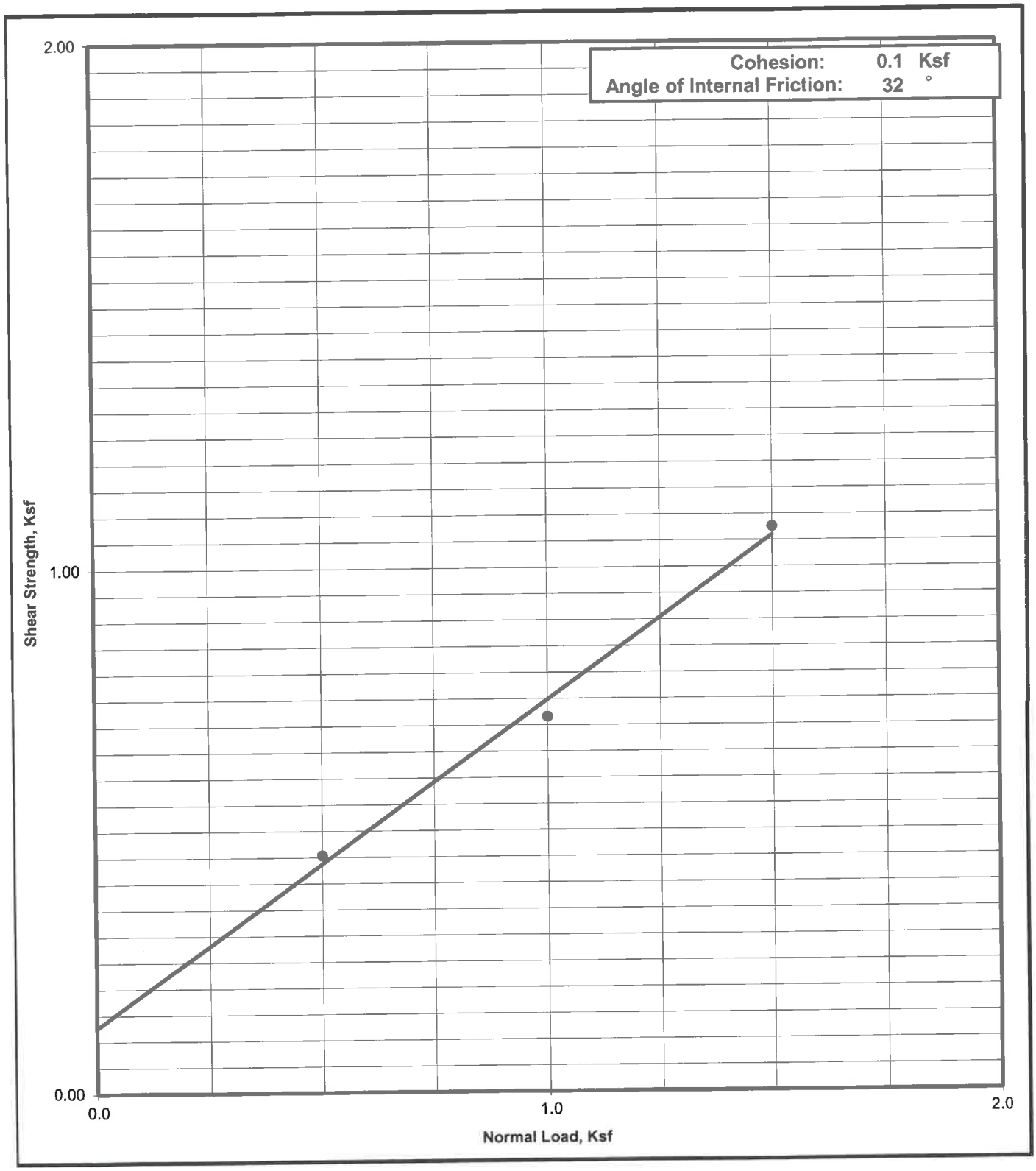
Project Number	Boring No. & Depth	Soil Type	Date
1217-0318	B-3 @ 5'	SM	12/28/2017



Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

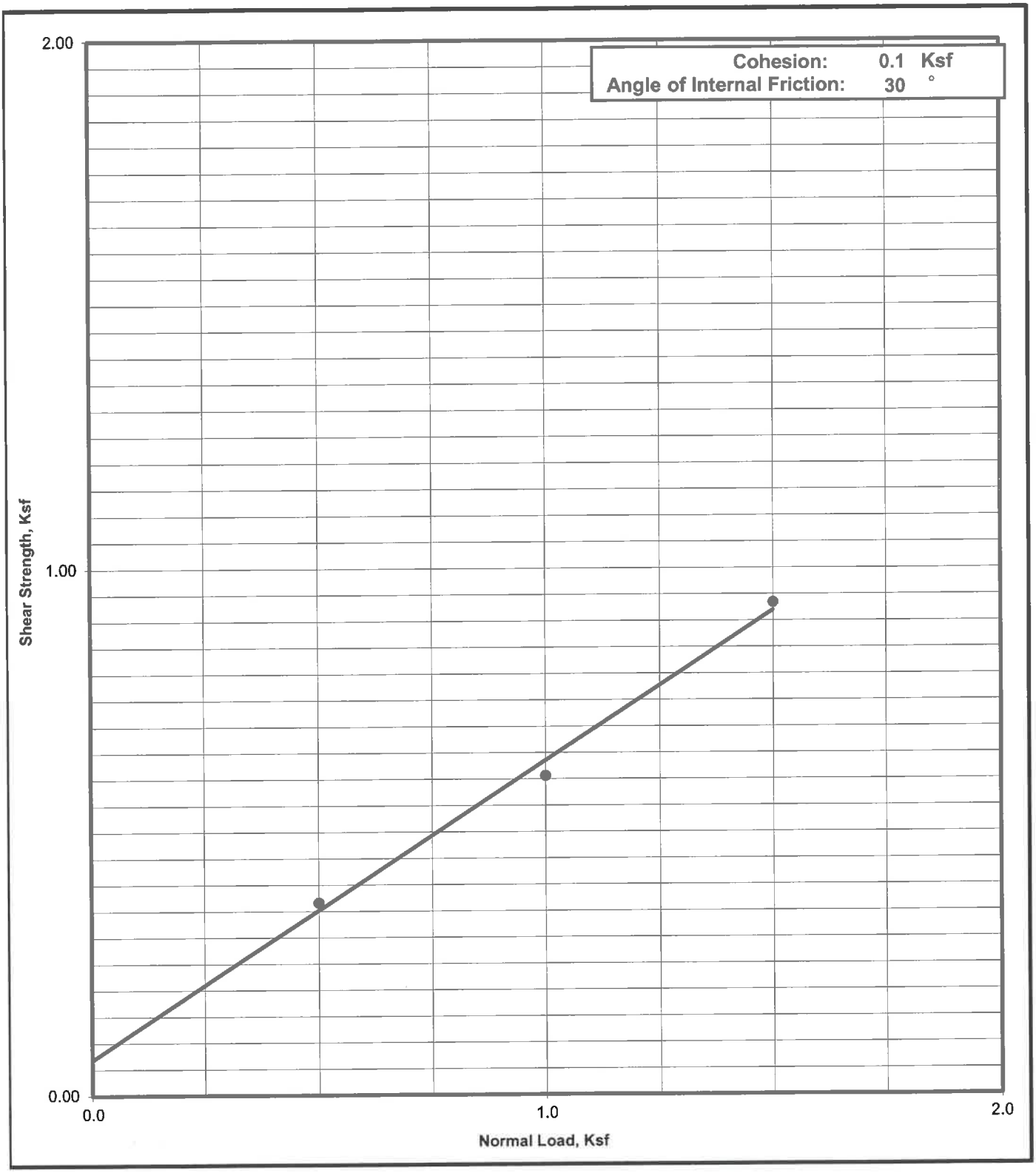
Project Number	Boring No. & Depth	Soil Type	Date
1217-0318	B-8 @ 5'	SM	12/28/2017



Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

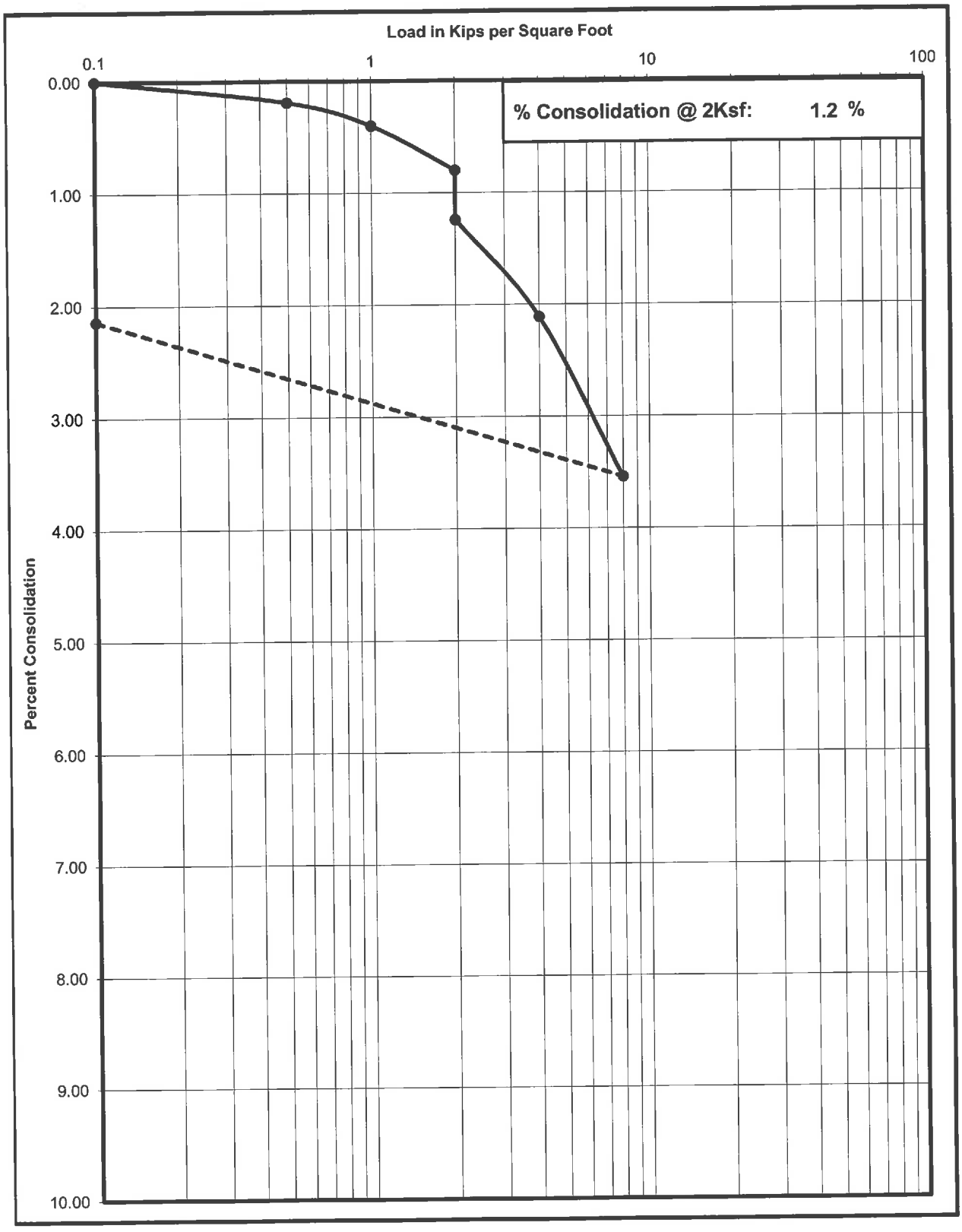
Project Number	Boring No. & Depth	Soil Type	Date
1217-0318	B-11 @ 5'	SM	12/28/2017



Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Consolidation Test

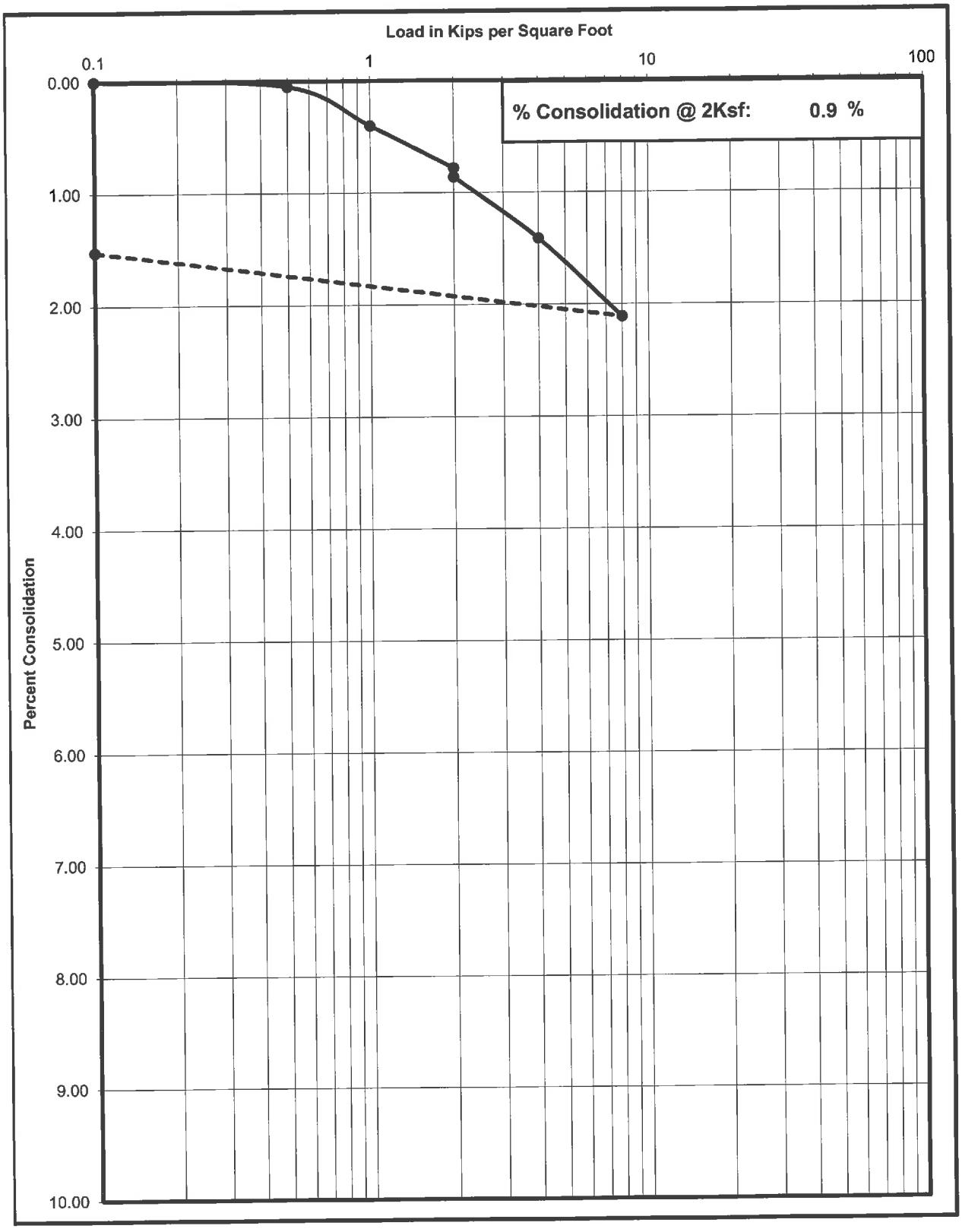
Project No	Boring No. & Depth	Date	Soil Classification
1217-0318	B-2 @ 5'	#########	SM



Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Consolidation Test

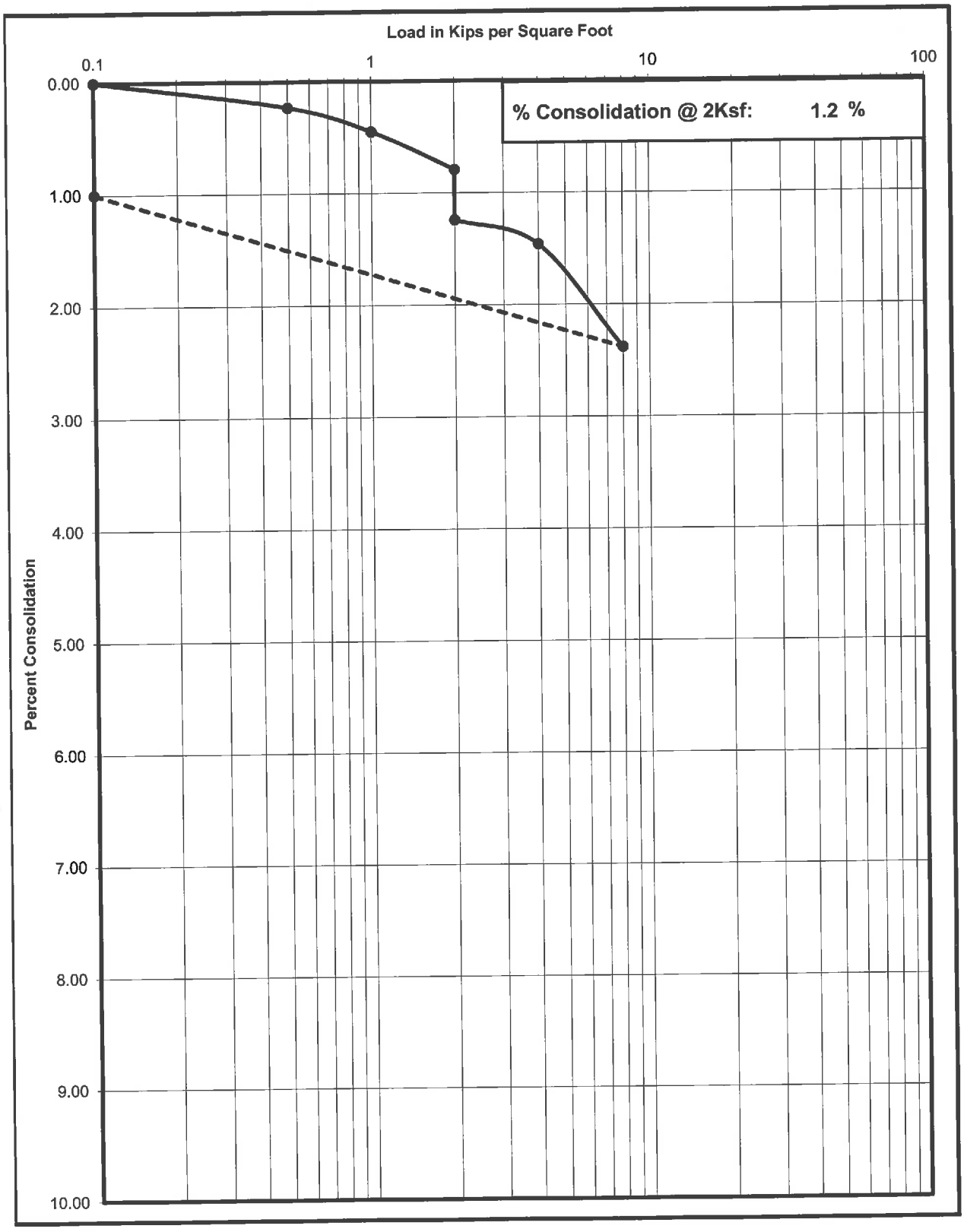
Project No	Boring No. & Depth	Date	Soil Classification
1217-0318	B-2 @ 10'	#########	SM



Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Consolidation Test

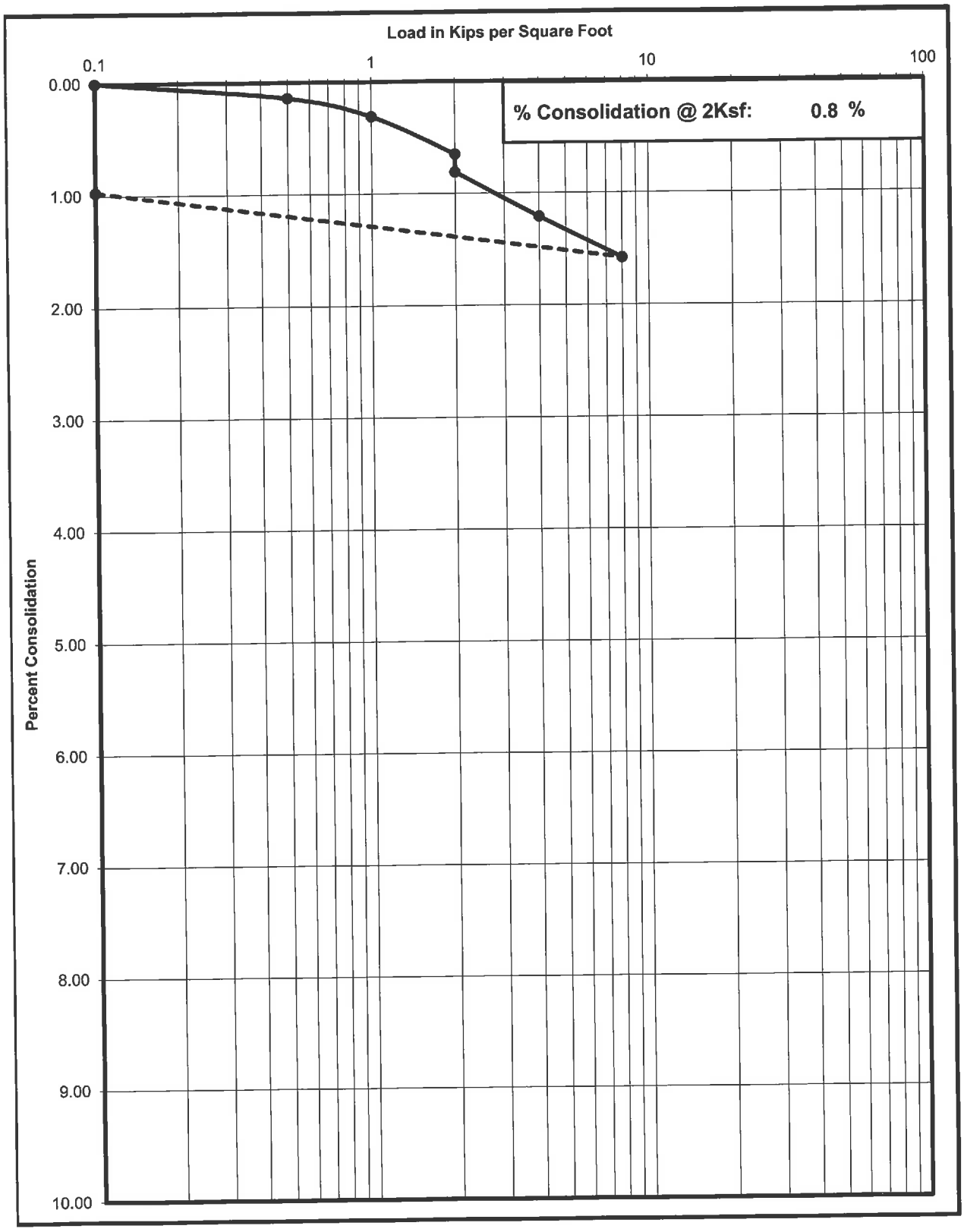
Project No	Boring No. & Depth	Date	Soil Classification
1217-0318	B-10 @ 5'	########	SM



Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
1217-0318	B-10 @ 10'	#########	SM

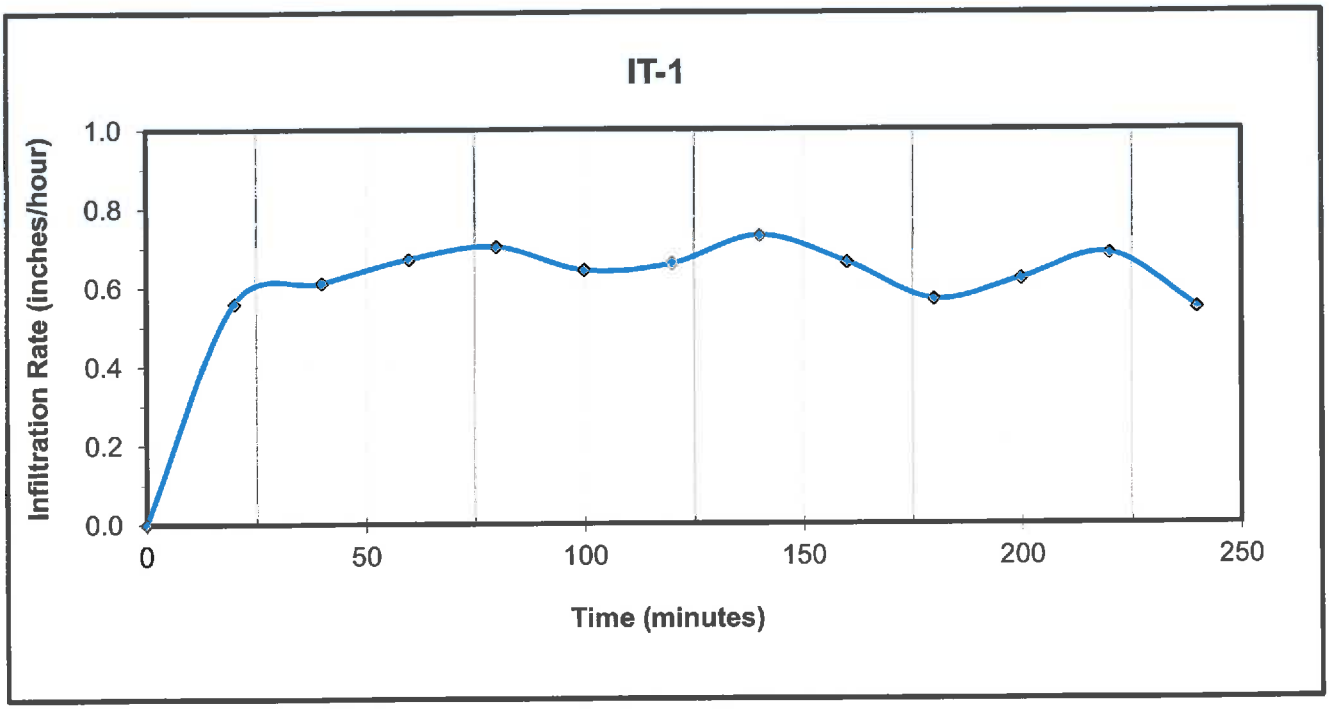


Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

RESULTS OF INFILTRATION TESTS - REVERSE BOREHOLE

Project #	1217-0318				Date	12/8/2017
Project Name	Business Park Moreno Valley					
Project Address	Moreno Valley, CA					
Test No:	IT-1	Total Depth (in.)		60	Test Size (in)	9
Depth To Water	>50'	Soil Classification		SM		

Reading	Elasped Time(min.)	Incremental Time (min.)	Initial Depth To Water(in.)	Final Depth To Water(in.)	Incremental Fall of Water(in.)	Incremental Infiltration Rate (in/hr)
Start	0	0.00		8.0	--	--
1	20.00	20.00	8.0	12.0	4.00	0.56
2	40.00	20.00	12.0	16.0	4.00	0.61
3	60.00	20.00	16.0	20.0	4.00	0.67
4	80.00	20.00	20.0	23.8	3.80	0.70
5	100.00	20.00	23.8	27.0	3.20	0.64
6	120.00	20.00	27.0	30.0	3.00	0.66
7	140.00	20.00	30.0	33.0	3.00	0.73
8	160.00	20.00	33.0	35.5	2.50	0.66
9	180.00	20.00	35.5	37.5	2.00	0.57
10	200.00	20.00	37.5	39.5	2.00	0.62
11	220.00	20.00	39.5	41.5	2.00	0.68
12	240.00	20.00	41.5	43.0	1.50	0.55
	Infiltration Rate in Inches per Hour					0.55

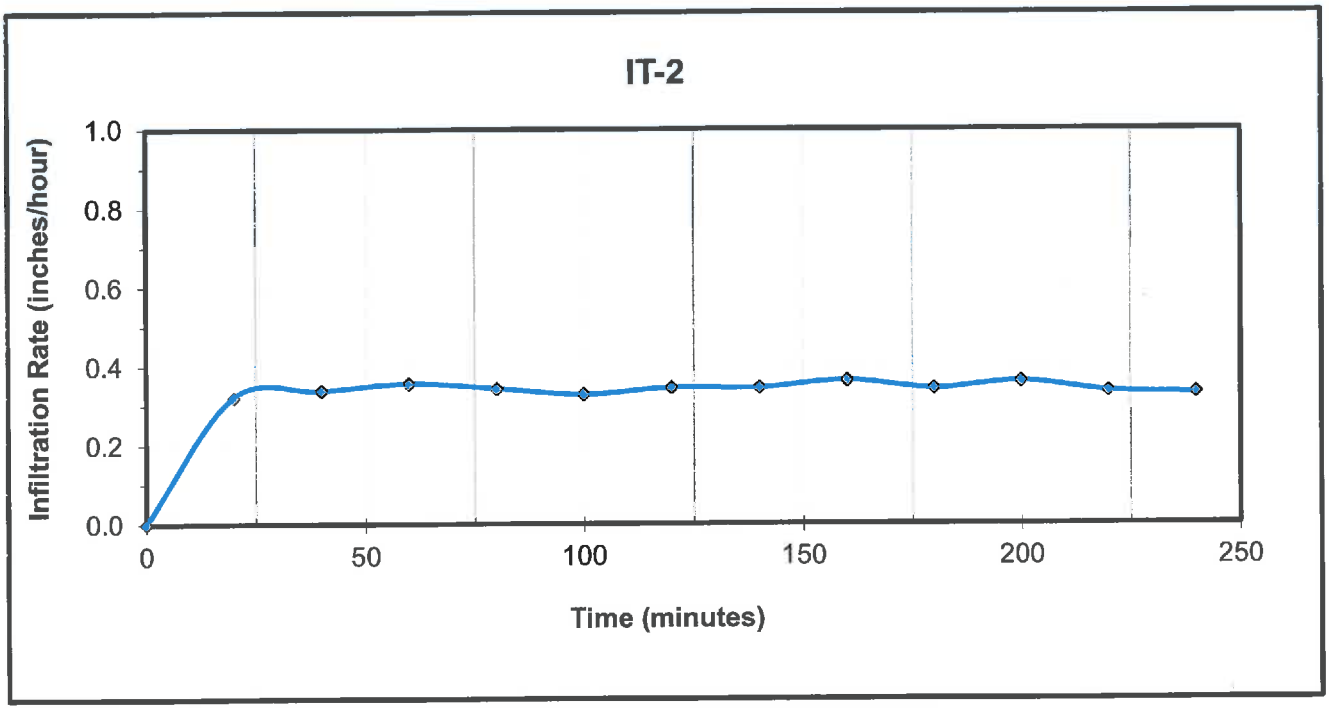


Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

RESULTS OF INFILTRATION TESTS - REVERSE BOREHOLE

Project #	1217-0318				Date	12/8/2017
Project Name	Business Park Moreno Valley					
Project Address	Moreno Valley, CA					
Test No:	IT-2	Total Depth (in.)		60	Test Size (in)	9
Depth To Water	>50'	Soil Classification		SM		

Reading	Elasped Time(min.)	Incremental Time (min.)	Initial Depth To Water(in.)	Final Depth To Water(in.)	Incremental Fall of Water(in.)	Incremental Infiltration Rate (in/hr)
Start	0	0.00		6.0	--	--
1	20.00	20.00	6.0	8.5	2.50	0.32
2	40.00	20.00	8.5	11.0	2.50	0.34
3	60.00	20.00	11.0	13.5	2.50	0.36
4	80.00	20.00	13.5	15.8	2.30	0.34
5	100.00	20.00	15.8	17.9	2.10	0.33
6	120.00	20.00	17.9	20.0	2.10	0.34
7	140.00	20.00	20.0	22.0	2.00	0.34
8	160.00	20.00	22.0	24.0	2.00	0.36
9	180.00	20.00	24.0	25.8	1.80	0.34
10	200.00	20.00	25.8	27.6	1.80	0.36
11	220.00	20.00	27.6	29.2	1.60	0.33
12	240.00	20.00	29.3	30.8	1.50	0.33
	Infiltration Rate in Inches per Hour					0.32

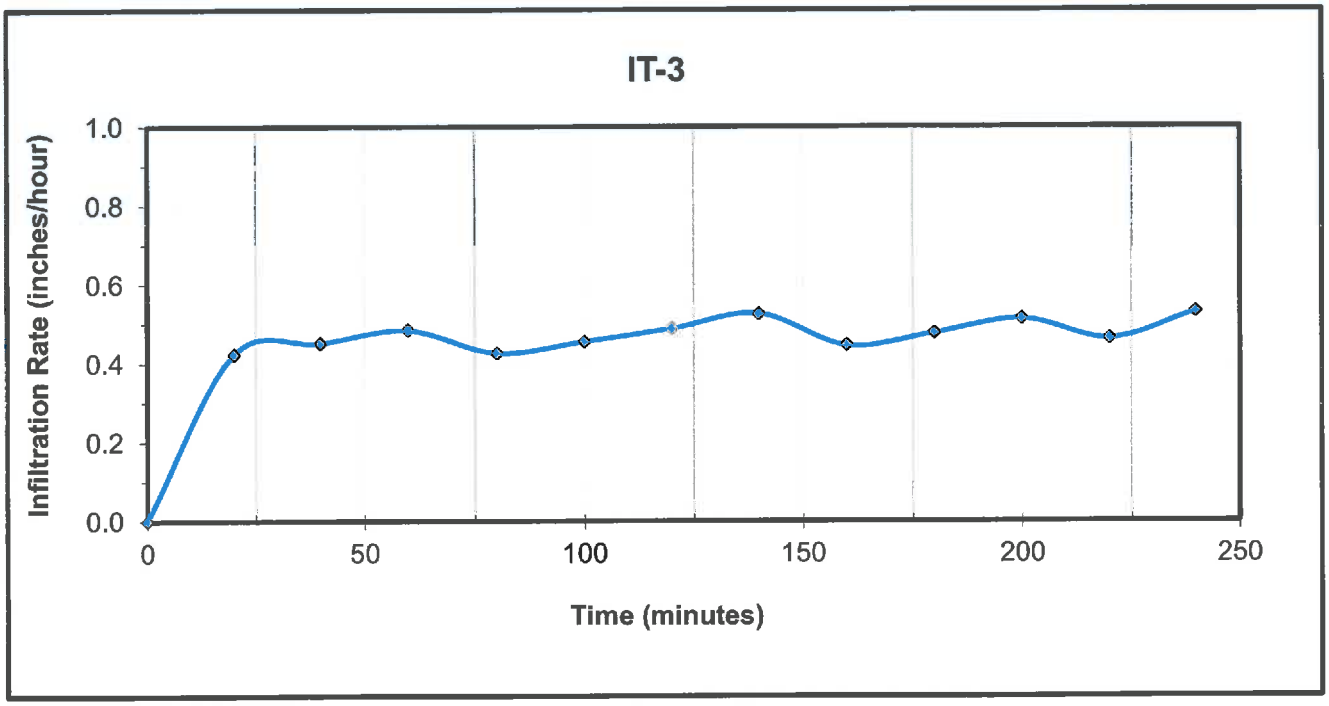


Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

RESULTS OF INFILTRATION TESTS - REVERSE BOREHOLE

Project #	1217-0318				**Date**	12/8/2017
Project Name	Business Park Moreno Valley					
Project Address	Moreno Valley, CA					
Test No:	IT-3	**Total Depth (in.)**		60	**Test Size (in)**	9
Depth To Water	>50'	**Soil Classification**		SM		

Reading	Elasped Time(min.)	Incremental Time (min.)	Initial Depth To Water(in.)	Final Depth To Water(in.)	Incremental Fall of Water(in.)	Incremental Infiltration Rate (in/hr)
Start	0	0.00		10.0	--	--
1	20.00	20.00	10.0	13.0	3.00	0.42
2	40.00	20.00	13.0	16.0	3.00	0.45
3	60.00	20.00	16.0	19.0	3.00	0.49
4	80.00	20.00	19.0	21.5	2.50	0.43
5	100.00	20.00	21.5	24.0	2.50	0.46
6	120.00	20.00	24.0	26.5	2.50	0.49
7	140.00	20.00	26.5	29.0	2.50	0.53
8	160.00	20.00	29.0	31.0	2.00	0.45
9	180.00	20.00	31.0	33.0	2.00	0.48
10	200.00	20.00	33.0	35.0	2.00	0.51
11	220.00	20.00	35.0	36.7	1.70	0.46
12	240.00	20.00	36.7	38.5	1.80	0.53
	Infiltration Rate in Inches per Hour					0.42



Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

ANAHEIM TEST LAB, INC

3008 ORANGE AVENUE
SANTA ANA, CALIFORNIA 92707
PHONE (714) 549-7267

CQuest Consultants Inc.
1342 N. Benson Ave., Unit B
Upland, California 91786

DATE: 12/15/17

P.O. NO: Verbal

LAB NO: C-1300

SPECIFICATION: 417/422/643

MATERIAL: Soil

Project No: 11217091
Business Park
Moreno Valley
B-1 @ 0-5'

ANALYTICAL REPORT

CORROSION SERIES
SUMMARY OF DATA

pH	SOLUBLE SULFATES per CA. 417 ppm	SOLUBLE CHLORIDES per CA. 422 ppm	MIN. RESISTIVITY per CA. 643 ohm-cm
7.9	201	100	4,650

RESPECTFULLY SUBMITTED

WES BRIDGER CHEMIST

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

APPENDIX B

APPENDIX B

EARTHWORK SPECIFICATIONS

GENERAL

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including but not limited to the furnishing of all labor, tools, and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans, and disposal of excess materials.

PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of our firm, hereinafter known as the Soils Engineer and/or Testing Agency. Attainment of design grades when achieved shall be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary readjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

TECHNICAL REQUIREMENTS: All compacted materials shall be densified to a density not less than 95 percent relative compaction based on ASTM Test Method D1557 or CAL-216, as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be as determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the soil report.

The Contractor shall make his own interpretation of the data contained in said report, and the Contractor shall not be relieved of liability under the Contract documents for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or windblown materials attributable to his work.

SITE PREPARATION

Site preparation shall consist of site clearing and grubbing and the preparations of foundation materials for receiving fill.

CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter, and all other matter determined by the Soils Engineer to be deleterious or otherwise unsuitable. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed building areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots larger than 1 inch. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations should not be permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

SUBGRADE PREPARATION: Surfaces to receive Engineered Fill, building or slab loads shall be prepared as outlined above, excavated/scarified to a depth of 12 inches, moisture-conditioned as necessary, and compacted to 95 percent relative compaction.

Loose soil areas, areas of uncertified fill, and/or areas of disturbed soils shall be moisture-conditioned as necessary and recompacted to 95 percent relative compaction. All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas which are to receive fill materials shall be approved by the Soils Engineer prior to the placement of any of the fill material.

EXCAVATION: All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. However, compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer.

Both cut and fill areas shall be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture-content and density of previously placed fill are as specified.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

APPENDIX C

APPENDIX C

PAVEMENT SPECIFICATIONS

1. DEFINITIONS - The term "pavement" shall include asphaltic concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term “Standard Specifications”: hereinafter referred to is the May 2006 Standard Specifications of the State of California, Department of Transportation, and the "Materials Manual" is the Materials Manual of Testing and Control Procedures, State of California, Department of Public Works, Division of Highways. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as defined in the applicable tests outlined in the Materials Manual.

2. SCOPE OF WORK - This portion of the work shall include all labor, materials, tools, and equipment necessary for, and reasonably incidental to the completion of the pavement shown on the plans and as herein specified, except work specifically noted as "Work Not Included."

3. PREPARATION OF THE SUBGRADE - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 95 percent. The finished subgrades shall be tested and approved by the Soils Engineer prior to the placement of additional pavement courses.

4. UNTREATED AGGREGATE BASE - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class II material, 1½ inches maximum size. The aggregate base material shall be spread and compacted in accordance with Section 26 of the Standard Specifications. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Soils Engineer prior to the placement of successive layers. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent.

5. AGGREGATE SUBBASE - The aggregate subbase shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material shall conform to the requirements of Section 25 of the Standard Specifications for Class II material. The aggregate subbase material shall be compacted to a minimum relative compaction of 95 percent, and it shall be spread and compacted in accordance with Section 25 of the Standard Specifications. Each layer of aggregate subbase shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

6. ASPHALTIC CONCRETE SURFACING - Asphaltic concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades and dimensions shown on the plans. The viscosity grade of the asphalt shall be PG 64-10. The mineral aggregate shall be Type B, ½ inch maximum size, medium grading and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning and mixing of the materials shall conform to Section 39.

The prime coat, spreading and compacting equipment and spreading and compacting mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50º F. The surfacing shall be rolled with a combination of steel wheel and pneumatic rollers, as described in Section 39-6. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.

7. FOG SEAL COAT - The fog seal (mixing type asphaltic emulsion) shall conform to and be applied in accordance with the requirements of Section 37.

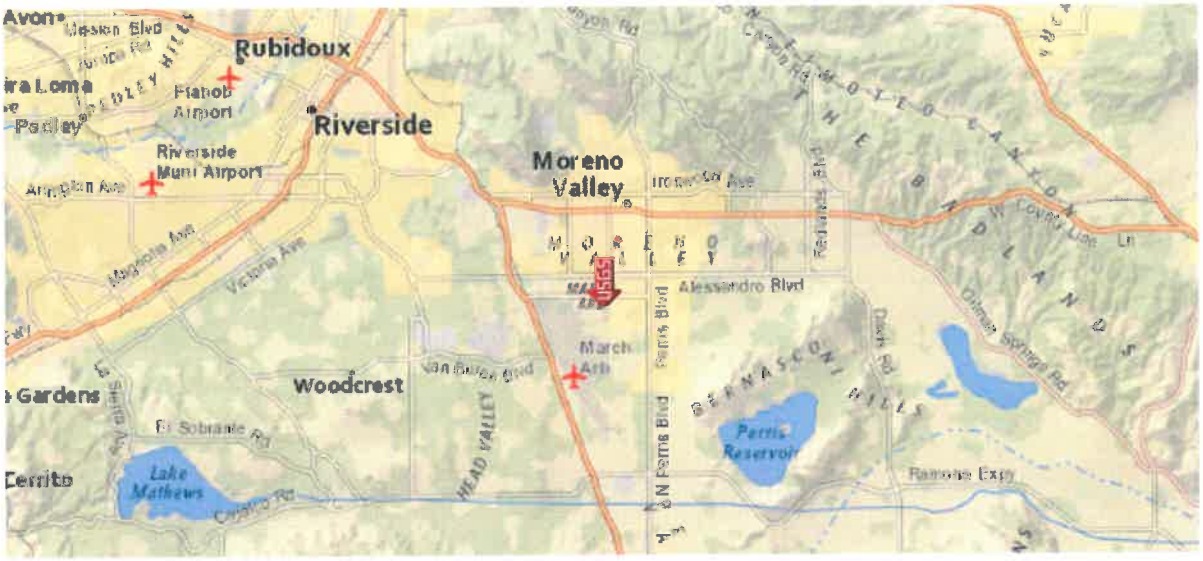
Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

APPENDIX D

USGS Design Maps Summary Report

User-Specified Input

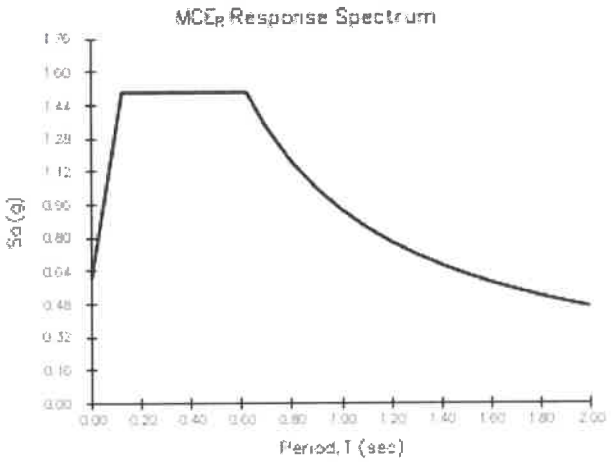
Report Title	Business Park Moreno Valley Tue January 2, 2018 17:35:47 UTC
Building Code Reference Document	ASCE 7-10 Standard (which utilizes USGS hazard data available in 2008)
Site Coordinates	33.91537°N, 117.24693°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

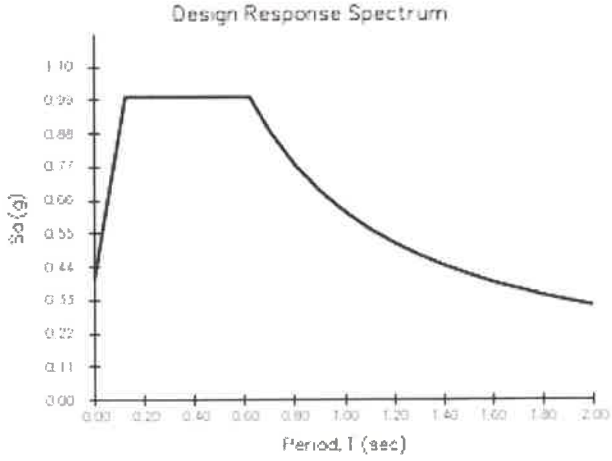


USGS-Provided Output

S_S =	1.503 g	S_{MS} =	1.503 g	S_{DS} =	1.002 g
S_1 =	0.623 g	S_{M1} =	0.935 g	S_{D1} =	0.623 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

USGS Design Maps Detailed Report

ASCE 7-10 Standard (33.91537°N, 117.24693°W)

Site Class D – "Stiff Soil", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_s) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1] $S_s = 1.503$ g

From Figure 22-2 [2] $S_1 = 0.623$ g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\bar{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Section 11.4.3 — Site Coefficients and Risk-Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4-1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \le 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \ge 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_S

For Site Class = D and S_S = 1.503 g, F_a = 1.000

Table 11.4-2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1-s Period				
	$S_1 \le 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \ge 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.623 g, F_v = 1.500

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Equation (11.4–1): $S_{MS} = F_a S_S = 1.000 \times 1.503 = 1.503$ g

Equation (11.4–2): $S_{M1} = F_v S_1 = 1.500 \times 0.623 = 0.935$ g

Section 11.4.4 — Design Spectral Acceleration Parameters

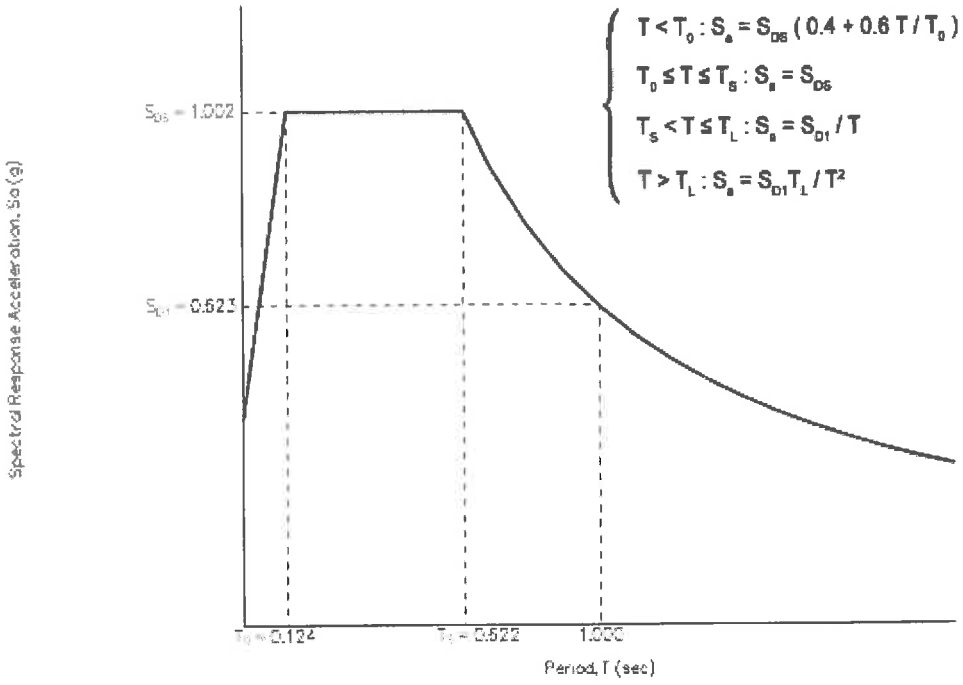
Equation (11.4–3): $S_{DS} = ⅔ S_{MS} = ⅔ \times 1.503 = 1.002$ g

Equation (11.4–4): $S_{D1} = ⅔ S_{M1} = ⅔ \times 0.935 = 0.623$ g

Section 11.4.5 — Design Response Spectrum

From Figure 22-12 [3] $T_L = 8$ seconds

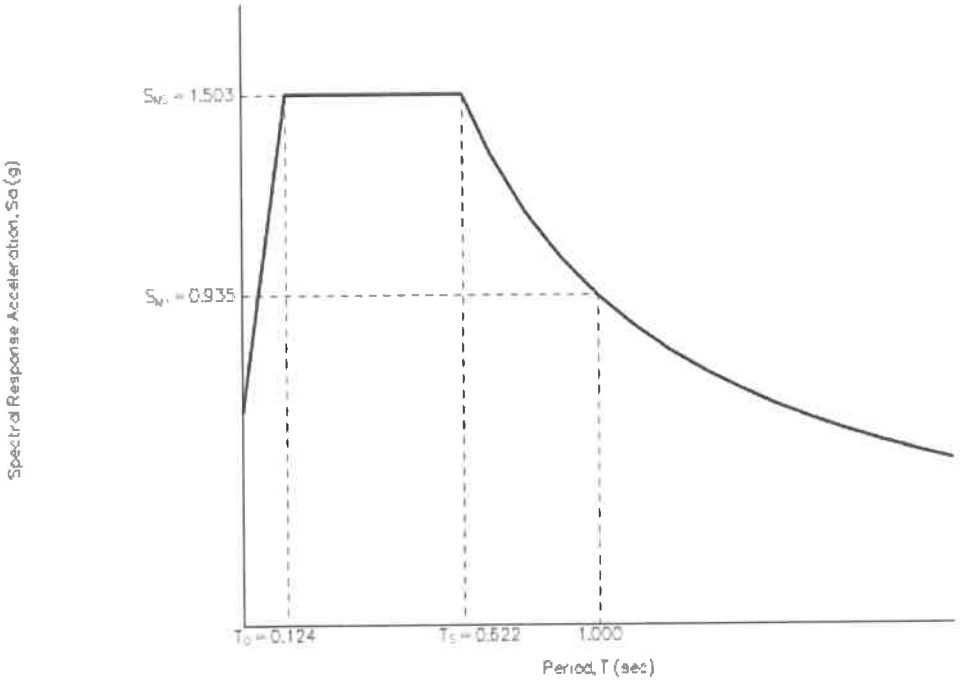
Figure 11.4–1: Design Response Spectrum



Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7 [4] PGA = 0.575

Equation (11.8–1): $PGA_M = F_{PGA}PGA = 1.000 \times 0.575 = 0.575$ g

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of PGA

For Site Class = D and PGA = 0.575 g, F_{PGA} = 1.000

Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17 [5] C_{RS} = 1.045

From Figure 22-18 [6] C_{R1} = 1.014

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \le S_{DS} < 0.33g$	B	B	C
$0.33g \le S_{DS} < 0.50g$	C	C	D
$0.50g \le S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 1.002 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \le S_{D1} < 0.133g$	B	B	C
$0.133g \le S_{D1} < 0.20g$	C	C	D
$0.20g \le S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.623 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = D

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf

Attachment: Geotechnical Engineering Investigation (3285 : PAMA Business Center)

HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS

PAMA Business Park

MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

(Township 3 South, Range 4 West, Section 13)

Prepared for:

PAMA Management
4900 Santa Anita Ave
Suite 2C
El Monte, California 91731

Prepared by:

RCA Associates, Inc.
15555 Main Street, #D4-235
Hesperia, California 92345
(760) 596-0017

Principal Investigators:
Randall Arnold, President and Principal Biologist
Blake Curran, Environmental Scientist/Biologist
Parker Smith, Biological Field Technician

Report prepared by R. Arnold, P. Smith, B. Curran

Project: #2018-37MSHCP

May 2018

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

TITLE PAGE

Date Report Prepared:	**May 3, 2018**
Date Field Work Completed:	**April 23, 2018**
Report Title:	**Habitat Assessment and MSHCP Consistency Analysis**
Assessor's Parcel Number:	**APN 297-170-083**
Prepared for:	**PAMA Management** **4900 Santa Anita Ave** **Suite 2C** **El Monte, California 91731**
Prepared by:	**RCA Associates, Inc.** **15555 Main Street, #D4-235** **Hesperia, California 92345**
Principal Investigators:	**Randall C. Arnold, Jr., Principal Biologist** **Blake Curran, Environmental Scientist/Biologist** **Parker Smith, Biological Field Technician**
Contact Information:	**Randall C. Arnold, Jr.** **RCA Associates, Inc.** **15555 Main Street, #D4-235** **Hesperia, CA 92345** **(760) 596-0017** **rarnold@rcaassociatesllc.com** **www.rcaassociatesllc.com**

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Table of Contents

SECTION 1: SUMMARY 1
SECTION 2: INTRODUCTION 2
2.1 Project Location 2
2.2 Project Description 2
SECTION 3: METHODS 6
3.1 Western Riverside County MSHCP Consistency Analysis 6
3.2 Literature Review 6
3.3 Plant Communities 7
3.4 Riparian/Riverine Habitat and Jurisdictional Areas 7
3.5 Field Investigation 7
3.6 Plants 7
3.7 Wildlife 8
3.8 Regional Connectivity/Wildlife Habitat Linkages 9
SECTION 4: EXISTING CONDITIONS 10
4.1 Environmental Setting 10
4.2 Soils 10
4.3 Plant Communities 10
4.4 Jurisdictional Waters 11
4.5 Nesting Birds 11
4.6 Multiple Species Habitat Conservation Plan (MSHCP) 11
4.7 Federal and State Listed Species 11
4.8 Wildlife Species of Special Concern and Special Status Plants 12
SECTION 5: WESTERN RIVERSIDE COUNTY MSHCP CONSISTENCY ANALYSIS 14
5.1 MSHCP Requirements 14
5.2 Project Relationship to Reserve Assembly 14
5.3 Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools 14
5.4 Jurisdictional Waters 15
5.5 Protection of Narrow Endemic Plant Species 15
5.6 Guidelines Pertaining to the Urban/Wildland Interface 15
5.7 Wildlife Habitat Linkage 17

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

5.8 Additional Survey Needs and Procedures 17
SECTION 6: PROJECT IMPACTS AND MITIGATION 19
6.1 Impacts Per Plant Community 19
6.2 Nesting Birds 19
6.3 Special Status Species 19
6.4 Habitat Fragmentation and Wildlife Movement 20
6.5 Critical and Sensitive Habitat and Jurisdictional Waters 20
6.6 Local Policies and Ordinances 21
SECTION 7: CONCLUSIONS 22
SECTION 8: CERTIFICATION 23
SECTION 9: REFERENCES 24
Appendix A 27
Appendix B 37
Appendix C 40
Appendix D 44
Appendix E 45

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

SECTION 1: SUMMARY

This report contains the results of a Habitat Assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis by RCA Associates, Inc on approximately 14-acre site located in the City of Moreno Valley, Riverside County, California.

The purpose of the Habitat Assessment is to identify potential impacts to biological resources associated with construction of the proposed residential community project. This report describes the results of the site visit, which assessed the Project Area for the potential to support special-status species; and the presence of other sensitive biological resources protected by local, state, and federal laws and regulations. If special-status species were observed during the site visit, they have been recorded accordingly. This report also contains an evaluation of potential impacts to special-status species and sensitive biological resources that may occur as a result of the proposed Project and potential mitigation measures to compensate for those impacts.

The assessment includes a review of pertinent literature, a review of the California Natural Diversity Data Base (CNDDB), field investigations, and analysis of potential impacts to biological resources. It is recommended that focused/protocol breeding season survey for the burrowing owl (*Athene cunicularia*) should be performed on the property and a report prepared and submitted under a separate cover.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

SECTION 2: INTRODUCTION

At the request of the project proponent, RCA Associates, Inc. conducted a habitat assessment and MSHCP Consistency Analysis for the PAMA Business Park project in the City of Moreno Valley, Riverside County. The proposed project will hereafter be referred to as the "project" or "project site."

2.1 Project Location

The project site is located north of Brodiaea Road, south of Alessandro Boulevard, and west of Heacock Street. Brodiaea Road borders the site on its southern boundary and vacant land borders the site on the east and partially west in the incorporated city of Moreno Valley, California (Township 3 South, Range 4 West, Section 13, USGS Sunnymead, California Quadrangle, 1956) The approximately 14-acre site is composed of a single parcel (APN 478-080-014).

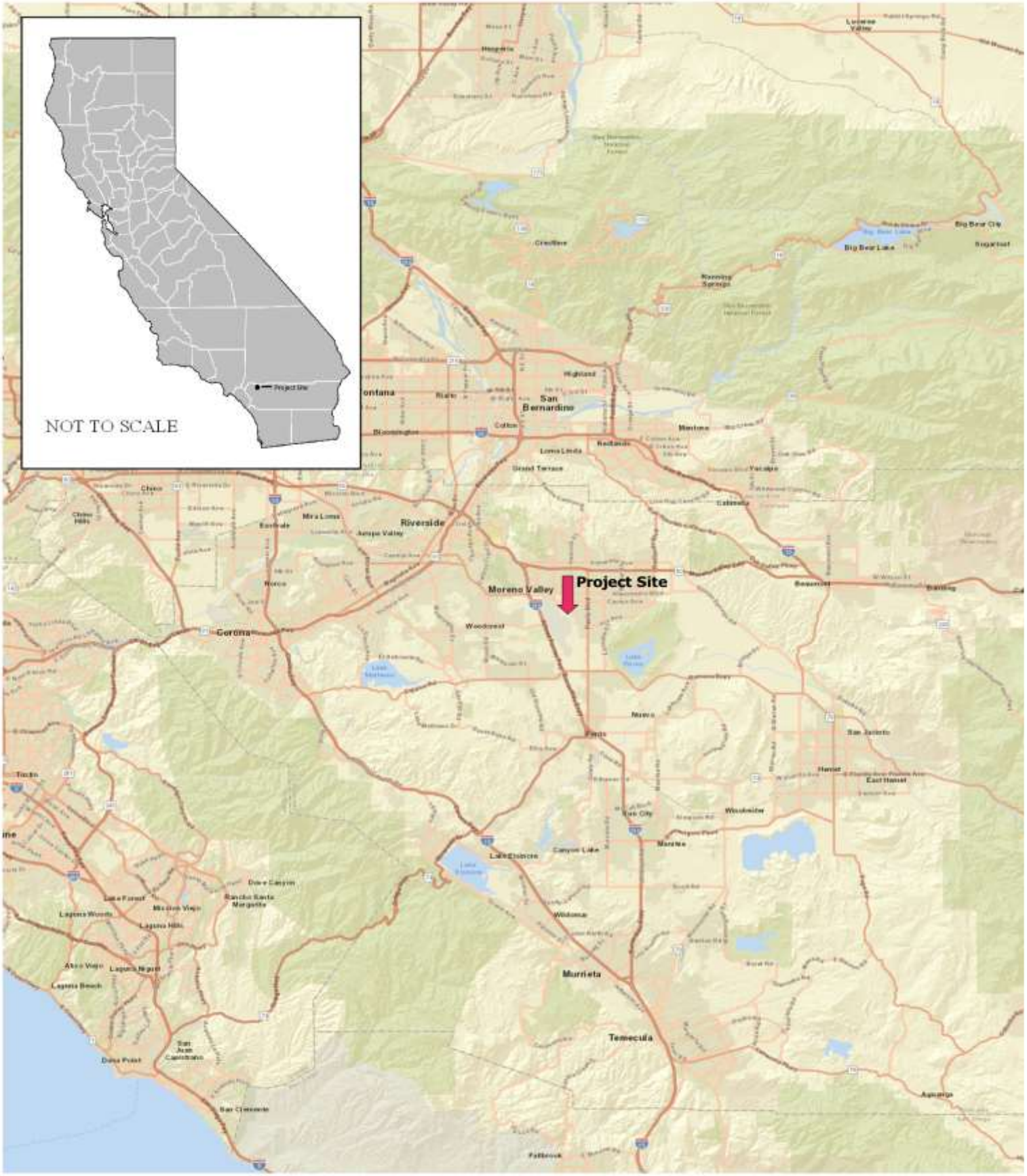
2.2 Project Description

The project proponent is proposing to subdivide the parcel into seven lots and build a business park with buildings totaling 270,000 square feet and one retention basin on the 14-acre as shown in Figure 5. Development activities would occur within areas which have been previously disturbed by various human activities including agricultural activities. The site is located within the Riverside County HCP fee area for Stephen's kangaroo rat (Riverside County Habitat Conservation Agency, 1995) (Appendix A, Figure 8). Any potential impacts to this species will be mitigated through participation in the HCP and a per-acre fee will be required.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Figure 1

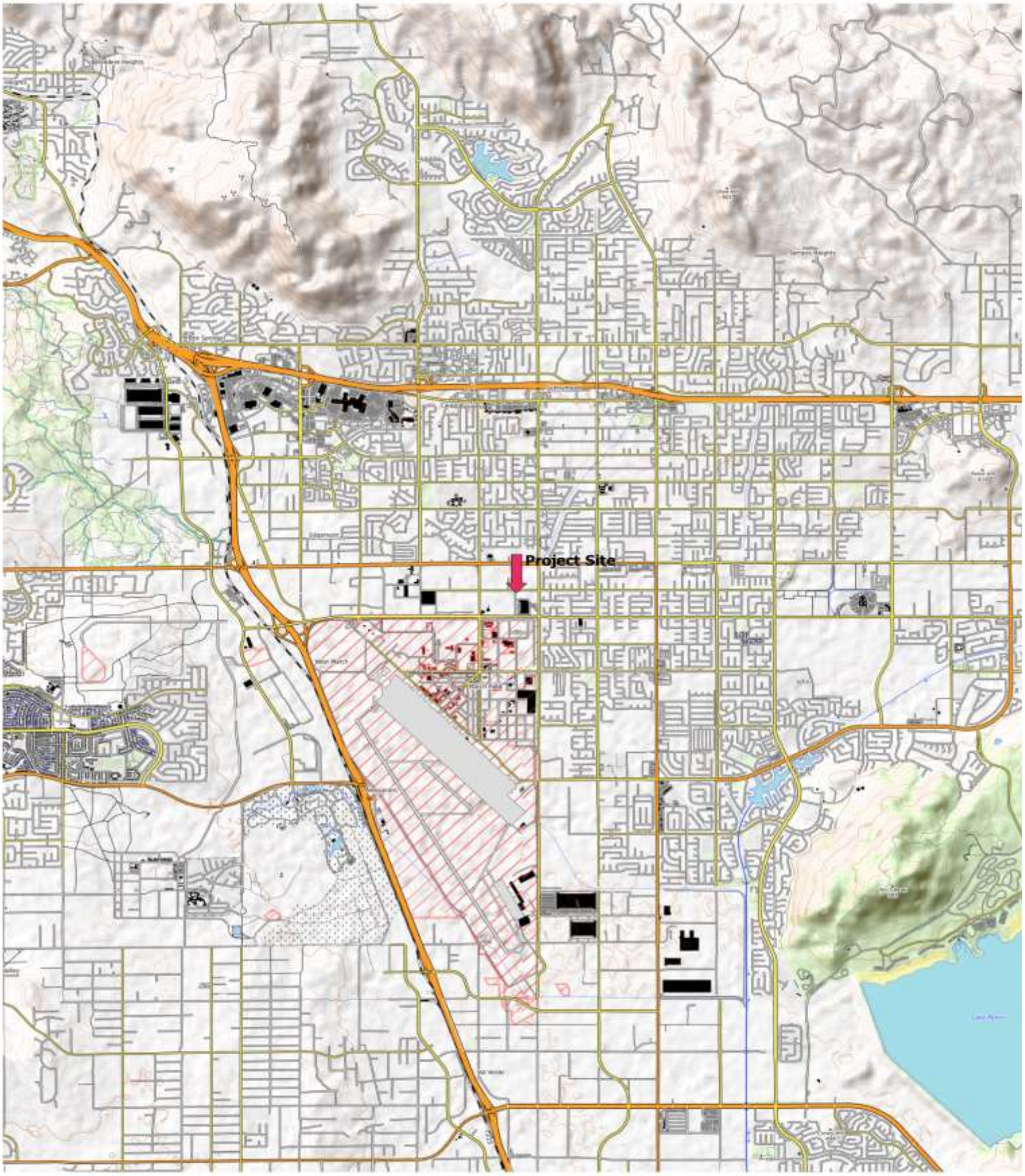
Regional Vicinity Map



Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Figure 2

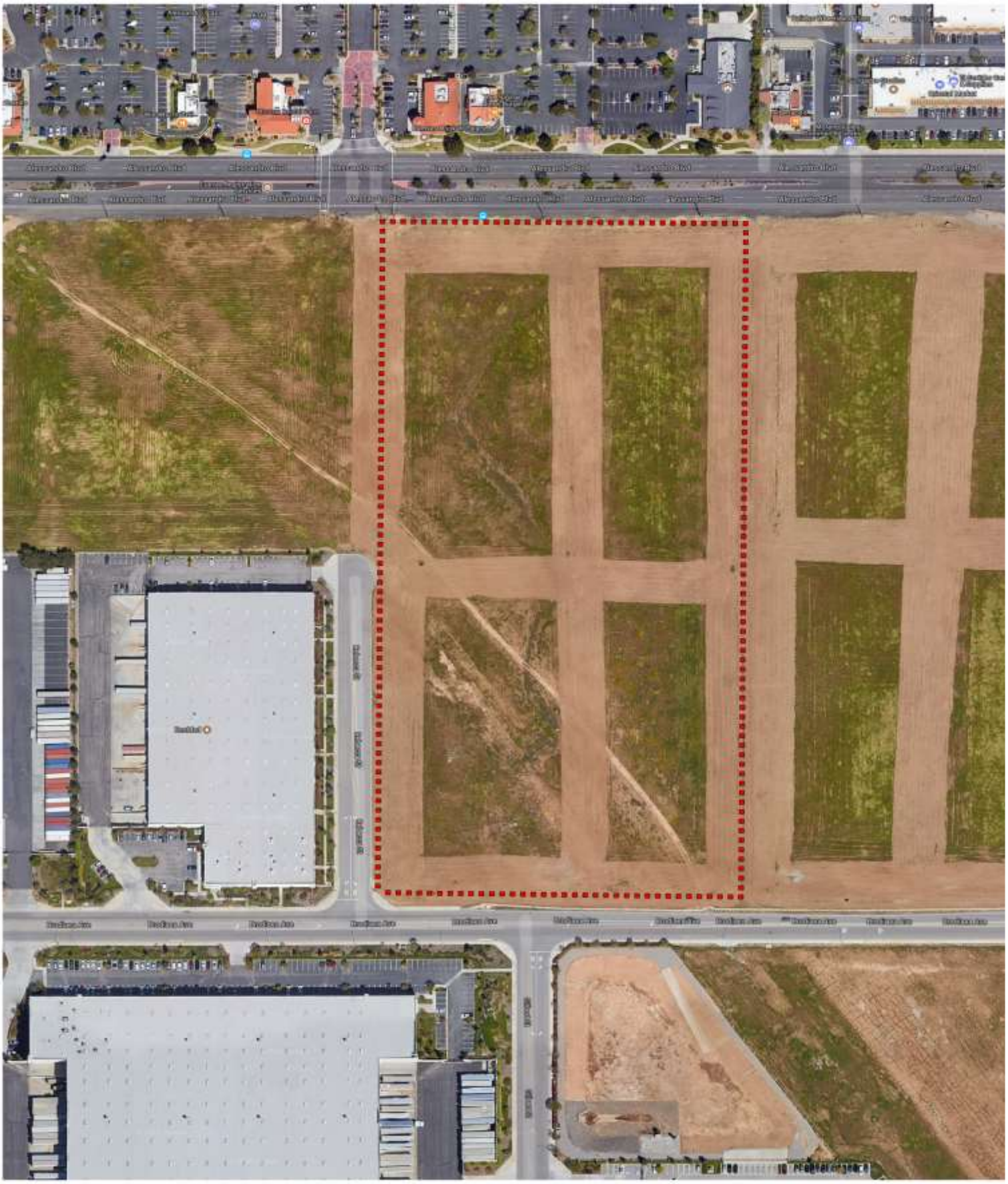
Local Topographic Map



Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Figure 3

Local Vicinity Map



50 0 50 100 150 m

Legend

Property Border

N

RCA

SECTION 3: METHODS

3.1 Western Riverside County MSHCP Consistency Analysis

RCA Associates, Inc. utilized GIS software to map the project site in relation to the MSHCP areas including Criteria Cells, Core Habitat, Linkages, and areas proposed for conservation. The MSHCP also requires a riparian/riverine and vernal pool habitat assessment within the project site which were conducted by biologists from RCA Associates, Inc. According to the MSHCP, the documentation for the assessment shall include mapping and a description of the functions and values of the mapped areas with respect to the species listed in Section 6.1.2. In addition, protection of species associated with riparian/riverine areas and vernal pools also needs to be addressed.

3.2 Literature Review

Prior to conducting the field investigations, a literature review was conducted of all available background data as well as the environmental setting of the project site. The literature reviewed included, but was not limited to, the United States Department of Agriculture (USDA 1971) Soil Survey for the project site, U.S. Fish, and Wildlife Service (USFWS) data sources, and the California Natural Diversity Database (CNDDB, 2018). The closest recorded location of sensitive species was determined through a five-mile radius query of the CNDDB (2018) (Appendix A, Table 1). In addition, a search of the CNDDB database was conducted for the Sunnymead USGS quadrangle and the surrounding eight quadrangles (See Appendix D). The CNDDB ArcGIS database was utilized, together with ArcGIS software, to locate the previously recorded locations of sensitive plant and wildlife occurrences and determine the distance from the project site. Additionally, the Riverside County MSHCP was reviewed for additional information on the known occurrence of the species within Riverside County.

The MSHCP Online Conservation Report Generator and Riverside County Land Information System (RCLIS) databases were queried to determine the specific requirements for compliance with the policies of the MSHCP as described in Volume 1, Chapter 6 Implementation Structure (RCIP 2004), i.e. Reserve Assembly (6.1.1); Riparian/Riverine and Vernal Pools (6.1.2); Narrow Endemic Plants (6.1.3); Urban/Wildlands Interface (6.1.4); and Additional Survey Needs (6.2.3).

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

3.3 Plant Communities

Plant communities were mapped using aerial photography and were evaluated on the ground using pedestrian surveys by biologists from RCA Associates, Inc. on April 23, 2018. The plant communities within the project site were classified according to the California Department of Fish and Game (CDFG's) List of Terrestrial Natural Communities (2003) and descriptions provided in Holland's Preliminary Descriptions of the Terrestrial Natural Communities of California (1986) were also reviewed.

3.4 Riparian/Riverine Habitat and Jurisdictional Areas

Aerial photography was reviewed prior to conducting the field investigations on April 23, 2018. The aerial photographs were used to locate and inspect any potential natural drainage features and water bodies that may be considered riparian/riverine habitat or which may be under the jurisdiction of either the U.S. Army Corps of Engineers (USACE) and/or CDFW. In general, surface drainage features are typically indicated as blue-line streams on USGS maps, which are expected to exhibit evidence of water flow through the channel. Such areas are considered potentially riparian/riverine habitat and may be subject to State and federal regulatory authority as "Waters of the State" or "Waters" of the U.S. Under the MSHCP, riparian/riverine habitat is defined as lands which contain habitat dominated by trees, shrubs, persistent emergent, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby freshwater source, or areas with freshwater flow during all or a portion of the year.

3.5 Field Investigation

RCA Associates, Inc. biologists Blake Curran and Parker Smith surveyed the project site on April 23, 2018, from about 0900 to 1200 p.m. Weather conditions during the survey included clear skies with temperatures from mid-50's to mid-70's °F. The entire project site was assessed to determine the extent of plant communities and to evaluate the presence of any areas which may have any jurisdictional features or may support riparian/riverine habitat. Parameters assessed included soil conditions, the presence of indicator species, slope, aspect, and hydrology.

3.6 Plants

Plant species observed during the field survey were identified by visual characteristics and morphology in the field and recorded in a field notebook. Samples of unusual and less familiar

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

plants were collected and returned to the lab for identification using taxonomical guides. Soil maps were used to identify areas of the site which may contain suitable soils to support sensitive plant species. A list of all species observed on the project site was compiled from the survey data (Appendix A, Table 2). The taxonomic nomenclature used in this study follows the California Native Plant Society (CNPS 2018).

3.7 Wildlife

Wildlife species detected during the field surveys were identified by sight, calls, tracks, scat, or other signs and were recorded in a field notebook. Field guides were used to assist with identification of species during surveys and included the Sibley Field Guide to Birds of Western North America (2017) and Burt and Grossenheider (1980) for mammals. Although common names of wildlife species are fairly well standardized, scientific names are used in this report and are provided in Appendix A for reference.

As part of the field investigations, the project site was also evaluated for the presence of burrowing owls (*Athene cunicularis*). Field investigations for the species were conducted as per the survey requirements established for the MSHCP. A habitat assessment (Phase I) was conducted on April 23, 2018, to determine if the site supported habitat that might support the species. Burrowing owls use a variety of natural and modified habitats for nesting and foraging; therefore, the site would be classified as suitable habitat for owls. During the habitat assessment, transects were walked throughout the property to identify the presence of owl habitat. Given the presence of suitable habitat for the species, additional surveys (Phase II) should be performed to determine if any suitable burrows and/or burrowing owls are present on the project site. Phase II requires 4 focused surveys, as well as burrow survey which can be done concurrently as the first focused survey. These surveys are required to be on separate days separated by a reasonable amount of time, and they must be conducted during BUOW breeding season (March 1st to August 31st). During the Phase II surveys, 30-meter transects were walked in such a manner as to provide 100 percent coverage of the ground surface. Surveys were conducted in adjacent areas to the north, east, south, and west. The zone of influence will be visually inspected for burrowing owl presence with binoculars and spotting scopes.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

3.8 Regional Connectivity/Wildlife Habitat Linkages

The analysis of wildlife habitat linkages associated with the Study Area is based on information compiled from literature, including MSHCP-mapped habitat linkages (Figure 3-2, Schematic Cores and Linkages Map in the MSHCP [2004]); analysis of aerial photographs; and direct observations (including sign, tracks and physical movement barriers, including recent development) made in the field during the reconnaissance survey. This information was crucial to assessing the relationship of the project site to large open space areas in the immediate vicinity. The discussions in this report are intended to focus on wildlife movement associated with the property and the immediate vicinity.

Wildlife habitat linkages mitigate the effects of habitat fragmentation by (1) allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity; (2) providing escape routes from natural disasters, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fires or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Noss 1983, Fahrig and Merriam 1985, Simberloff and Cox 1987, Harris and Gallagher 1989). Wildlife linkages are landscape features that connect and link habitat patches or habitat cores with each other. They serve a similar purpose in that they are areas that allow for animal movement, but they may not have all the resources a particular species needs to complete its life cycle.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

SECTION 4: EXISTING CONDITIONS

4.1 Environmental Setting

The property site has been disturbed by past human activities over the last several decades due to past agricultural activities (hay production), and the site shows signs of recent mowing and plowing (Figures 3).

The project site is relatively flat with an elevation of about 1,560 feet (MSL). The project slopes primarily from north to south. The project site is located within an area of the City of Moreno Valley that has been developed or disturbed over the last few decades. The surrounding properties to the east and west are undeveloped agriculture land, while to the south the land is currently being developed and has already begun grading.

4.2 Soils

Figure 9 represents soils that are mapped within the project site and zone of influence (ZOI) (USDA, 1971). The soils of the project site are composed of Greenfield sandy loam (1.8%) and Monserate sandy loam (98.2%). Each of the sandy loam series are well drained and have moderately rapid permeability. The soil series onsite are not included in the MSHCP sensitive soil types (MSHCP 2004, Figure 2-4) and are not considered hydric per the U.S. Department of Agriculture (USDA) National List of Hydric Soils (USDA, 2018).

4.3 Plant Communities

The project sites consist of agricultural plant communities, labeled by the MSHCP database (2012). The majority of the site supports agricultural land which was used to grow hay. Vegetation observed is somewhat limited and includes brome grasses (*Bromus*, sp.), lamb's quarters (*Chenopodium album*), heliotrope (*Heliotropium* sp.), Mustard (*Brassica spp.*) Fiddlenecks (*Amsinckia spp.*), dove weed (*Eremocarpus setigerus*), and goldfields (*Lastenia California*). Compendium of all plant species observed during April 23, 2018, are presented in Table 2 (Appendix A).

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

4.4 Jurisdictional Waters

The United States Army Corps of Engineers (USACE) regulates discharges of dredged or fill material into waters of the United States, and the State of California also regulates waters of the State and streambeds under the prevue of regional water quality boards and CDFW jurisdiction. These waters include wetlands and non-wetland bodies of water that meet specific criteria. Furthermore, no riparian habitats were observed on the project site nor were any plant species typically associated with riparian areas observed (e.g., persistent emergent, emergent mosses, and lichens, etc.).

4.5 Nesting Birds

The project site contains some suitable nesting habitat for avian species. Nesting birds are protected under section 3503 of the CDFW code and/or the Migratory Bird Treaty Act (MBTA). A few common bird species were observed within the project area during the survey with ravens (*Corvus corax*), Anna's hummingbird (*Calypte anna*), house finch (*Carpodacus mexicanus*), Say's phoebe (*Sayornis saya*), mourning dove (*Zenaida macroura*), and white-crowned sparrow (*Zonotrichia leucophrys*). All bird species observed are included in the faunal compendium in Appendix A, Table 3. As noted in Section 3.7, the site does support habitat which could potentially be utilized by burrowing owls (BUOW). A BUOW focused survey would be conducted and a Phase III report will be prepared and submitted under a separate cover.

4.6 Multiple Species Habitat Conservation Plan (MSHCP)

The project site is within APN 297-170-083 in the City of Moreno Valley in Riverside County, California. The project site is located within the MSHCP Additional Survey Areas for Burrowing Owl (Appendix A, Figure 7).

4.7 Federal and State Listed Species

There are thirty-one special status wildlife species which have been documented in the region. Of these species, only a few have occasionally been observed in the surrounding area of the property.

Stephen's kangaroo rat: Stephen's kangaroo rat has been documented in the region (Occurrence #3, Sunnymead quad, California Quad, 2018), with the most recent observation

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

(2003) about 1.5 miles south of the property (CNDDB, 2018). The use of the site by Stephen's kangaroo rat may be very infrequent given the low population levels in the region as well as the lack of any recent sightings according to the CNDDB.

San Bernadino kangaroo rat: San Bernadino kangaroo rat has been documented in the region (Occurrence #46, Sunnymead quad, California Quad, 2018), with the most recent observation (1913) about 0.5 miles east of the property (CNDDB, 2018). The species is not expected to occur on the site in the near future.

4.8 Wildlife Species of Special Concern and Special Status Plants

Tricolored blackbird: Tricolored blackbirds are readily identifiable and if present on the site would have been observed during the extensive field investigations conducted throughout the site. Tricolored blackbirds have been observed in the region (Occurrence #366, Sunnymead, California Quad, 2018), with the most recent documented observation (1995) in the region approximately one mile to the east (CNDDB, 2018). The species is not expected to occur on the site in the near future.

Orange-throated whiptail: Orange-throated whiptail has been documented in the region (Occurrence # 768, Sunnymead quad, California Quad, 2018), with the most recent observation (1989) about 0.5 miles northwest of the property (CNDDB, 2018). The use of the site by orange-throated whiptail may be very infrequent given the low population levels in the region as well as the lack of any recent sightings according to the CNDDB.

Coast horned lizard: Coast horned lizard has been documented in the region (Occurrence # 768, Sunnymead quad, California Quad, 2018), with the most recent observation (1929) about 0.5 miles east of the property (CNDDB, 2018). The use of the site by coast horned lizards may be very infrequent given the low population levels in the region as well as the lack of any recent sightings according to the CNDDB.

Red-diamond rattlesnake: Red-diamond rattlesnake has been documented in the region (Occurrence # 768, Sunnymead quad, California Quad, 2018), with the most recent observation (1929) about 0.5 miles east of the property (CNDDB, 2018). The use of the site by red-diamond

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

rattlesnakes may be very infrequent given the low population levels in the region as well as the lack of any recent sightings according to the CNDDB.

Smooth tarplant: Smooth tarplant has been observed in the region (Occurrence #108, Sunnymead quad, California Quad, 2018), with the most recent documented sitting 1 mile south of the property (CNDDB, 2018). However, no tarplants was observed during the extensive field investigations conducted throughout the site.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

SECTION 5: WESTERN RIVERSIDE COUNTY MSHCP CONSISTENCY ANALYSIS

5.1 MSHCP Requirements

The purpose of this discussion is to provide an analysis of the proposed project with respect to compliance with biological aspects of the Western Riverside County MSHCP. Specifically, this analysis evaluates the proposed project with respect to the project's compliance with MSHCP Reserve Assembly Requirements (Section 6.1.1); Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (Section 6.1.2); Protection of Narrow Endemic Plant Species (Section 6.1.3); Guidelines Pertaining to the Urban/Wildlands Interface (Section 6.1.4), and Additional Survey Needs and Procedures (Section 6.3.2)

5.2 Project Relationship to Reserve Assembly

The proposed project site is located within the REMAP Area Plan of the MSHCP and is not located within any Criteria Cells (Figure 4). The MSHCP established habitat assessment requirements for certain species of plants, birds, mammals, and amphibians. The MSHCP Conservation Areas (3.2.2) may be described in terms of bioregions, vegetation, soils, patch size, and edge affected lands. In regards to bioregions, the site is located in a developed area of the City of Moreno Valley and is not within an area of public/quasi-public conserved lands or within any pre-existing conservation agreements, as depicted in Figure 3-1 of the MSHCP. In addition, the site is not located within any American Indian Lands.

5.3 Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools

None of the riparian/riverine species listed in Section 6.1.2 of the MSHCP were found within the project site nor are any of the species expected to inhabit the site given the lack of abundance of any suitable habitat.

There are no features on the site that meet the MSHCP definition of vernal pools. In order to be considered a vernal pool under the MSHCP, a feature must be a wetland (based on the presence of hydrophytic vegetation, hydric soil, and wetland hydrology). The feature must also have a natural origin. Although there are several depressions on the site that pond water, none meets wetland criteria and all are artificial in nature. In addition, no vernal pools were observed during the field

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

investigations on the project site; consequently, the site does not support suitable habitat for fairy shrimp. The lack of suitable habitat for fairy shrimp is due to the soil that is made up of sandy loam soil which cannot hold water long enough. Thus, the site is also unable to support any sensitive vegetable that is associated with wetland features. The topography of the site is such so that water is unable to pool. Other non-vernal pool features such as depressions, drainages, and road ruts were examined for suitable fairy shrimp habitat; it is RCA Associates opinion that they lack the suitable habitat required for fairy shrimp. No riparian vegetation (e.g., cottonwoods, willows, etc.) exist on the project site.

5.4 Jurisdictional Waters

Based on the field reconnaissance, aerial photos and topographic maps, the project site does not contain features that are jurisdictional under the Clean Water Act or State regulation for isolated waters or streambeds. There are no jurisdictional drainages within the project site.

5.5 Protection of Narrow Endemic Plant Species

The project site is not located within the MSHCP Narrow Endemic Plant Species Survey Area (NEPSSA); therefore, focused plant surveys were not conducted for species identified under Section 6.1.3 of the MSHCP. In addition, no rare plants were observed during the April 2018. In addition, the property has been disturbed by past human activities and are unlikely to support any rare plants at the present time. No surveys are required and the project is consistent with the Narrow Endemic Plant Species requirements of the MSHCP.

5.6 Guidelines Pertaining to the Urban/Wildland Interface

The MSHCP Urban/Wildland Interface Guidelines are intended to address indirect effects associated with locating development in proximity to the MSHCP Conservation Area. The project site does not occur within the MSHCP Criteria Area and is not located adjacent to any Criteria Cell describing areas of conservation. The closest Conservation Area is approximately 2.5 miles to the south. The project is not expected to result in significant indirect impacts to special-status biological resources. Implementation of the Best Management Practices (BMPs) in Appendix C of the MSHCP would ensure that the project is in compliance with the MSHCP.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

- Drainage: The project shall not create additional flow offsite. Measures should be taken to assure that the project stormwater discharge is no greater in volume and velocity than current undeveloped conditions and that the water leaving the site complies with all applicable water quality standards.

- Toxics: In concert with drainage requirements, the project is subject to Riverside County Water Quality Management Plan (WQMP) for Urban Runoff, Santa Ana Region, adopted September 17, 2004, and the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharge Associated with Construction Activity (General Permit). Implementation of both the WQMP and the general permit would reduce potential impacts of toxics to the MSHCP conservation area to a level of less than significant.

- Lighting: Night lighting shall be directed away from the MSHCP Conservation Area to protect species within the MSHCP Conservation Area from direct night lighting. Shielding shall be incorporated into project designs to ensure ambient lighting in the MSHCP Conservation Area is not increased.

- Noise: The project is already subject to fairly high ambient noise level due to street traffic. The completer project would not be subject to an MSHCP Conservation Area to noise above the existing ambient noise level. The construction site should be far enough away from the MSHCP Conservation Area that temporary construction-related noise impacts would not negatively impact resources within the Conservation Area.

- Invasives: No invasive species from MSHCP Table 6.2 shall be included in any landscaping for the project.

- Barriers: As needed, the project should include the incorporation of rocks/boulders, fencing, walls, signage, and or other appropriate measures to minimize unauthorized public access, domestic animal predation, and illegal trespass and dumping into the MSHCP Conservation Area. Any barriers shall be outside of the MSHCP Conservation Area.

- Grading: Project related grading would be outside of the project conservation area and the MSHCP Conservation Area.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

5.7 Wildlife Habitat Linkage

According to the MSHCP (Figure 3-2: Schematic Cores and Linkages Map), there are no documented terrestrial migration corridors in the vicinity of the project site. Furthermore, the project site is within a moderately developed portion of the City of Moreno Valley and it is not anticipated that the site is used for migration, movement or dispersal of wildlife.

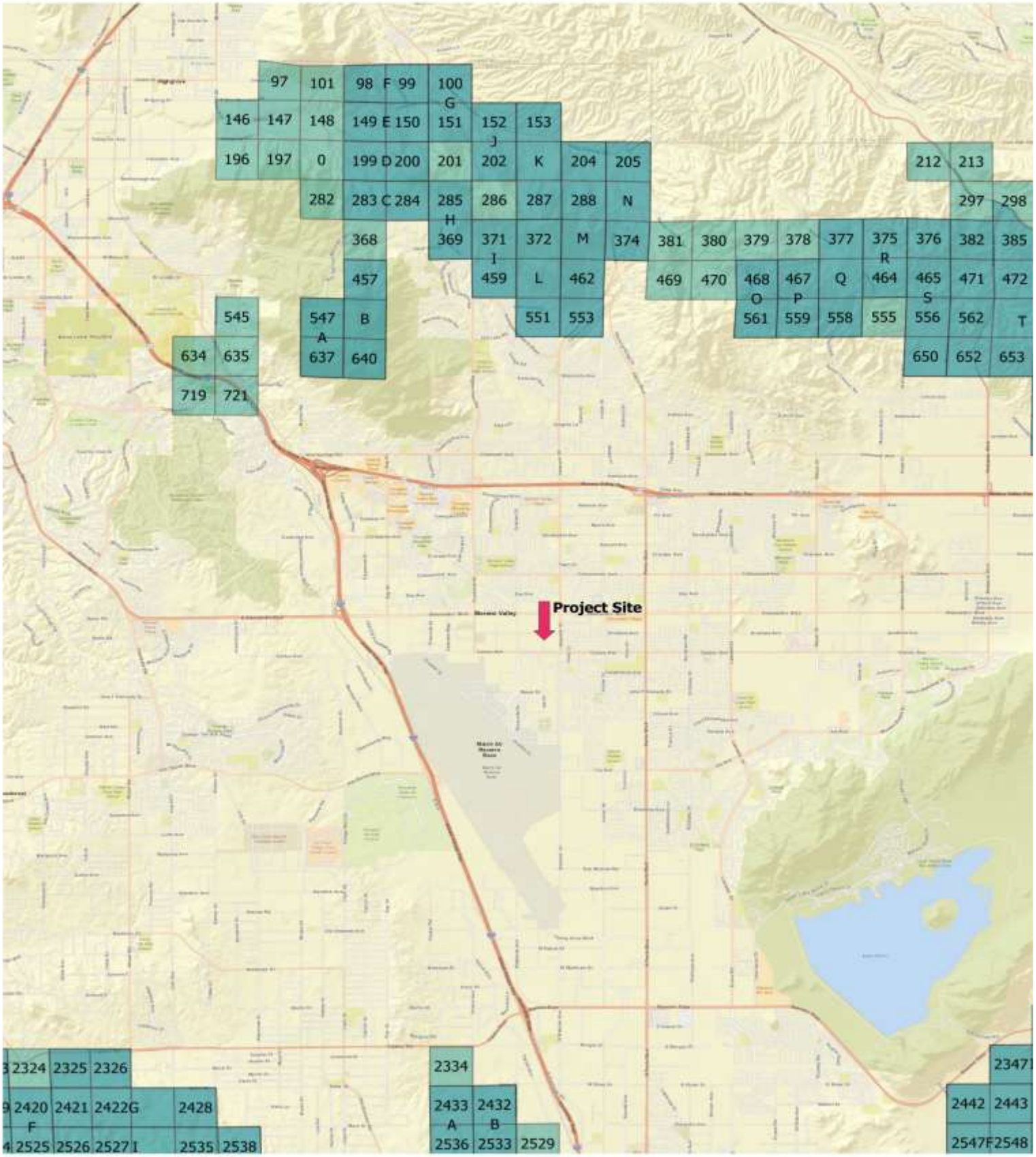
5.8 Additional Survey Needs and Procedures

The project site is located within the MSHCP Additional Survey Areas for Burrowing Owl; however, no survey will be required for Amphibians, Criteria Area Species, Mammals, or Special Linkage Areas. A burrowing owl survey is required and the project is consistent with the Additional Survey Needs and Procedures of the MSHCP.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Figure 4

Proximity to Cell Groups & Criteria Cells of the Riverside MSHCP



Sources: Google Imagery 2018, ESRI, MSHCP

1 0 1 2 3 4 km

Legend

Project Site

CriteriaCells

CellGroups

N

RCA

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

SECTION 6: PROJECT IMPACTS AND MITIGATION

6.1 Impacts Per Plant Community

The proposed project will impact approximately 14-acres of vegetation, all of which is agriculture land that was used to grow hay. Only a few native plant species would be affected as per MSHCP Data Based (2018). Loss of the existing vegetation would also affect some wildlife species; although, the number of species that would be impacted is relatively low.

6.2 Nesting Birds

There is potential for various nesting birds to utilize the shrubs within the project site. However, potential impacts to nesting birds can be eliminated or significantly reduced if vegetation suitable for nesting birds is removed outside of the nesting bird season. The nesting season for birds typically occurs from February 15th to August 31st.

Grading and vegetation removal activities should be conducted outside of the nesting bird season, which is typically from about the end of February through August 31st. If grading and clearing activities must occur during the nesting season, a nesting bird survey should be conducted within seven days prior to the start of any ground disturbing activities to determine if any nesting birds occur within the project site. If nesting birds are not found within the project site, no further actions will be required. If nesting birds are observed on site, no impacts shall occur within 250 feet (500 feet for raptors) of any active nests. Also, construction activity may only occur within 250 feet of an active nest at the discretion of the project's biological monitor.

6.3 Special Status Species

A burrowing owl nesting season survey should be conducted in order to assess the presence of burrowing owl on the property. Nesting season surveys will be conducted as early as March 15th and will include four separate site visits. Owls observed during the nesting season survey will be documented and passive relocation may be necessary, under the direction of CDFW. A burrowing focused survey should be conducted and a report will be prepared under a separate cover as per *The California Burrowing Owl Consortium, 1993.*

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

If burrowing owls have colonized the site prior to initiation of site development, the project proponent should inform the Regional Conservation Authority (RCA) and the wildlife agencies.

Based on the absence of burrowing owls, the following additional surveys and mitigations are recommended as per CDFW requirements.

1. Perform a burrowing owl focused survey between the months of Mach 15th to August 31st.

2. Conduct pre-construction surveys for the burrowing owl to determine if the species has moved on to the site since the April 2018 surveys.

3. The site is located within the known distribution of the listed Stephens kangaroo rat and the species could potentially inhabit the site. Therefore, mitigation fees will be required as per the MSHCP.

4. Contact CDFW regarding conducting focused surveys for sensitive plant species known to occur in the region. If required, conduct focused surveys for sensitive plant species as per the survey requirements of the California Naïve Plant Society.

6.4 Habitat Fragmentation and Wildlife Movement

As previously noted, the property is located in an area where habitat has been fragmented due to past human activities, agricultural activities, and on-going developments in the surrounding region. Therefore, the incremental loss of wildlife habitat associated with the proposed development is expected to be negligible. There are no major wildlife corridors present on the site and the proposed project will not impede regional wildlife movement or impact any MSHCP-designated corridors or habitat linkages. Therefore, the proposed project is not expected to have any substantial impacts in regard to habitat fragmentation and regional wildlife movement.

6.5 Critical and Sensitive Habitat and Jurisdictional Waters

No depressions or areas where water would pool were observed within the project site. In addition, no vernal pools were observed during the field investigations on the project site; consequently, the site does not support suitable habitat for fairy shrimp. None of the riparian/riverine species listed

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

in Section 6.1.2 of the MSHCP were found within the project site nor are any of the species expected to inhabit the site given the absence of any suitable habitat.

6.6 Local Policies and Ordinances

The proposed project will not conflict with or have any adverse impact on any local policies or ordinances.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

SECTION 7: CONCLUSIONS

No sensitive species or sensitive habitats were observed within the project site during the field investigations conducted on April 23, 2018. The property does not contain any riverine/riparian habitat, vernal pools or Urban/Wildlands interface areas; although, various special status species have been previously identified on the site. The following recommended actions will ensure that the project is consistent with the MSHCP:

- Pre-construction nesting bird survey if vegetation removal is conducted between February and August.

- Perform a burrowing owl focused survey between the months of Mach 15th to August 31st.

- A pre-construction survey for burrowing owls is conducted 30 days prior to the start of any ground disturbance activities to ensure no burrowing owls have moved onto the site since the BUOW focused survey completed in April 2018.

If any sensitive species are observed on the property during future activities, CDFW and USFWS (as applicable) should be contacted to discuss specific mitigation measures which may be required for the individual species. CDFW and USFWS are the only agencies which can grant authorization for the "take" of any sensitive species and can approve the implementation of any applicable mitigation measures.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

SECTION 8: CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits, present the data and information required for this biological evaluation and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Fieldwork conducted for this assessment was performed by me or other biologists under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project.

Date: 05/03/2018 Signed: Blake Curran

Report Author

Work Performed By: Randall Arnold
President and Principal Biologist

Work Performed By: Parker Smith
Biologist Field Technician

Work Performed By: Blake Curran
Environmental Scientist/Biologist

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

SECTION 9: REFERENCES

American Ornithologists' Union. 1989. Thirty-Seventh Supplement to the American Ornithologists' Union Checklist of North American Birds. Auk, 106:532-538.

Baldwin, Bruce G, et. al.
2002. The Jepson Desert Manual. Vascular Plants of Southeastern California. University of California Press, Berkeley, CA.

Barbour, M.G. and J. Major, editors. 1977. Terrestrial Vegetation of California. John Wiley and Sons, New York.

Blair, W.F. 1968. Vertebrates of the United States. McGraw-Hill, Inc. New York. 616 pp

California Burrowing Owl Consortium
1993. Burrowing Owl Survey Protocol and Mitigation Guidelines.

California Department of Fish and Game
1990. California Wildlife: Volume 1 (Amphibians and Reptiles), Volume II (Birds), and Volume III (Mammals).

California Department of Fish and Game
1995. Staff Report on Burrowing Owl Mitigation.

California Department of Fish and Game
September 7, 2012. Staff Report on Burrowing Owl Mitigation. 34 pp.

California Department of Fish and Game
2017. Rarefind 3 Natural Diversity Database. Habitat and Data Analysis Branch. Sacramento, CA.

California Native Plant Society
2001. Inventory of Rare and Endangered Plants of California (sixth edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, CA x + 388 pp.

Dudek & Associates. 2003. Western Riverside County Multiple Species Habitat Conservation Plan.

Ehrlich, P., Dobkin., Wheye, D.
Birder's Handbook. A Field Guide to the Natural History of North American Birds. Simon & Schuster Building Rockefeller Center 1230 Avenue of the Americas. New York, New York 10020.

Grenfell, W.E. Jr. and W.F. Laudenslayer, Jr. editors. 1983. Distribution of California

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Birds. California Wildlife/Habitat Relationship Program. Publication No. 4 California Department of Fish and Game, Sacramento, and USDA Forest Service.

Hickman, James C.
1996. The Jepson Manual Higher Plants of California. University of California Press. Berkeley, CA. 3rd Edition.

Holland, R.
1986. A Description of the Terrestrial Natural Communities of California. California Department of Fish and Game, October.

Jaeger, Edmund C.
1969. Desert Wild Flowers. Stanford University Press, Stanford, California. 321 pp.

Kays, R. W. & Wilson, D. E.
2002. Mammals of North America. Princeton University Press, Princeton, New Jersey.

Knecht, A.
1971. Soil survey of western Riverside Area, California. For USDA, Natural Resources Conservation Service.

Michael Brandon Associates. December 17, 2012. Determination of Biological Equivalent or Superior Preservation (DBESP) Analysis for Riparian/Riverine Habitat. Amberwood Project, City of Wildomar, Riverside County, California 32 pp.

Mock, P. J., B. L. Jones, and J. Konency.
1990. California Gnatcatcher Survey Guidelines. ERC Environmental and Energy Service Company, San Diego, California.

Munz, Philip A.
1974. A Flora of Southern California. University of California Press, Berkeley, California. 1086 pp.

Sibley, David Allen.
2000. National Audubon Society. The Sibley Guide to Birds. Alfred A Knopf, Inc.

Stebbins, Robert C.
A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Company. 2003.

U.S. Fish and Wildlife Service
2010. Desert Tortoise Survey Protocol.

United States Department of Agriculture, Soil Conservation Service.
1991. Hydric Soils of the United States, 3rd Edition, Miscellaneous Publication Number

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

1491. National Technical Committee for Hydric Soils.

Whitaker, John O.
1980. The Audubon Society Field Guide to North American Mammals. Alfred A Knopf, Inc.

Williams, D. F.
1986. Mammal Species of Special Concern in California, Timton Kangaroo Rat. California Department of Fish and Game.

Zeiner, D. C., W., F. Laudenslayer, Jr., K. E. Mayer, M. White. Editors.
1990. California's Wildlife. Volume 2. Birds. State of California, Department of Fish and Game. Sacramento, California. 731 pp.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

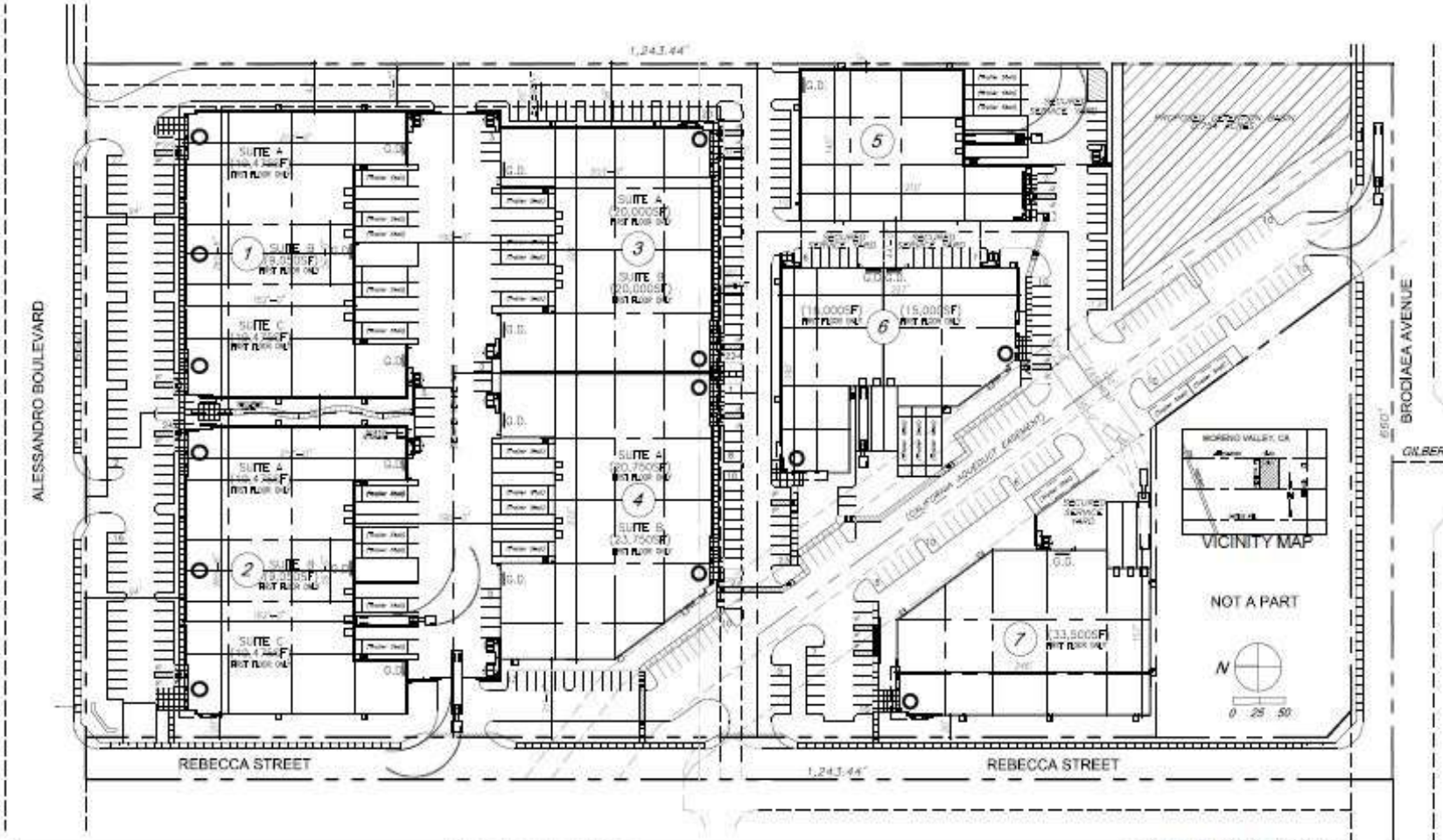
Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Appendix A

Figures and Tables

Figure 5

Site Plan



SHEET #	SHEET DESCRIPTION
A0.1	MASTER PLAN
A0.2	EXISTING CONDITIONS (PHOTO'S)
A0.3	CONCEPTUAL ROOF PLANS
A1.1	BUILDING 1 FLOOR PLAN
A1.2	BUILDING 1 ELEVATIONS
A2.1	BUILDING 2 FLOOR PLAN
A2.2	BUILDING 2 ELEVATIONS
A3.1	BUILDING 3 FLOOR PLAN
A3.2	BUILDING 3 ELEVATIONS
A4.1	BUILDING 4 FLOOR PLAN
A4.2	BUILDING 4 ELEVATIONS
A5.1	BUILDING 5 FLOOR PLAN
A5.2	BUILDING 5 ELEVATIONS
A6.1	BUILDING 6 FLOOR PLAN
A6.2	BUILDING 6 ELEVATIONS
A7.1	BUILDING 7 FLOOR PLAN
A7.2	BUILDING 7 ELEVATIONS
A8.1	CONCEPTUAL TENANT IMPROVEM
L1.1	PRELIMINARY LANDSCAPE PLAN
L2.1	PRELIMINARY PLANT IMAGERY
1 of 2	CONCEPTUAL GRADING PLAN
2 of 2	TENTATIVE PARCEL MAP

LAND USE:

CONSTRUCTION TYPE:

PROJECT TEAM :

SITE DATA TABLE

BUILDING	LAND AREA AC	LAND AREA SF	COVERAGE %	BLDG. FOOT PRINT	BLDG. MEZZ.	BLDG. S.F.	OFFICE S.F.	WAREHOUSE S.F.	OFFICE PARKING	WAREHOUSE PARK.	PARKING REQ.	PARKING PROV.
1	2.263 AC	98,576.28	48.69%	48,000	2,000	50,000	5,000	45,000	20	31	51	51
2	2.362 AC	102,975.84	46.61%	48,000	2,000	50,000	5,000	45,000	20	31	51	52
3	1.908 AC	83,112.48	48.12%	40,000	2,000	42,000	5,000	37,000	20	29	49	49
4	2.213 AC	96,398.28	46.16%	44,500	2,000	46,500	5,000	41,500	20	30	50	53
5	1.438 AC	62,639.28	39.91%	25,000	2,000	27,000	4,000	23,000	16	22	38	39
6	1.826 AC	79,540.56	38.97%	31,000	2,000	33,000	4,000	29,000	16	25	41	46
7	2.525 AC	109,989.00	30.45%	33,500	2,000	35,500	4,000	31,500	16	26	42	62
TOTAL	14.534 AC	633,101.04	42.64%	270,000	14,000	284,000	32,000	252,000	128	194	322	352

LOT AREAS = 633,101.04SF + DETENTION BASIN 32,844.24SF = 665,945.28SF (1.24/1000)
LANDSCAPE AREA = 103,039 S.F. (not including the detention basin)
LANDSCAPE AREA @ 103,039 S.F. / LOT AREAS @ 633,101.04 = 16.27%

PARKING STALL SIZES:

LEGAL DESCRIPTION

GRAPHIC LEGEND

O = OFFICE ENTRY
GD = GRADE DOOR (14'X14')
= A.D.A. ACCESSIBLE PRKG.

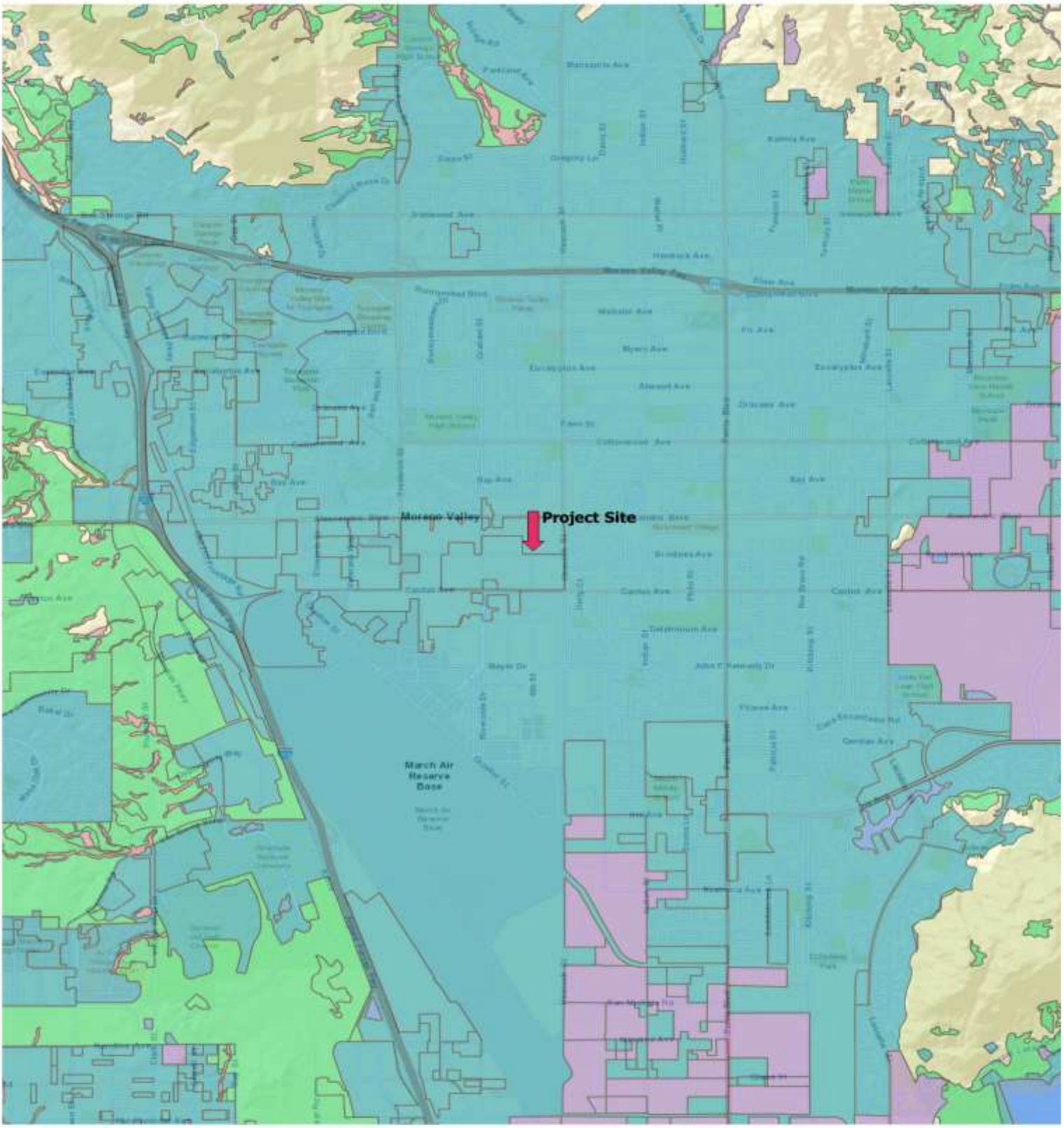
PARKING REQUIREMENTS

OFFICE: 4/1000
WAREHOUSE
0-20,000SF = 1/1000
20,000SF-40,000SF = 1/2000
40,000SF+ = 1/4000

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Figure 6

Vegetation Community Map



Sources: Google Imagery 2018, MSHCP, ESRI

1 0 1 2 3 km

Project Site

Vegetation2012

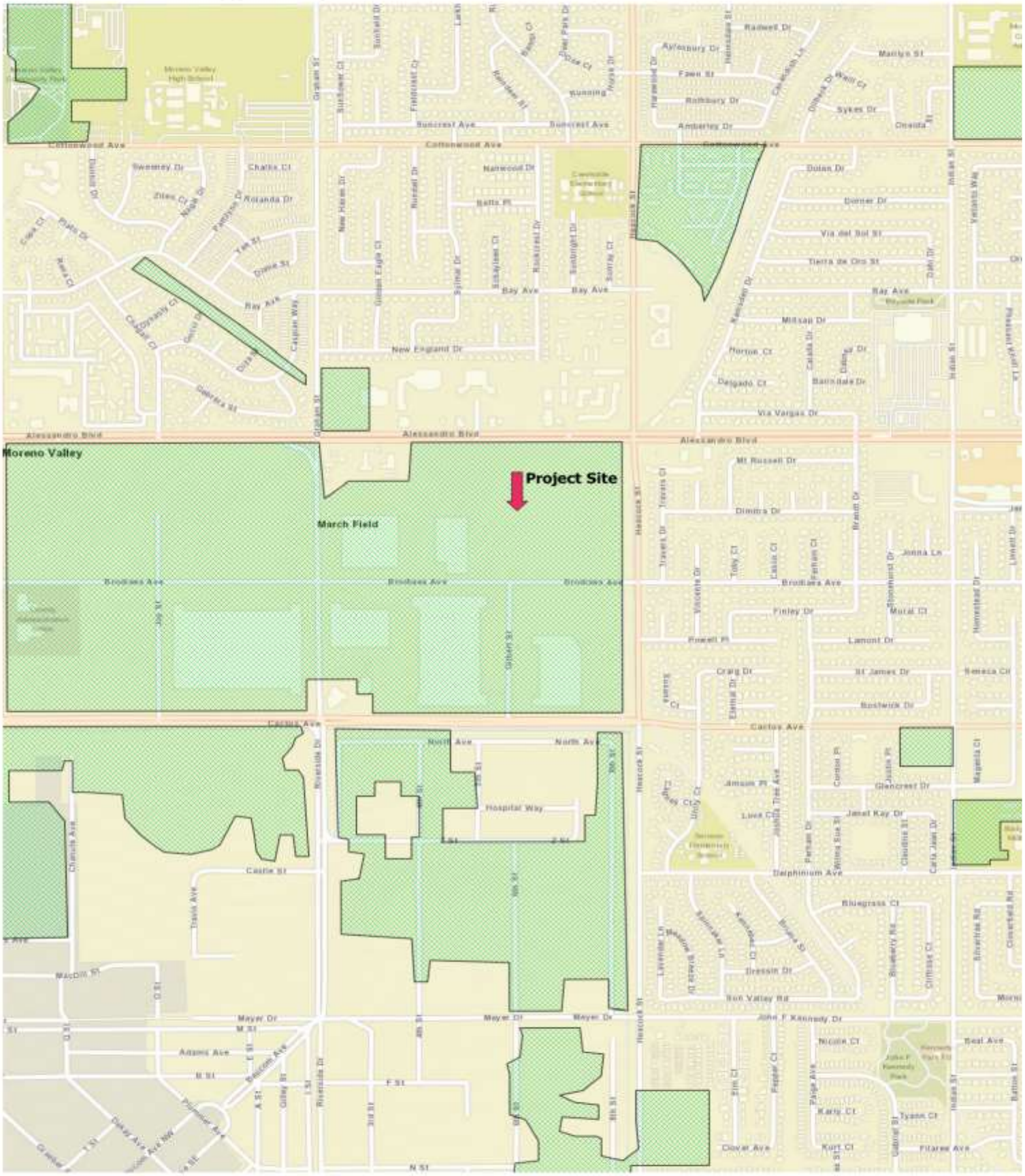
- Agricultural Land
- Developed/Disturbed Land
- Grassland
- Riparian Scrub, Woodland, Forest

N

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Figure 7

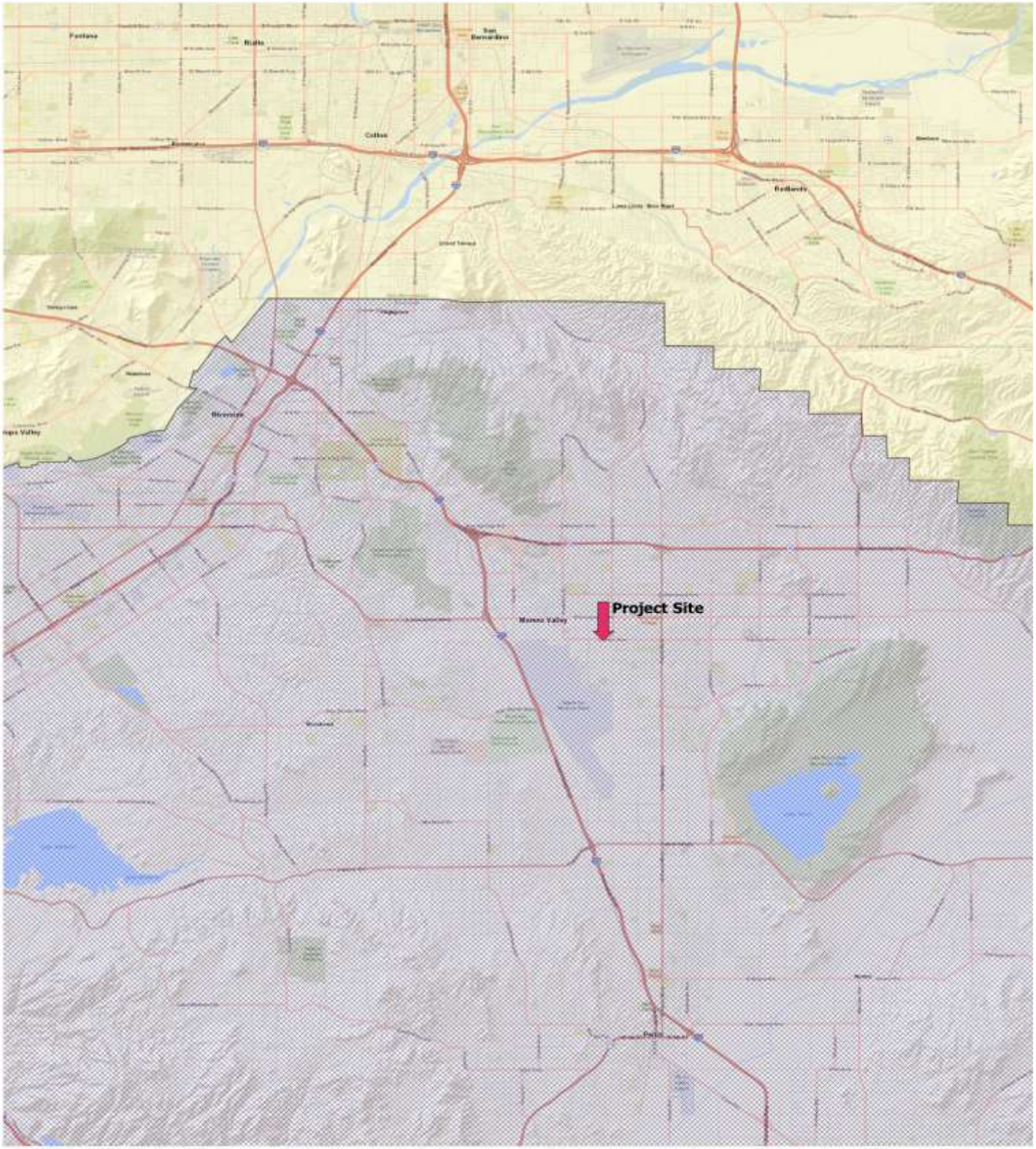
Riverside MSHCP Burrowing Owl Survey Area



Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Figure 8

Riverside MSHCP Stephen's Kangraroo Rat Fee Area



Sources: Google Imagery 2018, MSHCP, ESRI

2.5 0 2.5 5 7.5 km

Legend

Project Site

Stephen's Kangaroo Rat Plan and Fee Area

N

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Figure 9

USDA Soil Map

50 0 50 100 150 200 m

N

Legend

- Property Border

soilmu_a_ca679

- GyA
- GyC2
- HcA
- MmB

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Table 4-1: Federal and State Listed Species and State Species of Special Concern.
T = Threatened; E = Endangered; SSC = Species of special concern; CNDDB = California Natural Diversity Data Base

Name	Listing Status	Habitat Requirements	Presence/Absence
Crotch bumble bee (*Bombus crotchii*)	Fed: None State: None	Coastal California east to the Sierra-Cascade crest and south into Mexico.	Site does not support suitable habitat for the species.
White pygmy-poppy (*Canbya candida*)	Fed: None State: None	Joshua tree woodland Mojavean desert scrub Pinon & juniper woodlands	Site does not support suitable habitat for the species.
Short-joint beavertail (*Opuntia basilaris var. brachyclada*)	Fed: None State: None	Chaparral Joshua tree woodland Mojavean desert scrub Pinon & juniper woodlands	Site supports suitable habitat for the species. Species has been identified In area; therefore, species may inhabit the site
Coast horned lizard (*Phrynosoma blainvillii*)	Fed: None State: None	Chaparral Cismontane woodland Desert wash Pinon & juniper woodlands Riparian scrub Riparian woodland Valley & foothill grassland	The site does not support suitable habitat for the species.
Stephens' kangaroo rat (*Dipodomys stephensi*)	Fed: E State: T	Coastal scrub Valley & foothill grassland	The site supports marginal habitat for the species.
San Bernadino kangaroo rat (*Dipodomys merriami parvus*)	Fed: E State: None	Coastal scrub	The site does not support suitable habitat for the species.
Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*)	Fed: None State: None	Alkali playa Marsh & swamp Salt marsh Vernal pool	The site does not support suitable habitat for the species.
Red-diamond rattlesnake (*Crotalus ruber*)	Fed: None State: None	Chaparral Mojavean desert scrub Sonoran Desert scrub	The site does not support suitable habitat for the species.
Coastal whiptail (*Aspidoscelis tigris stejnegeri*)	Fed: None State: None	Deserts and semi-arid areas with sparse vegetation and open areas	The site supports suitable habitat for the species.
Western mastiff bat (*Eumops perotis californicus*)	Fed: None State: None	Chaparral Cismontane woodland Coastal scrub Valley & foothill grassland	The site does not support suitable habitat for the species.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Western spadefoot (*Spea hammondii*)	Fed: None State: None	Cismontane woodland Coastal scrub Valley & foothill grassland	The site does not support suitable habitat for the species.
Smooth tarplant *Centromadia pungens ssp. laevis*)	Fed: None State: None	Chenopod scrub Meadow & seep Riparian woodland Valley & foothill grassland Wetland	The site does not support suitable habitat for the species.
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	Fed: None State: None	Chaparral Coastal scrub Grassland	The site supports suitable habitat for the species.
Western yellow bat (*Lasiurus xanthinus*)	Fed: None State: None	Desert wash	The site does not support suitable habitat for the species.
Ferruginous hawk (*Buteo regalis*)	Federal: None State: None	Native grassland, Great Basin scrub, juniper woodland	Suitable nesting habitat absent from the site may use site for foraging.
Tricolored blackbird (*Agelaius tricolor*)	Federal: None State: None	Freshwater marshes, wetlands.	Suitable habitat absents from site. Not expected to occur on the site.
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	Fed: None State: None	Coastal scrub	The site does not support suitable habitat for the species. .
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	Fed: None State: None	Chaparral Coastal scrub	The site does not support suitable habitat for the species.
Burrowing owl (*Athene cunicularia*)	Fed: None State: None	Coastal prairie Coastal scrub Great Basin grassland Mojavean desert scrub Valley & foothill grassland	The site supports suitable habitat for the species.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Table 2 - Plants observed on the site and known to occur in the area.

Note: The above Tables are not comprehensive lists of every plant or animal species which may occur in the area, but are a list of those common species which have been identified on the site or in the region by biologists from RCA Associates, Inc.

Common Name	Scientific Name	Comments
Snakeweed	*Gutierrezia sarothrea*	Observed on-site and Surrounding Area
Telegraph weed	*Heterotheca gradifolia*	"
Fiddleneck	*Amsinckia tessellate*	"
Black mustard	*Brassica nigra*	"
Plantain	*Plantago erecta*	"
Pearly everlasting	*Gnaphalium californicum*	"
Phacelia	*Phacelia distans*	"
Lambs quarters	*Chenopodium califonicum*	"
Centaurem	*Centaurea squarrosa*	"
Brome grass	*Bromus sp.*	"
Dove weed	*Eremocarpus setigerus*	Surrounding Area
Lamb's quarters	*Chenopodium album*	"
Heliotrope	*Heliotropium sp.*	"
Buckwheat	*Eriogonum fasciculatum*	"
Erodium	*Erodium cicutarium*	"
Goldfields	*Lasthenia californica*	"
Russian thistle	*Salsola tragus*	"
Stephanomeria	*Stephanomeria sp.*	"
Mustard	*Brassica sp.*	"
Tamarisk	*Tamarix ramoissina*	"

Note: The above list is not intended to be a comprehensive list of every plant which may occur on the site or in the zone of influence.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Table 3 - Wildlife observed on the site and those species expected to the area.

Note: The above Tables are not comprehensive lists of every plant or animal species which may occur in the area, but are a list of those common species which have been identified on the site or in the region by biologists from RCA Associates, Inc.

Common Name	Scientific Name	Comments
Mammals		
Desert cottontail	*Sylvilagus auduboni*	Observed on-site
California ground squirrel	*Spermophilus beecheyi*	"
Coyote	*Canis latrans*	Scats observed on-site.
Deer mouse	*Peromyscus maniculatus*	May occur on-site.
California mouse	*P. californicus*	"
Botta's pocket gopher	*Thomonys bottae*	"
Birds		
Raven	*Corvus corax*	Observed on-site.
Crow	*C. brachyrhynchos*	"
Western meadowlark	*Sturnella neglecta*	"
Western kingbird	*Tyrannus verticalis*	"
Say's Phoebe	*Sayornis saya*	"
Northern mockingbird	*Mimus polyglottus*	"
Anna's hummingbird	*Calypte amna*	"
Mourning dove	*Zenaida macroura*	"
California quail	*Callipepla Californica*	Observed in surrounding area
White-crowned sparrow	*Zonotrichia leucophrys*	"
Red-tail Hawk	*Buteo jamaicensis*	"
Burrowing Owl	*Athene cunicularia*	"
Greater Roadrunner	*Geococcyx californianus*	"
Rock pigeon	*Columba livia*	"
Brewer's blackbird	*Euphagus cyanocephalus*	"
Lark sparrow	*Chondestes grammacus*	"
House finch	*Carpodacus mexicanis*	"
Bullock's oriole	*Icterus bullockii*	"
Sage sparrow	*Amphispiza belli*	"
Costa hummingbird	*Calypte costae*	".
Ash-throated flycatcher	*Myiarchus cinerascens*	"
American robin	*Turdus migratorius*	"
Scrub jay	*Aphelocoma coerulescens*	"
Reptiles and Amphibians		
Side-blotched lizard	*Uta stansburiana*	Observed on site.
Western fence lizard	*Sceloprus occidentalis*	"
Granite spiny lizard	*Sceloporus orcuttii*	"
Common garter snake	*Thamnophis sirtalis*	Occurs in area
Gopher snake	*Pituphis melanolecus*	"
Western toad	*Bufo boreas*	"
Southwestern toad	*Bufo mircroscaphus*	"

SOURCES:

(1) Blair, W.F. 1968. Vertebrates of the United States. McGraw-Hill, Inc. New York. 616 pp.
(2) Whitaker, J. O. 1980. The Audubon Society Field Guide to North American Mammals. A. A. Knopf, New York. 745 pp.
(3) NGS. 1987. Field Guide to the Birds of North America. The National Geographic Society. 464 pp.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Appendix B

Site Photographs

Site Photographs

SITE LOOKING NORTH

SITE LOOKING EAST

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Site Photographs Cont.

SITE LOOKING SOUTH

SITE LOOKING WEST

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Appendix C

Regulatory Background

REGULATORY BACKGROUND

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and State levels, depending on the magnitude of the threat to continued existence and existing knowledge of population levels.

CEQA GUIDELINES SECTION 15380

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the CEQA Guidelines for addressing impacts. Local planning documents such as general plans often identify these resources as well.

FEDERAL ENDANGERED SPECIES ACT

The U.S. Fish and Wildlife Service (USFWS) administers the federal Endangered Species Act (FESA) that provides a process for listing species as either threatened or endangered and the methods of protecting listed species. The FESA defines as “endangered” any plant or animal species that is in danger of extinction throughout all or a significant portion of its range. A “threatened” species is a species that is likely to become endangered in the near future. A

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

"proposed" species is one that has been officially proposed by USFWS in addition to the federal threatened and endangered species list.

Section 9 of the FESA prohibits "take" of threatened or endangered species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if the development would result in "take" of the species or its habitat. Under the regulations of the FESA, the USFWS may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

CALIFORNIA ENDANGERED SPECIES ACT

The CDFW administers the California Endangered Species Act (CESA). The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. State threatened and endangered species are fully protected against taking, as defined above.

SECTION 3503 AND 3511 OF CALIFORNIA FISH AND WILDLIFE CODE

The CDFW administers the California Fish and Wildlife Code. There are particular sections of the Code that are applicable to natural resource management. For example, section 3503 of the Code states it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3511 of the Code lists fully protected bird species, where the CDFW is unable to authorize the issuance of permits or licenses to take these species.

CALIFORNIA NATIVE PLANT PROTECTION ACT

The California Native Plant Protection Act (CNPPA) of 1977 (Fish and Wildlife Code Sections 1900–1913) is intended to preserve, protect, and enhance endangered or rare native plants in California and gives the CDFW authority to designate state endangered, threatened, and rare plants

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

and provides specific protection measures for identified populations. The Act also directs the California Fish and Game Commission to adopt regulations governing taking, possessing, propagation, and sale of any endangered or rare native plant.

Vascular plants listed as rare or endangered by the California Native Plant Society (2011), but which have no designated status or protection under federal or state endangered species legislation, are defined as follows:

- Rank 1A: Plants Believed Extinct.
- Rank 1B: Plants Rare, Threatened, or Endangered in California and elsewhere.
- Rank 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere.
- Rank 3: Plants About Which More Information is Needed - A Review List.
- Rank 4: Plants of Limited Distribution - A Watch List.

NATURAL COMMUNITY CONSERVATION PLANNING PROGRAM

The Natural Community Conservation Program (NCCP) Act, Sections 2800-2840 of the state Fish and Game Code, authorized the preparation of NCCPs to protect natural communities and species while allowing a reasonable amount of economic development. The MSHCP, adopted by the County of Riverside on June 17, 2003, serves as a Habitat Conservation Plan (HCP) pursuant to the NCCP Act and pursuant to Section 10 (a)(1)(B) of the FESA.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Appendix D

CNND Summary Table for Wildomar Quadrangle and Surrounding Eight Quadrangles

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Sunnymead (3311782) OR Redlands (3411712) OR Yucaipa (3411711) OR El Casco (3311781) OR Lakeview (3311771) OR Perris (3311772) OR Steele Peak (3311773) OR Riverside East (3311783) OR San Bernardino South (3411713))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Exti
Abronia villosa var. aurita chaparral sand-verbena	G5T2T3 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive USFS_S-Sensitive	1,450 1,600	95 S:2	0	1	1	0	0	0	0	2	2	0	
Accipiter cooperii Cooper's hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	790 2,000	113 S:4	0	1	1	0	0	2	1	3	4	0	
Agelaius tricolor tricolored blackbird	G2G3 S1S2	None Candidate Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	778 1,960	951 S:17	1	0	0	0	1	15	6	11	16	0	
Aimophila ruficeps canescens southern California rufous-crowned sparrow	G5T3 S3	None None	CDFW_WL-Watch List	1,130 2,366	226 S:23	1	11	1	0	0	10	2	21	23	0	
Allium munzii Munz's onion	G1 S1	Endangered Threatened	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	2,000 2,223	20 S:4	0	2	0	0	1	1	1	3	3	1	
Anniella stebbinsi southern California legless lizard	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	1,515 2,110	50 S:4	0	1	0	2	1	0	0	4	3	1	
Antrozous pallidus pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	1,360 1,360	411 S:1	0	0	0	0	0	1	1	0	1	0	

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Exti
Aquila chrysaetos golden eagle	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	2,300 2,300	319 S:1	0	0	0	0	0	1	1	0	1	0	
Arenaria paludicola marsh sandwort	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_SBBG-Santa Barbara Botanic Garden	1,000 1,000	16 S:1	0	0	0	0	1	0	1	0	0	0	
Arizona elegans occidentalis California glossy snake	G5T2 S2	None None	CDFW_SSC-Species of Special Concern	900 1,834	260 S:15	0	0	0	0	0	15	5	10	15	0	
Artemisiospiza belli belli Bell's sage sparrow	G5T2T4 S3	None None	CDFW_WL-Watch List USFWS_BCC-Birds of Conservation Concern	1,100 2,380	61 S:4	0	1	0	0	0	3	0	4	4	0	
Asio otus long-eared owl	G5 S3?	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	2,015 2,030	46 S:2	0	0	0	0	0	2	2	0	2	0	
Aspidoscelis hyperythra orange-throated whiptail	G5 S2S3	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFS_S-Sensitive	900 2,244	359 S:40	0	6	3	2	0	29	29	11	40	0	
Aspidoscelis tigris stejnegeri coastal whiptail	G5T5 S3	None None	CDFW_SSC-Species of Special Concern	1,060 2,418	134 S:13	0	5	2	1	0	5	2	11	13	0	
Astragalus hornii var. hornii Horn's milk-vetch	G4G5T1T2 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	1,000 1,000	14 S:1	0	0	0	0	1	0	1	0	0	0	
Astragalus pachypus var. jaegeri Jaeger's milk-vetch	G4T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive	2,000 2,000	18 S:1	0	0	0	0	0	1	1	0	1	0	

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Exti
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	1,090 2,190	1967 S:36	4	6	5	0	1	20	12	24	35	0	
Atriplex coronata var. notatior San Jacinto Valley crownscale	G4T1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	130 1,510	16 S:15	3	5	1	0	1	5	1	14	14	1	
Atriplex parishii Parish's brittlescale	G1G2 S1	None None	Rare Plant Rank - 1B.1 USFS_S-Sensitive	1,420 1,420	16 S:2	0	0	0	0	0	2	2	0	2	0	
Atriplex serenana var. davidsonii Davidson's saltscale	G5T1 S1	None None	Rare Plant Rank - 1B.2	1,420 1,510	27 S:9	0	1	1	0	0	7	2	7	9	0	
Berberis nevinii Nevin's barberry	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	1,020 1,600	31 S:4	0	0	0	2	0	2	2	2	4	0	
Bombus crotchii Crotch bumble bee	G3G4 S1S2	None None		900 3,300	234 S:11	0	0	0	0	0	11	11	0	11	0	
Brodiaea filifolia thread-leaved brodiaea	G2 S2	Threatened Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	1,400 1,432	134 S:7	0	2	2	1	1	1	1	6	6	1	
Buteo regalis ferruginous hawk	G4 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	1,470 2,200	107 S:3	0	0	1	0	0	2	2	1	3	0	
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	1,000 2,600	2460 S:2	0	0	0	0	2	0	2	0	0	2	
Calochortus plummerae Plummer's mariposa-lily	G4 S4	None None	Rare Plant Rank - 4.2 SB_RSABG-Rancho Santa Ana Botanic Garden	1,200 3,400	230 S:13	0	3	0	0	1	9	7	6	12	1	

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Exti
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	G5T3Q S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	1,640 1,640	154 S:1	0	0	0	0	0	1	0	1	1	0	
Carex comosa bristly sedge	G5 S2	None None	Rare Plant Rank - 2B.1	1,000 1,000	29 S:1	0	0	0	0	1	0	1	0	0	1	
Carolella busckana Busck's gallmoth	G1G3 SH	None None		1,160 1,160	4 S:1	0	0	0	0	1	0	1	0	0	0	
Catostomus santaanae Santa Ana sucker	G1 S1	Threatened None	AFS_TH-Threatened IUCN_VU-Vulnerable	838 880	28 S:2	0	0	1	0	0	1	0	2	2	0	
Caulanthus simulans Payson's jewelflower	G4 S4	None None	Rare Plant Rank - 4.2 USFS_S-Sensitive	1,940 2,400	31 S:6	0	0	0	0	0	6	6	0	6	0	
Centromadia pungens ssp. laevis smooth tarplant	G3G4T2 S2	None None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	1,000 2,100	117 S:48	2	6	9	5	4	22	19	29	44	2	
Ceratochrysis longimala Desert cuckoo wasp	G1 S1	None None		900 900	2 S:1	0	0	0	0	1	0	1	0	0	1	
Chaetodipus fallax fallax northwestern San Diego pocket mouse	G5T3T4 S3S4	None None	CDFW_SSC-Species of Special Concern	1,150 2,400	99 S:29	0	8	8	4	0	9	9	20	29	0	
Chloropyron maritimum ssp. maritimum salt marsh bird's-beak	G4?T1 S1	Endangered Endangered	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	1,000 1,000	30 S:1	0	0	0	0	1	0	1	0	0	1	
Chorizanthe parryi var. parryi Parry's spineflower	G3T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive	1,000 3,280	127 S:27	1	1	3	0	1	21	15	12	26	1	
Chorizanthe polygonoides var. longispina long-spined spineflower	G5T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	1,460 2,200	130 S:5	0	2	0	0	0	3	3	2	5	0	

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Exti
Chorizanthe xanti var. leucotheca white-bracted spineflower	G4T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture USFS_S-Sensitive	2,300 2,300	52 S:1	0	0	0	0	0	1	0	1	1	0	
Coccyzus americanus occidentalis western yellow-billed cuckoo	G5T2T3 S1	Threatened Endangered	BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	900 1,690	155 S:3	0	1	0	0	2	0	2	1	1	1	
Coleonyx variegatus abbotti San Diego banded gecko	G5T3T4 S1S2	None None	CDFW_SSC-Species of Special Concern	1,075 1,075	8 S:1	0	1	0	0	0	0	0	1	1	0	
Crotalus ruber red-diamond rattlesnake	G4 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	900 2,335	188 S:31	1	2	2	0	0	26	10	21	31	0	
Cuscuta obtusiflora var. glandulosa Peruvian dodder	G5T4T5 SH	None None	Rare Plant Rank - 2B.2		6 S:1	0	0	0	0	1	0	1	0	0	0	
Diadophis punctatus modestus San Bernardino ringneck snake	G5T2T3Q S2?	None None	USFS_S-Sensitive	1,600 3,460	13 S:2	0	1	0	0	0	1	1	1	2	0	
Dipodomys merriami parvus San Bernardino kangaroo rat	G5T1 S1	Endangered None	CDFW_SSC-Species of Special Concern	1,030 2,200	45 S:18	3	1	5	2	0	7	5	13	18	0	
Dipodomys stephensi Stephens' kangaroo rat	G2 S2	Endangered Threatened	IUCN_EN-Endangered	1 2,500	220 S:76	5	13	26	13	9	10	63	13	67	1	
Dodecahema leptoceras slender-horned spineflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	1,280 1,600	38 S:8	0	1	1	0	2	4	7	1	6	1	
Elanus leucurus white-tailed kite	G5 S3S4	None None	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	2,000 2,760	174 S:4	0	0	1	0	0	3	1	3	4	0	
Empidonax traillii extimus southwestern willow flycatcher	G5T2 S1	Endangered Endangered	NABCI_RWL-Red Watch List	790 3,400	70 S:4	1	1	1	0	0	1	1	3	4	0	

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Exti
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	1,450 1,716	1340 S:2	0	1	0	0	1	0	1	1	1	1	
Eremophila alpestris actia California horned lark	G5T4Q S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1,100 2,430	93 S:5	1	0	1	1	0	2	3	2	5	0	
Eriastrum densifolium ssp. sanctorum Santa Ana River woollystar	G4T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	820 2,300	31 S:21	0	3	8	4	0	6	8	13	21	0	
Eumops perotis californicus western mastiff bat	G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern WBWG_H-High Priority	1,380 1,570	294 S:6	0	0	0	1	0	5	6	0	6	0	
Euphydryas editha quino quino checkerspot butterfly	G5T1T2 S1S2	Endangered None	XERCES_CI-Critically Imperiled	2,000 2,000	100 S:1	0	0	0	0	0	1	1	0	1	0	
Falco columbarius merlin	G5 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	964 964	35 S:1	0	0	1	0	0	0	0	1	1	0	
Galium californicum ssp. primum Alvin Meadow bedstraw	G5T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive		12 S:1	0	0	0	0	0	1	1	0	1	0	
Gila orcuttii arroyo chub	G2 S2	None None	AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern USFS_S-Sensitive	838 880	49 S:2	0	0	1	1	0	0	0	2	2	0	
Haliaeetus leucocephalus bald eagle	G5 S3	Delisted Endangered	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	1,400 1,400	327 S:1	0	0	0	0	0	1	1	0	1	0	
Harpagonella palmeri Palmer's grapplinghook	G4 S3	None None	Rare Plant Rank - 4.2 SB_RSABG-Rancho Santa Ana Botanic Garden	2,040 2,100	57 S:2	1	0	0	0	1	0	2	0	1	1	

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Exti
Helianthus nuttallii ssp. parishii Los Angeles sunflower	G5TH SH	None None	Rare Plant Rank - 1A	1,000 1,000	7 S:1	0	0	0	0	1	0	1	0	0	1	
Horkelia cuneata var. puberula mesa horkelia	G4T1 S1	None None	Rare Plant Rank - 1B.1 USFS_S-Sensitive		103 S:1	0	0	0	0	1	0	1	0	0	1	
Icteria virens yellow-breasted chat	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,460 2,064	96 S:3	0	2	0	0	0	1	0	3	3	0	
Imperata brevifolia California satintail	G4 S3	None None	Rare Plant Rank - 2B.1 SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive		32 S:1	0	0	0	0	0	1	1	0	1	0	
Lampropeltis zonata (parvirubra) California mountain kingsnake (San Bernardino population)	G4G5 S2?	None None	BLM_S-Sensitive CDFW_WL-Watch List IUCN_LC-Least Concern USFS_S-Sensitive	3,460 3,460	10 S:1	0	1	0	0	0	0	1	0	1	0	
Lanius ludovicianus loggerhead shrike	G4 S4	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	1,460 2,596	106 S:4	1	1	0	0	0	2	1	3	4	0	
Lasiurus xanthinus western yellow bat	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_H-High Priority	1,050 2,600	58 S:8	0	0	0	0	0	8	6	2	8	0	
Lasthenia glabrata ssp. coulteri Coulter's goldfields	G4T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	1,415 1,500	97 S:16	3	3	2	1	0	7	1	15	16	0	

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Exti
Laterallus jamaicensis coturniculus California black rail	G3G4T1 S1	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	900 1,070	303 S:2	0	0	0	0	0	2	2	0	2	0	
Lepidium virginicum var. robinsonii Robinson's pepper-grass	G5T3 S3	None None	Rare Plant Rank - 4.3	850 2,100	142 S:10	0	0	0	0	0	10	8	2	10	0	
Leptonycteris yerbabuenae lesser long-nosed bat	G4 S1	Endangered None	IUCN_VU-Vulnerable WBWG_H-High Priority	2,600 2,600	2 S:1	0	0	0	0	0	1	1	0	1	0	
Lepus californicus bennettii San Diego black-tailed jackrabbit	G5T3T4 S3S4	None None	CDFW_SSC-Species of Special Concern	1,060 2,745	103 S:13	0	4	7	0	0	2	1	12	13	0	
Lycium parishii Parish's desert-thorn	G3? S1	None None	Rare Plant Rank - 2B.3		21 S:1	0	0	0	0	1	0	1	0	0	0	
Malacothamnus parishii Parish's bush-mallow	GXQ SX	None None	Rare Plant Rank - 1A	1,250 1,250	1 S:1	0	0	0	0	1	0	1	0	0	1	
Monardella macrantha ssp. hallii Hall's monardella	G5T3 S3	None None	Rare Plant Rank - 1B.3 SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive	3,500 5,000	41 S:4	0	4	0	0	0	0	3	1	4	0	
Monardella pringlei Pringle's monardella	GX SX	None None	Rare Plant Rank - 1A	1,000 1,000	2 S:1	0	0	0	0	0	1	1	0	1	0	
Myosurus minimus ssp. apus little mousetail	G5T2Q S2	None None	Rare Plant Rank - 3.1	2,000 2,000	24 S:1	0	0	0	0	0	1	1	0	1	0	
Nama stenocarpa mud nama	G4G5 S1S2	None None	Rare Plant Rank - 2B.2	1,400 1,400	22 S:1	0	0	0	0	0	1	0	1	1	0	
Nasturtium gambelii Gambel's water cress	G1 S1	Endangered Threatened	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	1,000 1,000	13 S:1	0	0	0	0	1	0	1	0	0	0	

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Exti
Navarretia fossalis spreading navarretia	G2 S2	Threatened None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	1,400 1,500	78 S:10	2	3	1	0	0	4	1	9	10	0	
Neotoma lepida intermedia San Diego desert woodrat	G5T3T4 S3S4	None None	CDFW_SSC-Species of Special Concern	1,200 1,560	118 S:5	0	3	2	0	0	0	0	5	5	0	
Nyctinomops femorosaccus pocketed free-tailed bat	G4 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_M-Medium Priority	1,200 1,600	90 S:2	0	0	0	0	0	2	2	0	2	0	
Onychomys torridus ramona southern grasshopper mouse	G5T3 S3	None None	CDFW_SSC-Species of Special Concern	1,180 2,000	28 S:4	0	0	0	0	0	4	4	0	4	0	
Perognathus longimembris brevinasus Los Angeles pocket mouse	G5T1T2 S1S2	None None	CDFW_SSC-Species of Special Concern	1,000 1,650	56 S:14	1	2	4	0	0	7	7	7	14	0	
Phrynosoma blainvillii coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,000 2,400	771 S:28	2	7	0	0	1	18	19	9	27	0	
Plegadis chihi white-faced ibis	G5 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1,425 1,492	20 S:2	1	0	0	0	0	1	1	1	2	0	
Polioptila californica californica coastal California gnatcatcher	G4G5T2Q S2	Threatened None	CDFW_SSC-Species of Special Concern NABCI_YWL-Yellow Watch List	1,100 2,200	830 S:28	1	5	4	0	0	18	15	13	28	0	
Rana muscosa southern mountain yellow-legged frog	G1 S1	Endangered Endangered	CDFW_WL-Watch List IUCN_EN-Endangered USFS_S-Sensitive	1,800 1,800	186 S:1	0	0	0	0	1	0	1	0	0	0	
Rhaphiomidas terminatus abdominalis Delhi Sands flower-loving fly	G1T1 S1	Endangered None		925 1,164	36 S:20	0	8	1	2	7	2	6	14	13	1	
Rhinichthys osculus ssp. 3 Santa Ana speckled dace	G5T1 S1	None None	AFS_TH-Threatened CDFW_SSC-Species of Special Concern USFS_S-Sensitive	1,600 2,080	13 S:2	0	2	0	0	0	0	1	1	2	0	
Ribes divaricatum var. parishii Parish's gooseberry	G5TX SX	None None	Rare Plant Rank - 1A	1,080 1,080	5 S:1	0	0	0	0	1	0	1	0	0	1	

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Exti
Salvadora hexalepis virgultea coast patch-nosed snake	G5T4 S2S3	None None	CDFW_SSC-Species of Special Concern	1,672 2,533	28 S:2	0	0	1	0	0	1	0	2	2	0	
Senecio aphanactis chaparral ragwort	G3 S2	None None	Rare Plant Rank - 2B.2	2,300 2,300	82 S:2	0	0	0	0	0	2	0	2	2	0	
Setophaga petechia yellow warbler	G5 S3S4	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	1,445 2,122	70 S:3	0	0	1	0	0	2	0	3	3	0	
Sidalcea hickmanii ssp. parishii Parish's checkerbloom	G3T1 S1	None Rare	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	4,600 4,600	17 S:1	0	0	0	0	0	1	1	0	1	0	
Sidalcea neomexicana salt spring checkerbloom	G4 S2	None None	Rare Plant Rank - 2B.2 USFS_S-Sensitive	1,050 1,500	30 S:4	0	0	0	0	1	3	3	1	3	1	
Spea hammondii western spadefoot	G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	1,420 2,525	462 S:17	0	3	5	1	0	8	3	14	17	0	
Sphenopholis obtusata prairie wedge grass	G5 S2	None None	Rare Plant Rank - 2B.2	800 1,000	19 S:2	0	0	0	0	0	2	2	0	2	0	
Spinus lawrencei Lawrence's goldfinch	G3G4 S3S4	None None	IUCN_LC-Least Concern NABCI_YWL-Yellow Watch List USFWS_BCC-Birds of Conservation Concern	1,690 1,690	4 S:1	0	1	0	0	0	0	0	1	1	0	
Streptanthus campestris southern jewelflower	G3 S3	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive USFS_S-Sensitive	4,000 4,000	38 S:1	0	0	0	0	0	1	1	0	1	0	
Streptocephalus woottoni Riverside fairy shrimp	G1G2 S1S2	Endangered None	IUCN_EN-Endangered	1,520 1,540	82 S:2	0	0	0	0	2	0	2	0	0	1	
Symphyotrichum defoliatum San Bernardino aster	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	2,000 2,000	102 S:2	0	0	0	0	1	1	2	0	1	0	

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Exti
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,040 1,600	544 S:4	0	0	0	0	0	4	4	0	4	0	
Texosporium sancti-jacobi woven-spored lichen	G3 S1	None None	Rare Plant Rank - 3	2,320 2,320	19 S:1	0	0	0	0	0	1	0	1	1	0	
Thamnophis hammondii two-striped gartersnake	G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	1,374 3,460	170 S:6	0	1	1	2	1	1	2	4	5	1	
Tortula californica California screw moss	G2G3 S2S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	2,100 2,450	15 S:2	0	2	0	0	0	0	0	2	2	0	
Trichocoronis wrightii var. wrightii Wright's trichocoronis	G4T3 S1	None None	Rare Plant Rank - 2B.1	1,400 1,420	9 S:4	0	1	0	0	0	3	4	0	4	0	
Vireo bellii pusillus least Bell's vireo	G5T2 S2	Endangered Endangered	IUCN_NT-Near Threatened NABCI_YWL-Yellow Watch List	680 2,020	482 S:31	2	3	7	0	0	19	4	27	31	0	
Xanthocephalus xanthocephalus yellow-headed blackbird	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,493 1,493	13 S:1	0	0	0	0	0	1	1	0	1	0	

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Appendix E

Burrowing Owl Focused Survey Report

BURROWING OWL FOCUSED SURVEY REPORT

PAMA BUSINESS PARK
MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA
(Township 3 South, Range 4 West, Section 13)

Owner/Applicant

PAMA Management
4900 Santa Anita Ave
Suite 2C
El Monte, California 91731

Prepared by:
RCA Associates, Inc.
15555 Main Street, #D4-235
Hesperia, California 92345
(760) 596-0017

Principal Investigators:
Randall Arnold, President and Principal Biologist
Blake Curran, Environmental Scientist/Biologist
Parker Smith, Biological Field Technician

Project No: RCA#2018-37

June 11, 2018

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

TITLE PAGE

Date Report Written: June 7, 2018

Date Field Work Completed: April 25th, May 17th, May 23rd, and June 6th of 2018

Report Title: Burrowing Owl Focused Survey Report

Assessor's Parcel Number: 297-170-083

Prepared for:
PAMA Management
4900 Santa Anita Ave
Suite 2C
El Monte, California 91731

Principal Investigators:
Randall C. Arnold, Jr., Principal Biologist
Parker L. Smith, Biological Field Technician
Blake Curran, Environmental Scientist/Biologist

Contact Information:
Randall C. Arnold, Jr.
RCA Associates Inc.
15555 Main Street, #D4-235
Hesperia, CA 92345
(760) 596-0017
rarnold@rcaassociatesllc.com
www.rcaassociatesllc.com

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Table of Contents

EXECUTIVE SUMMARY 1
1.0 PROJECT AND PROPERTY DESCRIPTION 2
2.0 LITERATURE AND RECORD REVIEW - BURROWING OWL 3
3.0 METHODOLOGY 4
Limitations: 4
4.0 GENERAL BIOLOGICAL SURVEY RESULTS 5
5.0 RESULTS – BURROWING OWL 6
PHASE I HABITAT ASSESSMENT RESULTS 6
PHASE II TRANSECT SURVEY RESULTS 6
PHASE III OWL CENSUS AND OBSERVATION RESULTS 6
PHASE IV SURVEY REPORT 7
6.0 IMPACTS AND RECOMMENDATIONS 8
7.0 REFERENCES 9
FIGURES 11
APPENDIX A 17
APPENDIX B 19
CERTIFICATION 22
REGULATORY BACKGROUND 23

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

A focused burrowing owl (*Athene cunicularia*) survey was performed on a parcel located in the incorporated city of Moreno Valley, California (Township 3 South, Range 4 West, Section 13, USGS Sunnymead, California Quadrangle, 1956) (Figures 1, 2, 3, and 4). The site has been cleared of native vegetation several years ago; however, there has been some revegetation on the site. The site is heavily disturbed by past human activity. Observing historical aerial photographs, the property was used for agriculture production. The property has been cleared and supports mostly non-native grasses and scrubs.

It was determined during an initial assessment that the site supports potential habitat for burrowing owls. Therefore, focused surveys were required to be completed prior to the start of any construction activities. Four site visits were completed in April, May, and June of 2018 during which transects were walked throughout the site to determine the presence or absence of suitable (i.e., occupiable) burrows and/or burrowing owls. The survey was performed as per the requirements of the California Department of Fish and Wildlife (CDFW) survey protocol (March 7, 2012).

No burrowing owls or owl sign were observed during the surveys and no suitable burrows were identified. Based on these factors and lack of suitable, there is very little potential for the property to support populations of the burrowing owl in the future. The following sections provide a discussion of the survey results which are valid for 30-days as per CDFW requirements. If burrowing owls are observed on the property in the future, the owls should not be removed, harassed, or in any way disturbed regardless of the results of this survey. To do so may constitute a violation of State and City regulations.

If owls are encountered during future development activities, all activities should cease and CDFW should be notified.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

1.0 PROJECT AND PROPERTY DESCRIPTION

The property is approximately 15-acres in size and is located north of Brodiaea Road. Brodiaea Road borders the site on its southern boundary and vacant land borders the site on the north, east, and west in the incorporated city of Moreno Valley, California (Township 3 South, Range 4 West, Section 13, USGS Sunnymead, California Quadrangle, 1956) (Appendix A: Figures 1, 2, and 3). The site has been cleared of native vegetation several years ago; however, there has been some revegetation on the site. The site is heavily disturbed by past human activity. Observing historical aerial photographs, the property was used for agriculture production. The property has been cleared and supports mostly non-native grasses and scrubs.

Vegetation observed is somewhat limited and includes brome grasses (*Bromus*, sp.), lamb's quarters (*Chenopodium album*), heliotrope (*Heliotropium* sp.), Mustard (*Brassica spp.*) Fiddlenecks (*Amsinckia spp.*), dove weed (*Eremocarpus setigerus*), goldfields (*Lastenia California*), and Erodium (*Erodium sp.*). Table 1 provides a list of all plants occurring on the site and in the immediate surrounding area.

No sensitive habitats or wildlife movement corridors were noted on the property, and although intermittent blueline channels are present throughout the area according to the Sunnymead Quad map, the proposed project will not have an effect on any of these channels.

A total of four (4) focused burrowing owl surveys were performed on April 25th, May 17th, May 23rd, and June 5th of 2018 during which meandering 30-meter transects were walked throughout the site to determine the presence/absence of burrowing owls, active owl burrows, and/or owl sign (excrement, casting, etc.). Weather conditions during the 2018 surveys consisted of winds ranging from 0 to 5 mph, temperatures in the mid 40's (AM, °F) to mid-60's (AM, °F) with approximately 0-50 percent cloud coverage.

The project proponent is proposing to subdivide the parcel into seven lots and build a business park with buildings totaling 270,000 square feet and one retention basin on the 15-acre.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

2.0 LITERATURE AND RECORD REVIEW - BURROWING OWL

As part of the environmental process, California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS) data sources were reviewed prior to initiation of field surveys to determine if burrowing owls have been documented on the site or in the area surrounding the property. Based on the literature review and evaluation of the CNDDB database for the area, it was determined that the property is located within the general distribution of the burrowing owl. In addition, three documented occurrences of burrowing owls have been identified in the surrounding area according to CNDDB (2018). However, owls have not been previously identified on the site, and the nearest documented owl observation is about two miles southwest of the property (CNDDB, 2018).

The burrowing owl is a year-long resident of open, dry grassland and desert habitats. The species was formerly common throughout central and southern California; however, the species has seen a significant reduction over the last few decades due to development activities; farming activities, predation by dogs and cats, and habitat destruction (Zeiner 1990). Conversions of grassland and desert habitats to agricultural fields and residential developments have contributed to the greatest amount of habitat destruction in recent decades. The reduction in population levels was noted as early as the 1940s. Burrowing owls primarily prey upon insects; although, small mammals, lizards, birds, and carrion make up a portion of the owl's diet (Zeiner 1990). Burrowing owls typically utilize abandoned California ground squirrel burrows for roosting and nesting.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

3.0 METHODOLOGY

The California Burrowing Owl Consortium's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC 1993) recommend a four-step approach to surveying for this species. An initial assessment of the site by biologists from RCA Associates, Inc. (Randy Arnold, Blake Curran, and Parker Smith) determined that suitable owl habitat was present on the property. Because the assessment indicated that the site does contain suitable burrowing owl habitat, the remaining three phases of the survey were performed. Burrowing owls are typically found in a wide variety of habitats including disturbed grasslands, agricultural areas, and developed areas. Therefore, focused surveys were performed on April 25th, May 17th, May 23rd, and June 5th 2018 to determine if any owls, owl sign, or suitable burrows are currently present on the site.

As required by survey protocol, 30-meter, parallel belt transects were walked in a north-south direction until the site had been checked for owls and/or owl sign (burrows, tracks, scats, etc.). The survey protocol also requires that zone of influence (ZOI) surveys be conducted in the surrounding area out to a distance of 500-feet. All transects were walked at a pace that allowed careful observations along the transect routes and in the immediate vicinity. Field notes were recorded regarding native plant assemblages, wildlife sign, and human effects in order to determine the presence or absence of suitable owl habitat. Each survey was performed from about 0700 to 1000 hours.

Focused surveys combined with the identification of the habitat on the site and in the surrounding area will provide data on the potential presence or absence of burrowing owls. Temperatures during the surveys were in the mid 40's (AM, °F) to mid-70's (AM, °F) with approximately 0-50 percent cloud coverage and winds ranging from 0 to 5 mph. No precipitation was recorded during the surveys.

Limitations:

The results of this report do not constitute authorization for the "take" (impact) of burrowing owls or any other listed or sensitive wildlife species. The authorization to impact the burrowing owl can only be granted by CDFW.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

4.0 GENERAL BIOLOGICAL SURVEY RESULTS

The field investigations were conducted on April 25th, May 17th, May 23rd, and June 5th of 2018. The plant species that were identified on site included brome grasses (*Bromus*, sp.), lamb's quarters (*Chenopodium album*), heliotrope (*Heliotropium* sp.), Mustard (*Brassica spp.*) Fiddlenecks (*Amsinckia spp.*), dove weed (*Eremocarpus setigerus*), goldfields (*Lastenia California*), and Erodium (*Erodium sp.*). Table 1 provides a list of all plants occurring on the site and in the immediate surrounding area. The site is not expected to support a variety of wildlife species on the site; however, only a few species have potential to be seen during the field investigations. Mammals observed on the site or which are expected to inhabit the site include cottontails (*Sylvilagus audubonii*), coyote (*Canis latrans*), and California ground squirrel (*Otospermophilus beecheyi*).

Reptiles are typically inactive during the winter months; however, species common in the region which is expected to inhabit the site include desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), western whiptail lizard (*Cnemidophorus tigris*), and rattlesnake (*Crotolus sp.*). Table 2 provides a compendium of wildlife species observed during the various surveys and those likely to occur in the area.

No sensitive habitats (e.g., wetlands, vernal pools, critical habitats for sensitive species, etc.) were observed on the site during the field investigations.

Based on the field reconnaissance, aerial photos and topographic maps, the project site does not contain features that are jurisdictional under the Clean Water Act or State regulation for isolated waters or streambeds. There are no jurisdictional drainages within the project site.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

5.0 RESULTS – BURROWING OWL

PHASE I HABITAT ASSESSMENT RESULTS

During the Phase I habitat assessment, physical and biological characteristics of the project site were compared to burrowing owl habitat requirements in an effort to determine whether the site is suitable for this species. The project site is within the geographic range of the burrowing owl, as depicted on current range maps, and on-site elevations are within the range occupied by the species (Haug et al. 1993). Vegetation on-site is composed of invasive disturbed agricultural land, a community that is well represented throughout Moreno Valley and that is known to be capable of supporting burrowing owls. Based on this information, the project site contains suitable habitat for the burrowing owl.

PHASE II TRANSECT SURVEY RESULTS

During Phase II transect surveys, the overall density of animal burrows within the project site was observed to be low. Occasional small mammal burrows, likely those of kangaroo rats (*Dipodomys spp.*), pocket mouse (*Perognathus spp.*), and/or woodrat (*Neotoma spp.*) were observed but were not of sufficient size to accommodate a burrowing owl. From the results of the transect survey, it was determined the project site does contain suitable burrowing for the burrowing owl. As per requested by the MSHCP, a full nesting season survey was to be performed for this particular project.

PHASE III OWL CENSUS AND OBSERVATION RESULTS

Phase III of the burrowing owl survey protocol was performed for the project site to monitor for any observations of owl sightings or activity.

The focused surveys for the burrowing owl conducted on April 25th, May 17th, May 23rd, and June 5th of 2018 did not identify any owls or owl sign (i.e., whitewash, castings, etc.). In addition, no occupiable burrows were observed on the site reducing the likelihood the species will inhabit the site in the future given the fact burrowing owls rely upon abandoned burrows which have been excavated by other animals (i.e., coyotes, foxes, ground squirrels, etc.).

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

PHASE IV SURVEY REPORT

Phase IV of the burrowing owl survey protocol involves preparing a survey report that presents the results of the protocol surveys. This Focused Burrowing Owl Survey Report constitutes the Phase IV report for the project site.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

6.0 IMPACTS AND RECOMMENDATIONS

Future development of the site is not expected to have any direct or indirect impacts on burrowing owls or occupied owl habitat based on the results of the focused surveys conducted on April 25th, May 17th, May 23rd, and June 5th of 2018. No additional investigations are recommended at this time. However, CDFW may require a 30-day pre-construction survey be performed immediately prior (i.e., 30-days or less) to the start of any future construction activities to determine if any owls have moved onto the site since the June 5, 2018 surveys.

If any special status wildlife species are observed on the property during future development activities, CDFW and USFWS (as applicable) should be contacted to discuss specific mitigation measures which may be required for the individual species. CDFW and USFWS are the only agencies which can grant authorization for the "take" of any sensitive species.

This Focused Burrowing Owl Survey Report and mitigation measures recommended herein do not constitute authorization for incidental take of migratory birds.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

7.0 REFERENCES

American Ornithologists' Union. 1989. Thirty-Seventh Supplement to the American Ornithologists' Union Checklist of North American Birds. Auk, 106:532-538.

Baldwin, Bruce G, et. al.
2002. The Jepson Desert Manual. Vascular Plants of Southeastern California. University of California Press, Berkeley, CA.

California Department of Fish and Game
1990. California Wildlife: Volume 1 (Amphibians and Reptiles), Volume II (Birds), and Volume III (Mammals).

California Department of Fish and Game
1990 California's Wildlife, Volumes 1, 2, and 3. Sacramento.

California Department of Fish and Game
1995. Staff Report on Burrowing Owl Mitigation.

California Department of Fish and Game
March 7, 2012 (a). Staff Report on Burrowing Owl Mitigation. 34 pp.

California Department of Fish and Game
2015 Natural Diversity Data Base (b). Sacramento.

Ehrlich, P., Dobkin., Wheye, D.
Birder's Handbook. A Field Guide to the Natural History of North American Birds. Simon & Schuster Building Rockefeller Center 1230 Avenue of the Americas. New York, New York 10020.

Grenfell, W.E. Jr., and W.F. Laudenslayer, Jr. editors. 1983. Distribution of California Birds. California Wildlife/Habitat Relationship Program. Publication No. 4 California Department of Fish and Game, Sacramento, and USDA Forest Service.

Hickman, James C.
The Jepson Manual Higher Plants of California. University of California Press. Berkeley, CA. 3rd Edition. 1996.

Holland, R.
1986. A Description of the Terrestrial Natural Communities of California. California Department of Fish and Game, October.

Jaeger, Edmund C.
1969. Desert Wild Flowers. Stanford University Press, Stanford, California. 321 pp.
Kays, R. W. & Wildson, D. E.

Mammals of North America. Princeton University Press, Princeton, New Jersey. 2002.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Munz, Philip A.
1974. A Flora of Southern California. University of California Press, Berkeley, California. 1086 pp.

Sibley, David Allen.
National Audubon Society. The Sibley guide to Birds. Alfred A Knopf, Inc. 2000.

Stebbins, Robert C.
A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Company. 2003.

Whitaker, John O.
The Audubon Society Field Guide to North American Mammals. Alfred A Knopf, Inc. 1980.

Williams, D. F.
1986. Mammal Species of Special Concern in California, Timton Kangaroo Rat. California Department of Fish and Game.

Zeiner, D. C., W., F. Laudenslayer, Jr., K. E. Mayer, M. White. Editors.
1990. California's Wildlife. Volume 2. Birds. State of California, Department of Fish and Game. Sacramento, California. 731 pp.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

FIGURES

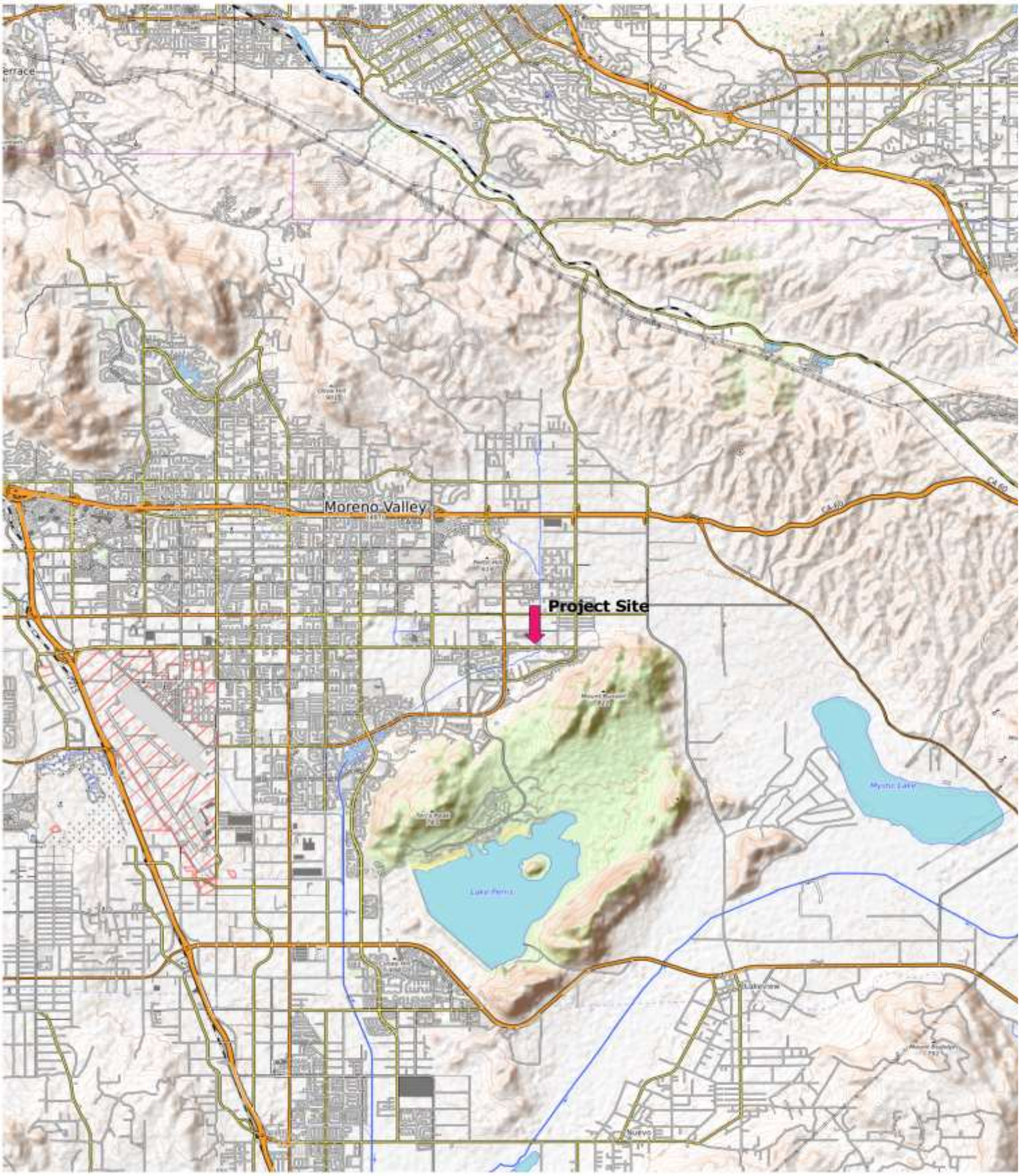
Figure 1

Regional Vicinity Map

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Figure 2

Local Topographic Map



Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Figure 3

Local Vicinity Map

25 0 25 50 75 100 m

Legend

Property Border

N

RCA

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Figure 4

Site Photographs

CENTER OF SITE LOOKING NORTH

CENTER OF SITE LOOKING EAST

Figure 4 Cont.

Site Photographs

CENTER OF SITE LOOKING SOUTH

CENTER OF SITE LOOKING WEST

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

APPENDIX A

Burrowing Owl Occurrences

Burrowing Owl occurrences within the region based on the California Diversity Data Base (2018). (SC = Species of special concern)

Name	Listing Status	Habitat Requirements	Presence/Absence	Comments (Other owl colonies in the region.)
Burrowing owl (*Athene cuniculuria*)	CDFW: SC	Various: desert scrub, agricultural lands, disturbed areas	Site does support suitable habitat for the species; however, no burrowing owls or sign observed on site.	Seven (7) documented occurrences within approximately 5 miles of the property.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

APPENDIX B

Flora and Fauna Compendia

Table 1 - Plants observed on the site and known to occur in the immediate surrounding area.

Common Name	Scientific Name	Comments
Snakeweed	*Gutierrezia sarothrea*	Observed on-site and Surrounding Area
Telegraph weed	*Heterotheca gradifolia*	"
Fiddleneck	*Amsinckia tessellate*	"
Black mustard	*Brassica nigra*	"
Plantain	*Plantago erecta*	"
Pearly everlasting	*Gnaphalium californicum*	"
Phacelia	*Phacelia distans*	"
Lambs quarters	*Chenopodium califonicum*	"
Centaurem	*Centaurea squarrosa*	"
Brome grass	*Bromus sp.*	"
Dove weed	*Eremocarpus setigerus*	Surrounding Area
Tobacco	*Nicotiana attenuta*	"
Lamb's quarters	*Chenopodium album*	"
Arroyo Willow	(*Salix lasiolepis*	"
Heliotrope	*Heliotropium sp.*	"
Buckwheat	*Eriogonum fasciculatum*	"
Erodium	*Erodium cicutarium*	"
Goldfields	*Lasthenia californica*	"
Russian thistle	*Salsola tragus*	"
Stephanomeria	*Stephanomeria sp.*	"
Mustard	*Brassica tourneforti*	"
Tamarisk	*Tamarix ramoissina*	"

Note: The above list is not intended to be a comprehensive list of every plant which may occur on the site or in the zone of influence.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Table 2 - Wildlife observed on the site during the field investigations.

Common Name	Scientific Name	Location
Common raven	*Corvus corax*	On-site and in the surrounding area.
Anna's hummingbird	*Calypte anna*	"
White-crowned sparrow	*Zonotrichia leucophrys*	"
Say' Phoebe	*Sayornis saya*	"
California ground squirrel	*Spermophilus beecheyi*	"
Song sparrow	*Melospiza melodia*	"
House sparrow	*Passer domesticus*	"
House finch	*Carpodacus mexicanus*	"
Northern mockingbird	*Mimus polyglottus*	"
Mourning dove	*Zenaida macroura*	"
Turkey vulture	*Cathertes aura*	On site and surrounding area
Red-tailed hawk	*Buteo jamaicensis*	"
Western flycatcher	*Tyrannus verticalis*	Surrounding area
Western whiptail lizard	*Cnemidophorus tigris*	"
Side-blotched lizard	*Uta stansburiana*	"
Spiny lizard	*Sceloporus magister*	"
Cottontail	*Sylvilagus auduboni*	"
Jackrabbit	*Lepus Californicus*	"
Coyotes	*Canis latrans*	"

Note: The above Table is not a comprehensive list of every animal species which may occur in the area, but is a list of those common species which were identified on the site or which have been observed in the region by biologists from RCA Associates, Inc.

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits, present the data and information required for this biological evaluation and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Fieldwork conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project.

Date: 06/11/2018 Signed: Blake Curran

Report Author

Field Work Performed By: Randall Arnold
President and Principal Biologist

Field Work Performed By: Parker Smith
Biological Field Technician

Field Work Performed By: Blake Curran
Environmental Scientist/Biologist

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

REGULATORY BACKGROUND

The following provides a summary of federal and state regulatory jurisdiction over biological and wetland resources. Although most of these regulations do not directly apply to the site, given the general lack of sensitive resource, they provide important background information.

Burrowing Owl Context

The burrowing owl is a migratory bird species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter, any migratory bird listed in 50 C.F.R.Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3503, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (March 1 - August 15, annually). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend is considered "taking" and is potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g.,MBTA).

The burrowing owl is a Species of Special Concern to California because of declines of suitable habitat and both localized and statewide population declines. Guidelines for the Implementation of the California Environmental Quality Act (CEQA) provide that a species be considered as endangered or "rare" regardless of appearance on a formal list for the purposes of the CEQA (Guidelines, Section 15380, subsections b and d). The CEQA requires a mandatory finding of significance if impacts to threatened or endangered species are likely to occur (Sections 21001(c), 21083. Guidelines 15380, 15064, 15065). Avoidance or mitigation must be presented to reduce impacts to less than significant levels.

Federal Endangered Species Act

The USFWS has jurisdiction over federally listed threatened and endangered plant and animal species. The federal Endangered Species Act (ESA) and its implementing regulations prohibit the

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

take of any fish or wildlife species that are federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10 of the ESA. ESA defines "take" as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Federal regulation 50CFR17.3 defines the term "harass" as an intentional or negligent act that creates the likelihood of injuring wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns such as breeding, feeding, or sheltering (50CFR17.3). Furthermore, federal regulation 50CFR17.3 defines "harm" as an act that either kills or injures a listed species. By definition, "harm" includes habitat modification or degradation that actually kills or injures a listed species by significantly impairing essential behavior patterns such as breeding, spawning, rearing, migrating, feeding, or sheltering (50CFR217.12).

Section10(a) of the ESA establishes a process for obtaining an incidental take permit that authorizes nonfederal entities to incidentally take federally listed wildlife or fish. Incidental take is defined by ESA as take that is "incidental to, and not the purpose of, the carrying out of another wise lawful activity." Preparation of a habitat conservation plan, generally referred to as an HCP, is required for all Section 10(a) permit applications. The USFWS and National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) have joint authority under the ESA for administering the incidental take program. NOAA Fisheries Service has jurisdiction over anadromous fish species and USFWS has jurisdiction over all other fish and wildlife species.

Section 7 of the ESA requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any species listed under the ESA or result in the destruction or adverse modification of its habitat. Federal agencies are also required to minimize impacts to all listed species resulting from their actions, including issuance of permits or funding. Section 7 requires consideration of the indirect effects of a project, effects on federally listed plants, and effects on critical habitat (ESA requires that the USFWS identify critical habitat to the maximum extent that it is prudent and determinable when a species is listed as threatened or endangered). This consultation results in a Biological Opinion prepared by the USFWS stating whether implementation of the HCP will result in jeopardy to any HCP Covered Species or will

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

adversely modify critical habitat and the measures necessary to avoid or minimize effects to listed species.

Although federally listed animals are legally protected from harm no matter where they occur, the Section 9 of the ESA provides protection for endangered plants by prohibiting the malicious destruction on federal land and other "take" that violates State law. Protection for plants not living on federal lands is provided by the California Endangered Species Act.

California Endangered Species Act

CDFG has jurisdiction over species listed as threatened or endangered under Section 2080 of the California Fish and Game Code. Section 2080 prohibits the take of a species listed by CDFG as threatened or endangered. The state definition of take is similar to the federal definition, except that Section 2080 does not prohibit indirect harm to listed species by way of habitat modification. To qualify as take under the state ESA, an action must have direct, demonstrable detrimental effect on individuals of the species. Impacts on habitat that may ultimately result in effects on individuals are not considered take under the state ESA but can be considered take under the federal ESA. Proponents of a project affecting a state-listed species must consult with CDFG and enter into a management agreement and take permit under Section 2081. The state ESA consultation process is similar to the federal process. California ESA does not require preparation of a state biological assessment; the federal biological assessment and the CEQA analysis or any other relevant information can provide the basis for consultation. California ESA requires that CDFG coordinate consultation for joint federally listed and state-listed species to the extent possible; generally, the state opinion for the listed species is brief and references provisions under the federal opinion.

CEQA AND SUBDIVISION MAP ACT

CEQA Guidelines Section 15065 directs that a mandatory finding of significance is required for projects that have the potential to substantially degrade or reduce the habitat of or restrict the range of a threatened or endangered species. CEQA requires agencies to implement feasible mitigation measures or feasible alternatives identified in EIR's for projects which will otherwise cause significant adverse impacts (Sections 21002, 21081, 21083; Guidelines, sections 15002, subd. (a)(3), 15021, subd. (a)(2), 15091, subd. (a).). To be legally adequate, mitigation measures must

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

be capable of "avoiding the impact altogether by not taking a certain action or parts of an action"; "minimizing impacts by limiting the degree or magnitude of the action and its implementation"; "rectifying the impact by repairing, rehabilitating or restoring the impacted environment"; "or reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action." (Guidelines, Section 15.370). Section 66474 (e) of the Subdivision Map Act states "a legislative body of a city or county shall deny approval of a tentative map or parcel map for which a tentative map was not required, if it makes any of the following findings: (e) that the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish and wildlife or their habitat". In recent court cases, the court upheld that Section 66474(e) provides for environmental impact review separate from and independent of the requirements of CEQA (Topanga Assn. for a Scenic Community v. County of Los Angeles, 263 Cal. Rptr. 214 (1989).).

Attachment: Habitat Assessment and MSHCP Consistency Analysis (3285 : PAMA Business Center)

Revised Phase I Cultural Resources Assessment for the PAMA Business Park, Brodiaea Avenue and Rebecca Street, Riverside County, California

PAMA Business Park

MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

(Township 3 South, Range 3 West, Section 14,
Riverside East 7.5' USGS, California Quadrangle)

Prepared for:

PAMA Management
4900 Santa Anita Avenue
Suite 2C
El Monte, California 91731

Prepared by:

Dr. Alan Garfinkel Gold, RPA, Principal Investigator /Cultural Resources Manager
Alina Landa, B.S., Cultural Resources Specialist
RCA Associates, Inc.
15555 Main Street, #D4-235
Hesperia, California 92345
(760) 596-0017

Project: #2018-36

Type of Study: Phase 1 Cultural Resource Assessment
Key Words: Negative Results, Moreno Valley, Serrano, Luiseño, cultural resources

August 16, 2018

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

TABLE OF CONTENTS

EXECUTIVE SUMMARY……. 2
INTRODUCTION ……...4
NATURAL SETTING……4
CULTURAL SETTING……...5
Prehistory……5
Ethnography……. 16
History……..……..18
PERSONNEL……19
METHODS……19
Research……19
Field Survey……...19
RESULTS……19
Native American Consultation ……...19
Cultural Resource Records Search .....……..……20
Field Survey……. 22
Shovel-test Pits……...…....22
CONCLUSION……...…....…22
REFERENCES……24
Appendix A- Figures
Appendix B- Native American Consultation

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

RCA Associates, Inc. is under contract to conduct a Phase I Cultural Resources Assessment for the proposed PAMA Business Park in Moreno Valley. This work is being completed for a Project located northeast of the intersection of Brodiaea Avenue and Rebecca Street in the City of Moreno Valley in Riverside County, California. The parcel of land under study is currently being employed as agricultural land and can be found on the East Riverside, United States Geological Survey (USGS) Topographic Quadrangle Map (Figures 1 and 2). This cultural resources study was performed pursuant to the California Environmental Quality Act (CEQA). A cultural resources records search, pedestrian field survey, shovel test pits, and Native American consultation and coordination were all elements of this project that were included within the present Scope of Work. Native American individuals and tribal groups were contacted by letter, email, and telephone for the Consultation and Coordination elements and their views on the project and input were solicited. The letters and outreach action list documents these efforts and a summary of this work is provided in Appendix B.

Field survey investigations were conducted on April 18, 2018 by RCA Associates, Inc. and did not result in the identification of any cultural resources (prehistoric or historic archaeological artifacts, prehistoric or historic archaeological sites or historic architectural remains). No cultural resources of any kind were noted within the Project boundaries. Ten shovel-test pits were excavated on the property and these pits did not yield any materials of historic or prehistoric origin that could be considered cultural resources. A cultural resources records search was completed (in person) on March 15, 2018 at the Eastern Information Center (EIC) at the University of California, Riverside which showed there were no cultural resources that had been previously recorded within the Project area itself. However, two cultural resources were noted within a half mile radius of the Project (P-33-017972 and -018039) and 12 previous cultural resource reports (RI -00583, -01978, -03510, -07499, 08272, -08367, -08398, -08799, -09619, -09718, -09836, and -10018) had been previously completed within the half mile buffer surrounding the Project site.

The Native American Heritage Commission (NAHC) completed a Sacred Lands File Search, which yielded negative results for Sacred Lands in the general Project area. According to the NAHC, however, the project area is still sensitive to cultural resources. A list of Native American Tribes pertaining to the location were contacted via mailed letter. Pechanga Cultural Resources office of the Band of Luiseno Mission Indians replied by mailed letter to formally request to be notified and involved in all CEQA environmental review process for the duration of the project. Soboba Band of Luiseno Indians responded via mail letter and requested to act as a consulting tribal entity for this project. Viejas Band of Kumeyaay Indians replied via mailed letter to advise that although the project area has little cultural ties to them, the Tribe requests to be informed of new developments, such as the inadvertent discovery of cultural artifacts, cremation sites, or human remains.

If previously undocumented cultural resources are identified during earthmoving construction activities, a qualified (RPA certified) archaeologist must be contacted to assess the nature and significance of the find. Project construction activities shall be diverted if necessary.

If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 applies and these provisions state that no further disturbance shall occur until the County

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Coroner has made a determination of the origin and disposition of the remains pursuant to Public Resources Code Section 5097.98. The County Coroner must also be immediately notified of the find. If the remains are determined to be prehistoric or protohistoric and of Native American origin, the Coroner or the Project Archaeologist will notify the NAHC. The NAHC shall determine and identify a Most Likely Descendant (MLD) that will consult with RCA Associates and recommend the manner of treatment for any human remains and associated religious offerings. With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

INTRODUCTION

RCA Associates, Inc. is under contract with PAMA Management to complete a Phase 1 Cultural Resources Assessment for a proposed residential development project in Moreno Valley, Riverside County, California (Township 3 South, Range 3 West, Section 14, Riverside East, California USGS Topographic Quadrangle) (Figures 1 and 2). This study was performed pursuant to the California Environmental Quality Act (CEQA).

The California Environmental Quality Act (CEQA) requires consideration of project impacts on archaeological or historical sites deemed to be "historical resources." Under CEQA, a substantial adverse change in the significant qualities of an historical resource is considered a significant effect on the environment. For the purposes of CEQA, an "historical resource" is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (Title 14 CCR §15064.5(a)(1)-(3)). Historical resources may include, but are not limited to, "any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (PRC §5020.1(j)).

The eligibility criteria for the California Register are the definitive characteristics for assessing the significance of historical resources for purposes of CEQA (Office of Historic Preservation). Generally, a resource is considered "historically significant" if it meets one or more of the following criteria for listing on the California Register:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

NATURAL SETTING

The City of Moreno Valley is located in northwestern Riverside County. It is further situated along the valley floor and is bounded by the hills and mountains of the “Badlands” to the east, Old Highway 215 to the west, the Box Springs Mountains to the north, and Lake Perris State Recreation Area to the south. The area is developed with residential, commercial, and industrial land use. Lands in current agricultural production are concentrated in the eastern portion of the City. Elevations in the general area range from a low of approximately 1,550 feet above mean sea level (amsl) to a high of 1,800 feet amsl. The area gradually slopes to the south and southwest with the higher elevations north of State Route 60 and the lower elevations near March Air Reserve Base.
The City of Moreno Valley lies primarily on bedrock geology known as the Perris Block. This structural unit is located within the Peninsular Range Geomorphic Province, one of the major

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

geologic landforms of Southern California. The Perris Block is a large granitic mass of rock bounded by the San Jacinto Fault, Elsinore Fault, and Santa Ana River. The Perris Block has a history of tectonic land movements of several thousand feet due to shifts in the Elsinore and San Jacinto Faults. The primary source of strong seismic activity is the San Jacinto fault. The San Jacinto Fault Zone traverses the eastern portion of the general Project area. The project area and vicinity is within the Santa Ana River and San Jacinto River watersheds.

The climate of the area is characterized by warm, dry summers and mild winters. Most rain falls between the months of November and March. Occasionally, in the fall, cyclical breezes are interrupted by strong, dry, warm desert winds (identified locally as Santa Anas) from the north/northeast.

The natural habitat of the area is largely disturbed by urban development, weed abatement or agricultural activities. However, the area does support certain native or semi-native plant communities including sagebrush scrub, non-native grassland, chaparral, riparian scrub, disturbed alluvium, alkali playa, alluvial fan sagebrush scrub, and marsh.

The area has a rich diversity of native wildlife species. Mammals, including mule deer, and large carnivores, including coyotes, bobcats, badgers, and gray fox, exist in the more undeveloped areas. Opossums, raccoons, skunks, cottontail and jack rabbits, and many rodent species are common. A wide variety of reptiles can be found. Additionally, over one hundred species of birds, including owls, hawks, and other birds of prey can be noted in the area.

CULTURAL SETTING

Prehistory

Synthetic treatments of the prehistory of Inland California are found in a number of academic references. The latter sources include topical treatments in Basgall (1993), Basgall and Hall (1994), Basgall et al. (1988), Bettinger and Taylor (1974), Garfinkel (2007), Garfinkel and Williams (2011, 2015), Garfinkel et al. (2010), Gilreath and Hildebrandt (1997), Grayson (2011), Lengner (2013), Schneider et al. (2000), Sutton et al. (2007), Ugan and Rosenthal (2015), Van Tilburg et al. (2012), Warren (1984), Warren and Crabtree (1986), Whitley (1998), Ugan and Rosenthal (2015) and Yohe (1992).

Research into the prehistory of the Inland California has a lengthy pedigree. Perhaps some of the earliest scientific investigations were those conducted by the husband-wife team of William and Elizabeth Campbell working out of the Southwest Museum (Campbell 1931; Campbell and Campbell 1935; Campbell et al. 1935). During this same general time period Malcolm Rogers was conducting studies through his association with the San Diego Museum of Man. His research emphasized the identification of the flaked stone artifacts and prehistoric cultures mainly found in the Colorado Desert but overlapping also into the Mojave Desert as well (Rogers 1939). Another very early researcher in the area was Mark Raymond Harrington who conducted archaeological studies at the Stahl Site, Stahl Site Cave and Fossil Falls sites in the Coso Range of eastern California while engaged by the Southwest Museum (1948a, 1948b, 1949, 1950, 1951, 1952, 1953, 1957).

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

In the 1960's Edward Lanning working with the University of California, Berkeley wrote up the previous research completed at Rose Spring (CA-INY-372) in the Coso Range of eastern California and this work served as a critical benchmark and anchor to develop the regional cultural sequence and chronology for Inland California and the southwestern Great Basin. Robert Yohe returned to Rose Spring much later and provided an even more detailed and well-supported chronology bolstered by a suite of precise radiocarbon dates for this physically and culturally stratified site (Yohe 1992).

Much of the scholarly research in Inland California has been completed under the umbrella of cultural resource management studies. Many federal and state agencies (Bureau of Land Management, California Department of Transportation, California Department of Parks and Recreation, and United States Forest Service) and also private developers (relating to the construction of renewable energy initiatives employing both solar and wind) have been the major proponents and financial underwriters for these investigations.

Inland California has seen much archaeological study. This research has spawned some of the contentious dialogues in professional archaeology with respect to competing models attempting to illuminate the nature and antiquity of various prehistoric cultural manifestations. The focus of these debates relate to the nature and timing of various cultural transformations. Such discussions hinge on the age and character of technological shifts, settlement-subsistence change, economic developments, artistic and ideological transitions, prehistoric population movements / replacements and linguistic prehistory (cf. Garfinkel 2006, 2007; Garfinkel and Austin 2011; Garfinkel et al. 2007, 2009, 2010; Grant et al. 1968; Goldsmith and Garfinkel 2013; Gilreath 2007; Gilreath and Hildebrandt 2008, 2011; Hedges 2001; Hildebrandt and McGuire 2002; McGuire and Hildebrandt 2005; Stewart et al. 2005; Van Tilburg et al. 2012; Whitley 1987; 1998; 2003; Whitley and Dorn 1987, 2011). Given the critical nature and central importance of chronological controls for Inland California, a prehistoric cultural sequence and the associated identification of specific temporal periods remain an important and salient topic for continuing research.

Cultural Sequence

Late Pleistocene: Paleo-Indian / Western Clovis Period

Basally-fluted, projectile points of the Clovis (aka Western Clovis) cultural complex are generally considered to be the most dominant, hallmark of prehistoric occupation during the Late Pleistocene era. These Clovis points and their associated cultural materials have been the focus of intensive study and the general consensus is that they date from about 13,500 to 12,500 calibrated radiocarbon years (cal) before present (BP). Some researchers have tried to pinpoint the duration of the Clovis tradition to an even more exacting and narrower time span (12,800 to 13,200 cal BP) but recent critiques of that perspective support the notion that at least a millennium of time was necessary for the wide-ranging Clovis tradition to have developed and spread within the continental United States (cf. Goebel et al. 2008; Waters and Stafford 2007).

Until recently, the Clovis complex was considered to be the basement cultural expression in the Americas. However, reports from sites like Monte Verde (Chile), Paisley Cave (Oregon), the Schaefer and Hebior sites (Wisconsin), Meadowcroft Shelter (Pennsylvania), Page-Ladson (Florida), and the Debra L. Friedkin Site (Texas), have now provided substantial and persuasive

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

evidence for pre-Clovis occupation dating to a period from ca. 16,000 and 14,000 cal BP, the latter archaeological complex having occurred some two to three thousand years before Clovis (Gilbert et al. 2008; Goebel et al. 2008; Waters et al. 2011b).

Unfortunately, as of yet, there is no tangible and compelling evidence within California or the Great Basin for such early pre-Clovis discoveries. Yet, there have been a number of claims (Davis 1978; Leakey et al. 1968) based on heavily weathered and crude cobble and core tools as part of a pre-projectile point tradition (cf. Moratto 1984:29-73). However, such claims have not withstood the test of time.

Nevertheless, although California has posted early claims of great human antiquity, even Clovis-like fluted points discoveries themselves are fairly rare (cf. Rondeau et al. 2007). When such finds are identified they are most frequently isolates and typically found in association with now dry Pleistocene lakebeds. Besides the limited discoveries of fluted points, we have little in the way of related diagnostic elements of Clovis technology that would provide a more complete picture of the entire archaeological assemblage. Complementary artifacts, such as prismatic blades, blade cores and bone tools are commonly described from the Clovis heartland in the American Southwest and Plains (however cf. Fenenga 2015).

Further, there is long-standing ambiguity in the age and sequence of terminal Pleistocene cultural complexes in California and the Great Basin generally. Some researchers have expressed doubts as to whether the Clovis Complex per se has a temporally or geographically extensive presence in California and the Great Basin. Furthermore, some researchers question the true antiquity of these putative earliest California and Great Basin projectile point forms. Finally, other confounding issues remain with respect to the chronological relationship of one projectile point type to another (e.g. Western Fluted vs. Concave Base vs. Western Stemmed forms).

China Lake Basin and the adjacent Rose Valley are home to some of the largest concentrations of fluted and concave base points in California. The sites in Rose Valley are located on relict terraces of the Lower Pleistocene Owens River. The Rose Valley sites were initially recognized and studied by Ferris Borden and the Archaeological Survey Association (Borden 1971; Moratto et al. 2018). The China Lake sites were researched by Emma Lou Davis (Davis 1978). A number of the fluted and unfluted concave base points discovered in the Coso Basin have yielded putatively ancient obsidian hydration dates that would provide a tentative late Pleistocene age determination (cf. Garfinkel et al. 2008; Moratto et al. 2018). Yet, no direct and associated radiocarbon determinations exist that demonstrate the age of these early points and there are only a handful (n = 4) of radiocarbon determinations dating to the Clovis age for any archaeological expressions in all of prehistoric California.

Nevertheless, recent obsidian hydration data provides a growing number of very large hydration rim measurements (greater than 16.0 microns) from several sites in the China Lake Basin and vicinity. These hydration measurements do support an age for both Western Fluted and Basally Thinned Concave Base points dating to a time from about 12,000 to 13,500 cal BP. (Giambastiani and Bullard 2010; Rogers 2011; Garfinkel and Hopkins 2008; Garfinkel et al. 2016; Moratto et al. 2018). If those ages are further substantiated, that would imply a prehistoric California Paleoindian complex of equivalent age to the Clovis tradition of the American Southwest and Plains. Significantly, the technological and typological elements for these early California

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

projectile points appear slightly different and may represent a somewhat distinctive tradition - a bit different from their kindred artifacts in other areas of the United States.

In contradistinction to the above discussion, Beck and Jones (2010; see also Bryan 1988) argue, that Western Stemmed Points are in fact characteristic of the terminal Pleistocene and would be contemporaneous with the Clovis Complex. While it is widely assumed that fluted and unfluted concave-base points date to the terminal Pleistocene in the Mojave Desert, this has never been demonstrated radiometrically or chrono-stratigraphically. Nevertheless, recent finds at China Lake have noted that Fluted and Concave Base points have a different overall spatial distribution than Western Stemmed points. Finally, all three projectile point styles (Western Stemmed, Fluted and Concave Base) often occur in the same microenvironments, in closely similar depositional contexts, and at the very same sites (Basgall 1988, 2007; Basgall and Hall 1991; Giambastiani 2008, 2010; Giambastiani and Bullard 2010).

Early Holocene: Mojave or Lake Mojave Period

Significant environmental changes, correlating with broad shifts in regional temperature, occurred in the post-Pleistocene with only minor changes in rainfall. Increased runoff from glacial melting resulted in the infilling of valleys and basins by streams, marshes, and lakes. Initially these large bodies of water supported great amounts of biota – including big game animals (e.g., deer, antelope, and bighorn). During this time there exists an ancient, well-established and wide-ranging prehistoric tradition dating from ca. 12,000 to 8,000 cal BP. This archaeological complex is a well-known expression and received its geographic referent from the landmark studies of Campbell et al. (1937).

The Campbells and their research associates focused their work along the relict shorelines of Pleistocene Soda Lake and Silver Lake in the eastern Mojave Desert near Baker, California. These early Holocene assemblages are recognized for their distinctive formalized flaked stone tool kits. The Lake Mojave flaked stone tools include large stemmed points (identified as either the larger and more robust Lake Mojave type or the smaller Silver Lake form) that are considered chronological diagnostics. Associated with these temporally sensitive point/tool forms are other stone tools including bifacial crescents, heavily worked domed (steep-sided) unifaces (end scrapers and side scrapers), knives, bifaces, gravers, plano-convex limaces and large core-cobble tools (cf. Beck and Jones 1997).

Throughout southern California (and especially in eastern California) Lake Mojave era sites have been recognized with a variety of other identifiers. In the Colorado Desert, Malcolm Rogers calls similar traditions as his Playa Complex (Rogers 1939, 1966). In the San Diego area, the related assemblages have been designated as San Dieguito (Warren 1967; Warren and True 1961). William Wallace (1962) employs the Lake Mojave moniker for all such expressions throughout southern California.

Significantly, the majority of the Lake Mojave sites are exclusively surface expressions making them difficult to date and only infrequently are they dated directly by employing radiocarbon assays. Nonetheless, Beck and Jones (1997, 2010; cf. Willig et al. 1988) have assembled a series of radiocarbon dates for these stemmed point, early Holocene prehistoric expressions in the northern and central Great Basin. Their research indicates that the Lake Mojave related materials

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

are older than 9500 cal BP and are possibly as ancient as 13,200 cal BP. If such dates were to apply in California they would be contemporaneous with the ages applied to the Clovis Tradition in the American Southwest and on the Plains. Yet, perhaps contrary to expectations, dates for the Lake Mojave materials at Fort Irwin cluster from 9500 to 11,000 cal BP (Basgall 1993b; Sutton et al. 2007).

Claude Warren and his colleagues (Warren 1967, 1984, 1986, 2008; Warren and Crabtree 1986; Warren and Schneider 2003; Warren et al 1986) and other researchers (cf. Bedwell 1970) recognize that Western Stemmed point sites of the Lake Mojave Tradition were most often associated with extinct lakes. Since these materials are clustered around ancient shorelines, the logical conclusion was that this early lifeway was lacustrine based and that the artifacts would best be interpreted as representing a hunting emphasis on lakeshore resources. Further, since few artifacts were discovered that could be interpreting as representing milling equipment, only a very minor expression of plant food exploitation was indicated.

However, more recent research in the central and western Mojave Desert attests to a different perspective with a wider range of habitats for sites outside of lakeshore settings (Basgall 1993b; Basgall and Hall 1994c; Basgall et al. 1988; Sutton et al. 2007). Further, the faunal remains recovered from such sites attest to a dominant expression of small mammal (especially lagomorphs) and reptile exploitation rather than large game such as deer, pronghorn and bighorn sheep. Additionally, milling equipment, although evidently only a minor element in the Lake Mojave archaeological assemblages, are indeed a regular part of the documented cultural materials at such sites. The latter perhaps indicates that plant food was of some importance in the diet of these early Holocene peoples. Nevertheless, use-wear studies suggest that corms and bulbs, especially marshland taxa rather than small seeds, were the plant foods processed (Basgall 1993b, 2000).

Most researchers agree that high diversity of toolstone material and extensive curation and maintenance of Lake Mojave age tools supports the conclusion that very large foraging areas and frequent residential moves were typical (Basgall 1989; Basgall and Hall 1994c; Basgall and McGuire 1988; Delacorte 199; Delacorte and McGuire 1993). It is posited that these foraging groups were limited to a small number of family units and the groups themselves were quite small in size. The food resources that were extracted would have been exhausted quickly causing people to move about the landscape often. Considering these frequent moves, the stone tool assemblages remained small and relatively homogenous (Kelly 1983, 1985, 1988; Shott 1986, 1989; Thomas 1983a, 1983b).

Middle Holocene: Little Lake or Pinto Period

In the Middle Holocene during the time from ca. 8,000 to 4,000 cal BP temperature and aridity peaked. Lowland bodies of water shrank in size and associated plant communities dwindled - reaching a state that was incapable of supporting the former abundance of large game (Sutton et al. 2007). With the exception of certain rare refuge areas, human land use shifted to upland areas where a few relict streams and lakes remained. Correlating with these changes was the inception of a cultural expression known as the Pinto Complex.

Researchers have recognized that it has been challenging to clearly articulate the Middle Holocene

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

cultural-historical traditions and settlement systems since few prehistoric sites date within this specific time frame. The latter circumstance may owe to a lack of geological visibility (Basgall 2009; Meyer and Rosenthal 2010) or alternatively this may be a reflection of the heightened aridity or a corollary demographic collapse (Elston 1982; Grayson 2011; Sutton et al. 2007; Warren 1986). From either perspective, there are a paucity of radiocarbon assays that fall within the Middle Holocene time and these expressions are especially absent during the waning years of this period - from ca. 5000 and 4000 cal BP (Sutton et al. 2007).

The Pinto Complex, rather than representing a different cultural group, is posited as an outgrowth of the former hunting tradition of the Lake Mojave Complex of the Early Holocene. Such a model is based on a variety of similarities in the two traditions. Spatial and temporal overlap in projectile point forms, the continued use of difficult to reduce toolstone (basalt and igneous fine-grained materials) for bifacial tools - distinctly different from the use of cryptocrystalline and obsidian materials so common to later periods, continuity in the character of flaked stone production emphasizing percussion flaking in contrast with a later emphasis on pressure flaking, and the continued popularity of specialized tool forms (biface knives, ovate domed and keeled scrapers, and engravers) - all suggest a pattern of continuity.

Pinto Complex sites decline in number during the driest portion of the Middle Holocene era from 6500 to 4000 cal BP and are largely restricted to spring-side localities. Besides the differing land use patterns, the stone tool assemblage changes at this time from the formalized stone tool forms of the Early Holocene to the more perfunctory flake scrapers, handstones, and milling slabs. Ground stone implements signal an important distinction and a growing emphasis on small seed use. Since hunting equipment persists, Claude Warren and others (Warren 1967, 1984, 1986) have suggested that large game procurement continued despite deteriorating climatic conditions and declining big game populations.

Archaeofaunal assemblages from Pinto sites attest to the fact that artiodactyls by this time are almost completely absent - with small game, including tortoise, becoming the norm. Pinto populations, originally geared towards hunting, would have been hard-pressed to accommodate the changing environmental conditions and their adaptation may have ultimately failed. Populations may have either suffered extinction or perhaps migrated to more well-watered areas, abandoning their desert homes.

A few Middle Holocene sites in the southern Owens Valley and Rose Valley have produced assemblages similar to those in the Mojave Desert and appear to be consistent with generalized adaptations of highly mobile foragers with wide-ranging settlement patterns. However, substantial house floors discovered at Lubkin Creek (CA-INY-30) and the diverse array of occupational debris having been recovered at the Stahl Site (CA-INY-182) at Little Lake (on the western edge of the Coso Range) has led some researchers to posit much greater residential stability and a degree of permanence in settlement pattern in some exceptional instances.

The hallmark and defining diagnostics for this period are large, heavy, bifurcate-stemmed dart points known as the Little Lake Series (Basgall and Hall 1992, 1994c, 2000; Bettinger and Taylor 1974; Fitzgerald et al. 2005; Harrington 1957; Lanning 1963; Vaughan and Warren

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

1987). Researchers have recognized that these Pinto-like points were most frequent at the Stahl site near Little Lake (Harrington 1957).

The Pinto-like points that were discovered at Little Lake were originally thought to be morphologically distinct from Pinto points identified at the type site in the Pinto Basin in Riverside County in the southern Mojave Desert (Amsden 1937; Campbell and Amsden 1934; Campbell and Campbell 1935; Schroth 1994). In-depth research (Basgall and Hall 2000) relating to the questions of chronology and point classification suggests that the Little Lake points are largely indistinguishable from Mojave Desert examples typically identified as Pinto points.

The research of Basgall and Hall redefined the Pinto Series indicating that there existed a larger, heavier, and more robust variant of this point style that has an age range from 7500-4000 rcybp. A smaller, lighter, and more gracile form, more characteristic of the northern Great Basin, is equivalent with the Gatecliff Split-stem type previously identified by David Hurst Thomas (1981). Those latter artifacts are argued to date to a more recent vintage, consistent with a temporal range from ca. 5000-3200 rcybp. A further result of the Basgall-Hall Study was the discovery that there is considerable spatial overlap between both the robust and gracile variants with both forms having substantial representation.

Other researchers disagree with the Basgall and Hall Pinto point chronology. Haynes (2004) argues that Pinto points range in age from 9,500 to 5,500 radiocarbon years before present (rcybp). Perhaps an age range of 11,000 to 3,500 cal BP is a more accurate representation for the full span of use of this rather enigmatic point form. Recent studies have in fact led many researchers to conclude that Pinto points have a much longer duration than has been typically applied. Pinto points, based on their most recent re-evaluations, are sometimes contemporaneous with the Western Stemmed Series (as above). However, Pinto points were infrequent during the earliest years of their introduction but flourished and endured for a much longer period time after Western Stemmed points ceased.

Heavily worn stone tools crafted from exotic toolstone suggests that prehistoric Middle Holocene Natives were still highly mobile. These patterns led Basgall and Hall (1992c, 1994c) to conclude that both early and middle Holocene adaptations in the Mojave Desert represent a more generalized subsistence orientation than conventionally portrayed by Warren (1967, 1984, 1986) and others.

Late Holocene: Newberry Period or Gypsum Complex

In the Late Holocene, beginning ca. 4000 / 3500 cal BP and continuing to about 2000 cal BP, significant interregional variability in aboriginal land use can be recognized. With respect to the local environmental conditions. Mehringer and Sheppard (1978), based on lake-core sampling at Little Lake, identify that available water increased about 3000 cal BP, with a subsequent dry period at about 2000 cal BP. Hence, cool winters and relatively wet intervals were characteristic of what is known as the Neo-pluvial Period that occurred between 4000 and 2000 rcybp (Wigand and Rhode 2002).

In the Mojave Desert, Basgall and Hall (1992, 1994c) identified cultural deposits from Fort Irwin that include a full complement of milling equipment, flaked stone tools, and the replacement of basalt and rhyolite by cryptocrystalline silicate toolstone. The occurrence of bifaces increases

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

dramatically during this time. Nonetheless, prehistoric sites are often small and it has been argued that these settlements represent wide-ranging mobility oriented to short-term occupations rather than targeted procurement of specialized resources.

Many radiocarbon assays from houses and features are documented from the southern Owens Valley (Basgall and Delacorte 2012; Basgall and McGuire 1988; Byrd and Hale 2003). These well-built houses and associated remains provide robust data for chronological controls. Their remains indicate an emphasis on cached and curated articles (including bifaces, bone tools, and milling equipment) and lend credence to the premise that these particular sites were seasonally re-occupied. Obsidian tool/debitage sources appear to indicate a wide-ranging and extremely expansive, yet regularized annual settlement round. From food remains (faunal material and plant macrofossils) one may infer that logistical forays were made to long-distance upland settings to procure specialized resources (pinyon nuts, bighorn sheep, and marmots) that were brought back to the base camp.

Warren et al. (1984) provide a contrasting view for this period and argue for the prominence of large game hunting due in part to their natural abundance based on ameliorating climatic conditions. Additional intensification in the use of plant foods is represented by increased numbers of milling equipment. Warren and others identify a change in social organization from the smaller family-band units in earlier eras to multi-family groups. William Hildebrandt and Kelly McGuire (2002) similarly argue that settlements during the Late Holocene (Middle Archaic also known as the Newberry Period) may have been less mobile than originally implied and may be best interpreted as year-round occupations. They also argue that the characteristic settlement pattern appears to have incorporated sedentary occupations of ecological sweet spots where women remained at hamlets while men ranged to distant outlying areas for artiodactyl hunting.

One implication of this emphasis on artiodactyl exploitation was the necessity of serviceable hunting equipment. Stone tool reduction and particularly obsidian biface manufacture became critically important from about 2500 to 1500 cal BP. Amy Gilreath and William Hildebrandt (1997, 2011) argue that in the Coso Basin, obsidian stone tool reduction reached a peak level of task specialization where early stoneworkers produced bifaces in enormous numbers both for domestic use but mostly as surplus exports intended for trans-Sierran trade. During this same time span, an enormous number of rock drawings (petroglyphs) are recognized and appear to be associated with increase rites, revealing a level of socio-ceremonial complexity exceeding that of earlier and later periods (Garfinkel 2006; Garfinkel et al. 2009; Yohe and Garfinkel 2012).

Prehistoric settlements dating to the Late Holocene are marked by the occurrence of medium-sized to large stemmed and notched points. The most frequent point forms are variants of the Elko, Humboldt (Concave Base and Basal-notched), and Gypsum Series. Heizer and Baumhoff (1961) were the first to define Elko points. This series is composed of large, heavy, notched points with variable stem characteristics (Heizer et al. 1968; O'Connell 1967). These include eared, corner- and side-notched specimens. Elko Contracting stem forms are often assigned to the Gypsum type having the same general chronological frame. In the western Great Basin, Elko points have often been found in contexts dating from 3750-1290 cal years B.P. (Basgall and McGuire 1988; Bettinger and Taylor 1974; Gilreath and Hildebrandt 1997; Heizer and Hester 1978; Justice 2002; Thomas 1981). Such a chronological position is supported by a plethora of radiocarbon,

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

stratigraphic, and obsidian hydration data. However, it is becoming increasingly apparent that large corner-notched and side-notched variants of this Elko form sometimes occur in earlier contexts.

Gilreath and Hildebrandt (1997) observed that more robust Elko points, especially those thicker than 6.5 mm, regularly produce obsidian hydration measurements that are more ancient than the Newberry Period. One explanation for this problem is the difficulty in identifying between earlier Pinto and the more recent look-alike Elko forms (Basgall and Hall 2000; Vaughan and Warren 1987). Finally, the Rose Spring site (CA-INY-372) on the western edge of the Coso Range is a culturally and naturally stratified deposit. Five separate successive units provided cultural material amenable to dating. The lower three strata range in age from ca. 4000 to 1700 cal BP and as such fall within this period (Clewlow et al. 1970; Yohe 1992).

Late Holocene: Haiwee, Rose Spring, Saratoga Springs Period

Inland California witnessed a significant series of adaptation shifts beginning in this time period (ca. 2000 to 700 cal BP). During the onset of the period a dramatic set of subsistence-settlement changes were documented. These changes include: the introduction of the bow and arrow replacing the dart and atlatl, a dramatic decrease in large game hunting, increased reliance on dryland hard seeds, the beginning of intensive green-cone piñon pine nut exploitation, and the development of sites emphasizing the acquisition of easily procured and abundant small game animals (especially with respect to large numbers of lagomorphs and grebes). These cultural changes may or may not reflect a Numic (Great Basin Paiute-Shoshone) in-migration.

It is important to note that the Project area under study includes the Luiseño and they are a different and distinct language group representing the Californian Uto-Aztecan branch while the Shoshonean languages are of the Northern Uto-Aztecan Branch.

Also certain technological innovations and labor-intensive adaptive strategies are also broadly consistent with those of the intrusive Numic groups (Bettinger and Baumhoff 1982; Delacorte 1994, 1995).

In the western Mojave Desert specialized sites first occur that are single component loci targeting small, easily-harvested, game animals harvested through communal hunts and mass capture that focus on jack rabbits and grebes (Gold 2005; Garfinkel 2006; McGuire et al. 1982). These sites and similar localities often contain abundant portable milling equipment, rock ring structures, bedrock milling, and plant food threshing features. These data reflect a shift to more intensive use of small game and local plants (dryland hard seeds) perhaps as a means of mitigating increasing human population pressure – consistent with the model presented by Bettinger and Baumhoff for Numic adaptations (1982).

Such an adaptation would have perhaps provided Numic peoples with a competitive advantage over existing pre-Numic populations since it would have enabled them to exploit a wider range of resources that were more costly to collect and process. Hence, resources with high extractive and processing costs would have been exploited only after the arrival of Numic groups in the area (cf. Bettinger and Baumhoff 1982; Delacorte and McGuire 1993).

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

From a careful study of the archaeological record, a pattern of lowland, intensive small-game hunting camps appears to have occurred with the development of large-scale, intensive, upland green-cone piñon pine nut exploitation. This pattern is contemporaneous with an initial focus on the acquisition, mass processing, and storage of dryland seeds (Basgall and Delacorte 2003; Basgall and Giambastiani 1995). These seed camps routinely include rock rings, thought to be the foundations of brush structures. Many of these rock structures contain doorways facing toward the rising sun and are associated with numerous handstones, milling slabs, and bedrock grinding features.

Single-component Haiwee-age hunting camps are frequently located in "geographically isolated areas" (Delacorte 1994). Such localities provided access to a limited range of biotic communities and appear to have a rather specialized focus on a narrow array of subsistence resources. Hence, these settlements are a distinctly different group of sites from earlier or later occupations that tend to overlap at the same settlements and hence evince a lack of continuity from earlier settlements.

Gilreath and Hildebrandt (1997) note that Coso obsidian lithic production shifts to major obsidian outcrops in Late Newberry (500 B.C. to A.D. 600) and this pattern continues into the Haiwee interval (A.D. 600 to 1300). Obsidian quarrying during this time is confined to a few massive exposures rather than the less plentiful but more widespread secondary deposits. In the Haiwee Period, nearly exclusive use of the massive Sugarloaf Mountain, Coso obsidian exposure occurs with other deposits largely ignored.

On the margins of Koehn Lake in Fremont Valley, south of the Indian Wells Valley and the Coso Range, Sutton (1987, 1991) reports on a village site (CA-KER-875) dating to this period. House structures with juniper center posts (*Juniperus* sp.) were documented. The site is well dated with radiocarbon assays and Coso obsidian hydration dates and appears to have been associated with a standing lake. The site was abandoned during the drying up of the area correlating with the initiation of a series of epic droughts known as the Medieval Climatic Anomaly (ca. AD 970 to 1350).

Rose Spring points are one of the key hallmarks of this time period. These points were originally recognized and described from the type-site of that same name, located in southern Owens Valley (also known as Rose Valley) on the western edge of the Coso Range (Lanning 1963: Yohe 1992, 1999, 2000). The Rose Spring arrow point is a small, narrow, triangular arrow point with a variety of stem forms. Rose Spring points are time markers and date primarily to the interval from ca. 2000-650 cal B.P. in the western Great Basin (Basgall and McGuire 1988; Bettinger and Taylor 1974; Garfinkel 2007; Gilreath and Hildebrandt 1997; Thomas 1981; Yohe 1992, 1999, 2000).

Recent Holocene: Marana, Late Prehistoric

This final cultural period (700 cal BP to the historic) represents the ethnographic occupation of historic Native American groups (including the Serrano and Luiseno). Desert Side-notched and Cottonwood arrow points are characteristic and brownware ceramics, soapstone beads, and pictographs also date to this time frame, as do many sites associated with systematic and intensive upland piñon exploitation (Bettinger 1978; Garfinkel and McGuire 1980; McGuire and Garfinkel 1976, 1980).

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Resource intensification that began in the prior period continues and strengthens with settlements tied to seasonal differences in resource availability. The most spatially confined seasonal movement and the smallest foraging ranges occur during this time period. Region-wide expansion of diet breadth and intensification of small seed resources involved a change in the technology used in the collection and processing of these resources. It is argued that cutting and mass collecting of green, dryland, hard seeds provided a considerably higher return than was possible using the former method of seed beating. This pattern begins about 1300 cal BP but increases substantially throughout the Late Prehistoric (650 cal BP – Contact) and into the Protohistoric era. Direct flotation evidence indicates mass harvesting and threshing of Indian rice grass (*Achnatherum hymenoides*), cattail (*Typha* spp.), goosefoot (*Chenopodium* spp.), and blazing star (*Mentzelia* spp.) seeds. This time period also sees the final collapse of trans-Sierran trade in Coso obsidian. The early emphasis (ca. 8000-1000 cal B.P.) on biface preform or flake blank technology gives way to flake-based reduction. Large bifaces decrease in abundance, yet also diminish in size and formality ultimately being replaced by more numerous flake-based tools. Artiodactyl exploitation is dramatically reduced and replaced by procurement of small game including a tremendous increase in desert tortoise and reptile use. Evidence of increased contact with outside populations (e.g., the American Southwest) and the expansion of Numic-affiliated populations out of eastern California into most areas of the Great Basin and much of the Mojave Desert are recognized during the last 1000 years (Bettinger and Baumhoff 1982; Fowler 1972; Lamb 1958).

Table 1. Prehistoric Cultural Sequence for Inland California Region

Cultural Complex	Approximate Time Period in Calibrated Radiocarbon Years Before Present (cal B.P.) and Calendar Years Approximated as AD/BC	Artifact Characteristic
Fluted and Concave Base points, Late Pleistocene Period (Paleoindian)	12,000 – 13,500 cal B.P.; 10,000 BC to 11,500 BC	Fluted points and Concave Base points (Western Clovis)

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Lake Mojave Period	12,000 – 8,000 cal B.P.; 10,000 BC to 6,000 BC	Western Stemmed points (Lake Mojave, Silver Lake)
Little Lake (Pinto) Period	8,000 – 4,000 cal B.P.; 6,000 BC to 2000 BC	Pinto and Leaf-shaped points
Newberry (Gypsum) Period	4,000 – 2,000 cal B.P.; 2000 BC to AD 1	Gypsum, Elko, and Humboldt Series points
Haiwee (Saratoga Spring) Period	2000 – 700 cal B.P.; A.D. 1 – 1300	Rose Spring, Eastgate, and Saratoga Springs points
Marana (Late Prehistoric) Period	700 cal B.P.; A.D. 1300 – Historic Contact with European explorers ca. 1770	Desert Series (Cottonwood and Desert Side-notched) points, ceramics

(Based on discussions in Bettinger and Taylor 1974, Garfinkel 2007; Warren 1980, 1984,)

Ethnography

The project area is located between the aboriginal territories of two ethnolinguistic groups: the Cahuilla and the Luiseno. Anthropological research on these two groups is rather extensive and data on these Native Californian pre-contact cultures has been collected since about 1900 (Barrows 1900; Bean 1972, 1978; Bean and Saubel 1972; Bean and Shipek 1978; Kroeber 1908, 1925; Sparkman 1908; Strong 1929; White 1963).

Cahuilla

Cahuilla territory was near the geographic center of Southern California. The Cahuilla aboriginal homeland was bounded to the north by the San Bernardino Mountains, to the south by Borrego Springs and the Chocolate Mountains, to the east by the Colorado Desert, and to the west by the San Jacinto Plain and the eastern slopes of the Palomar Mountains (Bean 1978). Cahuilla traditional areas also dominated the Peninsular and Transverse Mountain Ranges and the San Jacinto Plain, ranging east into the Colorado Desert Region and south into areas beyond the Salton Sea (Bean and Shipek 1978:550-575).

Cahuilla settlements were generally located at high elevations in well-watered canyons or on fans near streams and springs and when situated at lower elevations near natural springs (Moratto 1984). Hence, Cahuilla villages occupied both high-altitude locations as well as low desert lands. In general they were positioned in close proximity to canyons with high precipitation levels or plentiful water sources (mountainous locations). Such settlements were typically also situated near fresh water sources or at the terminus of alluvial fans where the high water table provided abundant mesquite and shallow wells could be dug. House structures ranged from brush shelters to dome-shaped or rectangular structures some 15-20 feet long (Bean 1978).

Cahuilla social structure revolved around clans and exogamous moieties (components connected through inter-marriage). Hunting, in conjunction with the exploitation of a variety of available natural plant resources governed the Cahuilla subsistence strategy. The Cahuilla used a great range of wild resources, such as acorns and piñon nuts, deer, desert bighorn sheep, rabbits, fish, and

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

quail. Agricultural techniques were present within the Cahuilla, particularly among those groups living near the Colorado River.

The material culture of the Cahuilla was extensive and varied, and included pottery, ornamental items, charmstones, and a variety of flaked stone implements. Unlike other Native American populations in Southern California, the Cahuilla were able to retain their autonomy even after the arrival and increasing control of European explorers and the settling governments that followed. It was not until 1891 that Cahuilla Native culture and the indigenous population began to succumb to the pressures and impacts of European displacements and, later, were adversely affected by the United States governing bodies (Bean 1978; Bean and Smith 1978).

The Cahuilla also had well-developed trade networks with neighboring Serrano and Diegueño groups (Bean 1978).

Luiseño

The Luiseño spoke a language considered to be a member of the Takic subgroup of the Shoshonean language family which is an element of the larger and wide-ranging Utoaztecan linguistic stock. The name Luiseno emanates from the indigenous mission association of these Native Californians. It was Mission San Luis Rey de Francia that principally served the region and incorporated the Luiseño people as converts composing part of the Mission population. The aboriginal population of the Luiseño Native people at the time of Euroamerican contact was very likely not more than 4000 individuals (Heizer et al. 1974:172-176).

Anthropologists have considered the Luiseño to be best classified into two large environmental units – differentiating the interior from the coastal groups. The Native population at the time of Euroamerican contact has been estimated at 4000 persons (Heizer et al. 1974:172-176). The metropolitan communities of Riverside and Jurupa are near the nexus or contiguous territorial boundaries for the Luiseño, Cahuilla, and Serrano Native Californian homelands (Kroeber 1908:32-33). Notable ethnographic and ethnohistoric research is available in the studies of Bean and Shipek (1978), Boscana (1947), Kroeber (1925), Robinson (1947), Shipek (1977), Sparkman (1908), Talley (1982) and White (1963).

The native pre-contact cultural traditions of the Luiseño have been summarized in Heizer et al. (1974:97-206) and in Sparkman (1908:187-204). DuBois (1908:70-186) has contributed an authoritative discussion on Luiseño world view and religious ceremonialism. The discussion below is a summary of these and other primary and secondary sources.

As with most Native Californian cultures, the Luiseño were exclusively foragers (hunter-gatherers). Men hunted large and small game and women acquired the bulk of the basic subsistence resources which were mostly plant foods. The acorn was the central stable nut crop (specifically a number of species of *Quercus* including the favored black oak [*Quercus kellogii*]).

Unusual by world standards for hunter-gatherer groups, the Luiseño lived in permanent, year round villages located in the vicinity of a relatively permanent source of potable water. Inter-village

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

contacts were frequent. Trail systems allowed for travel and trade. The Luiseño sociopolitical organization and kinship systems were based on exogamous partrilineages that were formed into clans.

Bean and Shipek (1978:550) note that the sociopolitical organization of the Luiseño included an extensive array of social statuses. This group exhibited explicitly delineated ruling families that had reciprocal relations with various villages creating what might be best termed a formalized ethnic nationality. Further, the Luiseño were recognized or their elaborate cosmology that included the use of the psychoactive drug (*Datura* spp., aka jimsonweed). Finally, the Luiseño were recognized for their sophisticated religious expressions that included cosmological ritual practices incorporating ceremonial symbolism with sand paintings representing an avenging supra-mundane being name Chinigchingish.

*Luiseño Self-identification and Sacred Religious Traditions**

The Luiseño recognize that the world was created in the area now known as Temecula (Masiel-Zamora 2016), and the Luiseño People have been in this area since the beginning of time. The Pechanga Tribe asserts that the Project area is part of the ‘Atáaxum (Luiseno), and therefore has, since time immemorial, been within the Tribe’s aboriginal territory. The Pechanga Tribe’s knowledge of ancestral boundaries is based on information passed down from their elders through songs and stories; published academic works in the areas of anthropology, history and ethno-history; and through unpublished ethnographic and linguistic field notes. Many anthropologists and historians have proposed boundaries of the Luiseño traditional territory have included the Project area in their descriptions (Kroeber 1925; Drucker 1939; Heizer and Whipple 1951; Smith and Freers 1994).

***The following material was kindly provided by Molly Earp-Escobar, Pechanga Cultural Resources Specialist, Temecula Band of Luiseño Mission Indians via letter and comments pertaining to the original version of this report. This report has been revised in light of the input from the Pechanga Tribe. The authors and RCA Associates greatly appreciate the insights and corrections of the Pechanga and the Temecula Band of the Luiseño Mission Indians and want to recognize their contribution to our understanding.**

History

The Historic era of California is divided into the Mission or Spanish Period (1769 to 1831), the Mexican or Rancho Period (1831 to 1848), and the American Period (1848 to present

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Spanish Period (1769-1831): The first known European explorers to pass through the Mojave Desert and travel into the San Bernardino Mountains were Lieutenant Pedro Fages and a party of soldiers in 1769. A group of explorers were led by Spanish priest, Francisco Garces, who guided Juan Bautista de Anza through the high desert region. In 1771, De Anza led a group from Arizona to create a headquarters at the Mission San Gabriel near what is now the City of Pasadena. The Mojave Trail was established in 1776 as a route across the Mojave Desert to the San Gabriel Mission (Beck and Haase 1974).

Mexican or Rancho Period (1831-1848): Spanish rule was overthrown by Mexico in 1791, and the missions lost their land holdings as the Mexican government passed the Secularization Act in 1833 (Beattie and Beattie 1974). The notable Old Spanish Trail was established between southern California and Sante Fe, New Mexico in the 1830s (Beck and Haase 1974).

American Period (1848 - Present): After the Mexican-American War in 1848 and the discovery of gold in California, the Old Spanish Road was a widely-used trade route for the shipment of goods and Mexican mules and horses. This allowed travelers from Salt Lake City to Las Vegas through the Cajon Pass to reach San Bernardino and Los Angeles. In the 1870s and afterward, small towns in the high desert region and near the Calico Mountains were established as railway stops on the Sante Fe Railroad (Kyle 1990). A silver strike in the Calico Mountains brought a modest mining boom in 1881 (Schuiling 1984:95).

Moreno Valley Local History

Moreno Valley is located immediately outside the boundary of Rancho San Jacinto Nuevo y Portero, a San Jacinto land grant. The Anza expedition may have passed through the valley of San Jacinto in 1774 referring to it as a "Valley of Paradise". Cattle belonging to Mission San Luis Rey were grazed in the valley and an adobe was also built there. The large, 35,000 acre, Rancho San Jacinto Viejo, extended to the communities of Hemet and San Jacinto. The Rancho was a land grant to Jose Antonio Estudillo made in 1842 as payment for efforts during mission secularization.

After California statehood in 1850 the Butterfield Overland Mail Company state passed through the area (City of Moreno Valley 1996-2006). Frank E. Brown (Moreno in Spanish) established the Bear Valley Land and Water Company in 1883. Much of the present street grid was built out by 1901.

March Field constructed in 1918 ushered in a new series of developments for Moreno Valley. The field was initially employed to train fighter pilots. It had a short use life closing in 1922 but re-opening in 1927. The field became a permanent military established named March Air Force Base and has had an active and important history for the last 70 years. In 1996, March Field was established as an Air Reserve Base. The city of Moreno Valley itself was incorporated in 1984. The metropolitan area for the city includes the communities of Moreno, Sunnymead and Edgemont.

PERSONNEL

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Dr. Alan Garfinkel Gold, RPA requested the staff at South Central Coastal Information Center (SCCIC), California State University, Fresno conduct a cultural resource records search. Following receipt of the data from SCCIC, a systematic pedestrian field survey was conducted by Dr. Gold on May 1, 2018. Following completion of the field survey, this report was prepared based on the results of the data search and the field investigations.

METHODS

Research

A cultural resources records search was completed initially on May 1, 2018 at the Eastern Information Center (EIC) at the University of California, Riverside which showed there were no cultural resources that had been previously recorded within the Project area itself. The results of the records search are summarized in this report. Native American Consultation and Coordination included a Sacred Lands File Search conducted by the Native American Heritage Commission (NAHC) on April 17, 2018. Native American individuals and groups identified by the NAHC as interested parties associated with the Project area were all contacted for consultation. Copies of the letters are provided in Appendix B.

Field Survey

A comprehensive archaeological field survey was conducted by Alan Garfinkel Gold on April 14, 2018. The survey was conducted by walking parallel transects in an east-west direction. The transects were spaced approximately 10 to 15 meters apart in order to provide reasonably comprehensive coverage of the site. Ten shovel test pits were excavated at a depth of approximately 30 cm.

RESULTS

Native American Consultation

The NAHC conducted a Sacred Lands file search on April 17, 2018, which resulted in negative finds for cultural resources in the general project area. According to the NAHC, however, the project area is still sensitive to cultural resources Native American Tribes that are associated with the area were contacted via mailed letter. A list of Native American Tribes pertaining to the location were contacted via mailed letter.

Pechanga Cultural Resources office of the Band of Luiseno Mission Indians replied by mailed letter to formally request to be notified and involved in all CEQA environmental review process for the duration of the project. The Tribe requests the following:

1.) Notification once the Project begins the entitlement process, if it has not already;
2.) Copies of all applicable archaeological reports, site records, proposed grading plans and environmental documents (EA/IS/MND/EIR, etc);
3.) Government-to-government consultation with the Lead Agency; and
4.) The Tribe believes that monitoring by a Riverside County qualified archaeologist and a professional Pechanga Tribe monitor may be required during earthmoving activities.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

> Therefore, the Tribe reserves its right to make additional comments and recommendations once the environmental documents have been received and fully reviewed. Further, in the event that subsurface cultural resources are identified, the Tribe requests consultation with the Project proponent and Lead Agency regarding the treatment and disposition of artifacts.

Soboba Band of Luiseno Indians responded via mail letter to request to act as a consulting tribal entity for this project. Viejas Band of Kumeyaay Indians replied via mailed letter to advise that although the project area has little cultural ties to them, the Tribe requests to be informed of new developments, such as the inadvertent discovery of cultural artifacts, cremation sites, or human remains. Copies of these letters are referenced in Appendix B.

Cultural Resources Records Search

A cultural resources records search was initially completed on May 1, 2018 at the Eastern Information Center (EIC) at the University of California, Riverside which showed there were no cultural resources that had been previously recorded within the Project area itself. A supplemental study was completed on May 28, 2018 that provided further data on the cultural resource survey reports within the half mile buffer.

The record search of previously documented cultural resources and cultural resource surveys previously completed covers the areas within the boundaries of the Project and within a half mile buffer. The search included a review of all recorded historic and prehistoric archaeological resources and any built-environment historical resources as well. Additionally, this review includes an archival search of the existing cultural resource reports on file with the Information Center. Also included was a search of the California Points of Historical Interest (CPHI), California Historical Landmarks (CHL), California Register of Historical Resources (CALREG), National Register of Historic Places (NRHP), and California State Historic Properties Directory (CHPD) listings. **Table 2 (below)** provides a summary of the previously recorded cultural resource directly located within the half-mile buffer of the Project area.

Table 2. Known Cultural Resources Within a ½ mile Buffer of the Project Area

Primary Number	Trinomial	Age	Type	Evaluation
P-33-017972	None	Historic	Building	J. McKenna (2008)
P-33-018039	None	Historic	Base-Entrance	J. McKenna (2008)

Sites

Site P-33-017972 is a building related to the March Village Medical Campus. Site P-33-018039 is the site of the former entrance to the March Air Force Base.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Table 3 (below) provides a list of the 12 cultural resources survey reports identified from archival studies with the Information Center that are all located within the half-mile buffer of the proposed Project.

Table 3. Cultural Resources Reports Within a ½ mile Buffer of the Project Area

Ctr No.	Authors	Title	Year
RI-00583	Laurence W. Spanne, 1 STRAD/Environmental Task Force, Vandenberg AFB	Report on a Cultural Resources Survey for Three Proposed Construction Locations on March AFB	1986
RI-01978	James Brock, Archaeological Advisory	Archaeological Field Reconnaissance of Proposed Post Office Site, Sunnymead	1985
RI-03510	Meg McDonald Barb Giacomini ASM Affiliates	An Intensive Survey of App. 2,500 Acres of March AFB, Riverside Co., CA	1996
RI-07499	Wayne Bonner Marnie Aislin-Kay M. Brandman Assoc.	Cultural Resource Records Search Results and Site Visit for Motel 7, Moreno Valley, Riverside Co., CA	2007
RI-08272	William Manely Consulting & Earth Tech	Historic Building Inventory and Evaluation, March AFB Riverside Co., CA	1995
RI-08367	Jeannette McKenna McKenna et al.	A Cultural Resources Investigation And Assessment of the Potential Impacts of the Proposed March Village Medical Campus, March AFB, Riverside Co, CA	2008
RI-08398	Jennifer Mermilliod	Cultural Resource Survey and Evaluation of Impacts to the Former March AFB Main Entrance	2008
RI-08799	M. J. Cromarte Cogstone	Concrete Gutter/Swale Installation Project at Naval Operational Support Center Moreno Valley	2014
RI-09619	Sherri Gust, Lynn Furnis Francisco Arellano Cogstone	Cultural Resources Assessment of the Heacock Channel Improvement Project City of Moreno Valley, Riverside Co.	2014
RI-09718	David Brunzell BCR Consulting LLC	Cultural Resources Assessment of the Toby (MCE Design) Project, City of Moreno Valley, Riverside, Col	2016
RI-09836	Carrie Chasteen Caltrans	Historic Property Survey Report: District 8, Riverside Co., Fed. Proj. No HISPL 5441 (062), Moreno Valley, Riverside Co.	2017
RI-10018	Tria Belcourt	Cultural and Paleonotological Records	2016

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Material Culture Consulting	Searches for the Brodiaea Site, Located in Moreno Valley, Riverside Co.

Field Survey

During the field survey conducted on April 14, 2018, the Project area was carefully inspected for the presence of any cultural resources, including prehistoric or historic archeological remains and historic buildings. No cultural resources were discovered for the Project area. The survey was conducted by walking parallel transects in an east-west direction. These transects were spaced approximately 10 to 15 meters apart.

Shovel Test Pits

During the field survey, shovel-test pits were excavated in order to further evaluate the cultural significance of the project area. Ten shovel-test pits were excavated during the survey. The test pits were excavated to a depth of approximately 30 cm. No cultural resources (flaked stone, bone, and charcoal, historic or prehistoric artifacts [e.g. projectiles points, stone tools, unmodified flakes, shell or stone beads]) were found based on the excavations performed at these test pits.

CONCLUSION

This cultural study was completed pursuant to CEQA. Field survey investigations conducted on April 14, 2018 by RCA Associates, Inc. did not identify any cultural resources, including prehistoric / historic archaeological remains or historic buildings within the Project boundaries. Shovel-test pits excavated on the property did not yield any subsurface cultural remains. A cultural resources records search was conducted by SCCIC which showed that no cultural resources had been previously recorded on the Project property.

The NAHC conducted a Sacred Lands File Search and provided a list of potentially interest parties and affiliated Native California individuals and groups to contact. The Sacred Lands File Search yielded negative results for cultural resources in the general project area, however, the area is sensitive to cultural resources. A list of Native American Tribes affiliated with the general area were contacted via mailed letter. Pechanga Cultural Resources office of the Band of Luiseno Mission Indians replied by mailed letter to formally request to be notified and involved in all CEQA environmental review process for the duration of the project. Soboba Band of Luiseno Indians responded via mail letter and requested to act as a consulting tribal entity for this project. Viejas Band of Kumeyaay Indians replied via mailed letter to advise that although the project area has little cultural ties to them, the Tribe requests to be informed of new developments, such as the inadvertent discovery of cultural artifacts, cremation sites, or human remains. Copies of the Native American letter responses are referenced in Appendix B.

If previously undocumented cultural resources are identified during earthmoving activities, a qualified archaeologist should be contacted to assess the nature and significance of the find, diverting construction excavation if necessary. If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

REFERENCES

Barrows, David P.
1900 *The Ethno-Botany of the Coahuilla Indians of Southern California.* University of Chicago Press, Chicago.

Basgall, Mark E.
1988 Archaeology of the Komodo Site, an Early Holocene Occupation in Central Eastern California. In *Early Human Occupation in Far Western North America: The Clovis-Archaic Interface*, edited by Judith A. Willig, C. Melvin Aikens, and John L. Fagan, pp. 103–119. Nevada State Museum Anthropological Papers, Vol. 21. Nevada Department of Cultural Affairs, Division of Museums and History, Carson City, Nevada.

1993 Early Holocene Prehistory of the North-central Mojave Desert. Ph.D. dissertation, Department of Anthropology, University of California, Davis.

2007a Another Look at the Ancient Californians: Resurvey of the Emma Lou Davis Stake Areas and Reassessment of Collections, Naval Air Weapons Station, China Lake, Kern County, California. On file, Naval Air Weapons Station, China Lake, California.

2007b Prehistoric People in an Evolving Landscape: A Sample Survey of the China Lake Basin and its Implications for Paleoindian Land Use. On file, Naval Air Weapons Station, China Lake, California.

2012 Middle Archaic Cultural Adaptations in the Eastern Sierra Nevada: Data Recovery Excavations at CA-INY-1384/H, INY-6249/H, INY-6250, and INY-6251/H. Submitted by Archaeological Research Center, Department of Anthropology, California State University, Sacramento. On file, California Department of Transportation, District 9, Bishop.

Basgall, Mark E. and Mark A. Giambastiani
1995 Prehistoric Use of a Marginal Environment: Continuity and Change in Occupation of the Volcanic Tablelands, Mono and Inyo Counties, California. *Center for Archaeological Research at Davis Publication* 12.

Basgall, Mark E. and Matthew C. Hall
1991 Relationship between Fluted and Stemmed Points in the Mojave Desert. *Current Research in the Pleistocene* 8:61–63.

1992 Fort Irwin Archaeology: Emerging Perspectives on Mojave Desert Prehistory. *Society for California Archaeology Newsletter* 26(5):1–7.

1994 Status Report on Cultural Resources Management at the National Training Center, Fort Irwin, 1993–1994: An Addendum to the Fort Irwin Historic Preservation Plan. Submitted by Far Western Anthropological Research Group, Inc., Davis, California. On file, US Department of Defense, National Training Center, Fort Irwin, California.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

2000 Morphological and Temporal Variation in Bifurcate-Stemmed Dart Points of the Western Great Basin. *Journal of California and Great Basin Anthropology* 22(2):237–276.

Basgall, Mark E. and Kelly R. McGuire
1988 The Archaeology of CA-INY-30: Prehistoric Culture Change in the Southern Owens Valley, California. On file, California Department of Transportation, Office of Environmental Analysis, Sacramento.

Bean, Lowell John
1972 *Mukat's People: The Cahuilla Indians of Southern California*. Berkeley: University of California Press.

1978 Cahuilla. In Handbook of North American Indians, Volume 8, *California*, Robert F. Heizer, editor, pp.575-587. Washington: Smithsonian Institution.

Bean, Lowell John and Charles Smith
1978 Serrano**.** In Handbook of North American Indians, Volume 8, *California*, Robert F. Heizer, editor, pp. 570-574. Washington: Smithsonian Institution.

Bean, Lowell John, and Katherine Siva Saubel
1972 *Temalpakh: Cahuilla Indian Knowledge and Usage of Plants*. Banning: Malki Museum Press.

Bean, Lowell John, and Florence Shipek
1978 Luiseno. In Handbook of North American Indians, Volume 8, Robert F. Heizer, editor, pp. 550-563. Washington: Smithsonian.

Bean, Lowell John, Sylvia Brakke Vane, Michael Lerch, and Jackson Young
1981 *Native American Places in the San Bernardino National Forest*. On file at the Department of Agriculture, United States Forest Service, South Zone Office, Arcadia, California.

Beck, Warren A., and Ynez D. Haase
1974 *Historical Atlas of California*. Oklahoma City: University of Oklahoma Press.

Beck, Charlotte and George T. Jones
1997 The Terminal Pleistocene/Early Holocene Archaeology of the Great Basin. *Journal of World Prehistory* 11(2):161–236.

2010 Clovis and Western Stemmed: Population Migration and the Meeting of Two Technologies in the Intermountain West. *American Antiquity* 75(1):81–116.

Bedwell, Stephen F.
1970 *Prehistory and Environment of the Pluvial Fork Rock Lake Area of South-Central Oregon*. Ph.D. dissertation, Department of Anthropology, University of Oregon, Eugene.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Benedict, Ruth
1924 A Brief Sketch of Serrano Culture. *American Anthropologist* 26(3):366-392.

Bettinger, Robert L.
1978 Alternative Adaptive Strategies in the Prehistoric Great Basin. *Journal of Anthropological Research* 34(1):27–46.

Bettinger, Robert L. and Martin A. Baumhoff
1982 The Numic Spread: Great Basin Cultures in Competition. *American Antiquity* 47(3):485–503.

Bettinger, Robert L. and R. Ervin Taylor
1974 Suggested Revisions in Archaeological Sequences of the Great Basin and Interior Southern California. *Nevada Archaeological Survey Research Papers* 5:1–26. Reno, Nevada.

Blackburn, Thomas C. and Lowell John Bean
1978a Kitanemuk. In Handbook of North American Indians, Volume 8, *California*, Robert F. Heizer, editor, pp. 564-569. Washington: Smithsonian Institution.

1978b Serrano. In Handbook of North American Indians, Volume 8, *California*, Robert F. Heizer, editor, pp. 570-574. Washington: Smithsonian Institution.

Borden, Ferris W.
1971 The Use of Surface Erosion Observations to Determine Chronological Sequence in Artifacts from a Mohave Desert Site. *Archaeological Survey Association of Southern California Papers* 7.

Boscana, Geronimo
1947 *Chinigchinich. A Historical Account of the Origin, Customs, and Traditions of the Indians at the Missionary Establishment of St. Juan Capistrano, Alta-California*. Translated by A. Robinson. Biobooks, Oakland.

Bryan, Alan L.
1988 The Relationship of the Stemmed Point and Fluted Point Traditions in the Great Basin. *Nevada State Museum Anthropological Papers* 22:53–74.

Byrd, Brian F., and Micah Hale
2003 Lacustrine Lifestyles along Owens Lake: National Register Historic Places (NRHP) Evaluation of 15 Prehistoric Sites for the Olancha/Cartago Four-Lane Project, United States Route 395, Inyo County, California. On file, California Department of Transportation, District 6, Fresno.

Campbell, Elizabeth W. Crozer
1931 An Archaeological Survey of the Twenty-Nine Palms Region. *Southwest Museum Papers* 7:1-93. Los Angeles.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Campbell, Elizabeth W. Crozer and William H. Campbell
1935 The Pinto Basin Site: An Ancient Aboriginal Camping Ground in the California Desert. *Southwest Museum Papers* 9:1-51.

Campbell, Elizabeth W. Crozer, Ernst Antevs, Charles E. Amsden, Joseph A. Barbieri, and Francis D. Bode
1937 The Archaeology of Pleistocene Lake Mohave: *A Symposium Southwest Museum Papers*, 11. Los Angeles.

Clewlow, C. William, Jr., Robert F. Heizer, and Rainer Berger
1970 An Assessment of the Radiocarbon Dates for the Rose Spring Site (CA-Iny-372), Inyo County, California. In Papers on Anthropology in the Great Basin, pp. 19-27. *University of California Archaeological Research Facility Contributions* 7.

Davis, Emma Lou
1978 The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country. *Natural History Museum of Los Angeles County,* Science Series 29. Los Angeles.

Davis, James T.
1996 Trade Routes and Economic Exchange among the Indians of California. *University of California Archaeological Survey Reports* No. 54.

DuBois, Cora G.
1908 The Religion of the Luiseno Indians. *University of California Publications in Archaeology and Ethnology* 8(4).

Drucker, Philip
1937 Culture Element Distributions V: Southern California. *University of California Anthropological Records* 1(1):1-52. Berkeley.

Earle, David D.
1990 New Evidence on the Political Geography of the Antelope Valley and Western Mojave Desert at Spanish Contact. In Archaeology and Ethnohistory of Antelope Valley and Vicinity, edited by Bruce Love and William H. DeWitt, pp. 87-104. *Antelope Valley Archaeological Society Occasional Papers* Number 2.

1997 Final Cultural Resources Overview and Management Plan for Edwards AFB, California. Volume 1: Overview of Prehistoric Cultural Resources. On file at the Southern San Joaquin Valley Archaeological Information Center, California State University, Bakersfield

2004a Native Population and Settlement in the Western Mojave Desert in the Eighteenth and Nineteenth Centuries. In *The Human Journey and Ancient Life in California's Deserts: Proceedings from the 2001 Millennium Conference*, Mark W. Allen and Judyth Reed, eds., pp. 173-186. Maturango Museum Press, Ridgecrest, California.

2004b Ethnohistorical and Ethnographic Overview and Cultural Affiliation Study of the Fort

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Irwin Region and the Central Mojave Desert. Report prepared for TRC Solutions Inc., Salt Lake City, Utah. On file with author.

2005a The Mojave River and the Central Mojave Desert: Native Settlement, Travel, and Exchange in the Eighteenth and Nineteenth Centuries. *Journal of California and Great Basin Anthropology* 25(1):1-38.

2005b Chemehuevi Population Movements and the Numic Frontier in the Western and Central Mojave Desert after European Contact. In Papers in Antelope Valley Archaeology and Anthropology edited by Roger W. Robinson, pp. 135-146. *Antelope Valley Archaeological Society Occasional Papers* Number 4.

Delacorte, Michael G.
1994 Late Prehistoric Resource Intensification in the Numic Heartland. Paper presented at the 24th Annual Great Basin Anthropological Conference, Elko, Nevada.

1995 Desert Side-notched Points as a Numic Population Marker in the West-Central Great Basin. Paper presented at the 29th Annual Meeting of the Society for California Archaeology, Eureka, California.

Delacorte, Michael G. and Kelly R. McGuire
1993 Archaeological Test Evaluation at Twenty-three Sites Located Along a Proposed Fiber-Optic Telephone Cable Route in Owens Valley, California. On file, Contel of California, Inc., and Bureau of Land Management, California Desert District.

Driver, Harold E
1937 Culture Element Distributions, VI: Southern Sierra Nevada. *University of California Anthropological Records* 1(2):53–154. Berkeley.

Drucker, Phillip
1939 Culture Element Distribution V, Southern California. *University of California Publications in American Archaeology and Ethnology*, Volume 1.

Eerkens, Jelmer W.
2004 Privatization, Small-Seed Intensification, and the Origins of Pottery in the Western Great Basin. *American Antiquity* 69:653-670.

Elston, Robert G.
1982 Good Times, Hard Times: Prehistoric Culture Change in the Western Great Basin. In Man and Environment in the Great Basin, edited by David B. Madsen and James F. O'Connell, pp. 186–206. *Society for American Archaeology Papers* No. 2, Washington, D.C.

Farmer, Malcolm F.
1935 The Mojave Trade Route. *The Masterkey* 9(5):154-157.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Fenenga, Gerrit
2013 Clovis Blade Technology at the Witt Site, Tulare Lake, California. Paper presented to the Sacramento Archaeology Society, West Sacramento California.

Fitzgerald, Richard T., Terry L. Jones, and Adella Schroth
2005 Ancient Long-distance Trade in Western North America: New AMS Radiocarbon Dates from Southern California. *Journal of Archaeological Science* 32(3):423–434.

Fowler, Catherine
1972 Some Ecological Clues to Proto-Numic Homelands. In Great Basin Cultural Ecology: A Symposium, Don D. Fowler, editor, pp. 105-122. *Desert Research Institute Publication in the Social Sciences* 8, Reno.

Garfinkel, Alan P.
2006 Paradigm Shifts, Rock Art Theory, and the Coso Sheep Cult of Eastern California. *North American Archaeologist* 27(3):203-244.

2007 Archaeology and Rock Art of the Eastern Sierra and Great Basin Frontier. *Maturango Museum Publication* 22. Maturango Museum, Ridgecrest, California.

Garfinkel, Alan P. and Donald R. Austin
2011 Reproductive Symbolism in Great Basin Rock Art: Bighorn Sheep Hunting, Fertility, and Forager Ideology. *Cambridge Archaeological Journal* 21(3):453-471.

Garfinkel, Alan P., Donald R. Austin, David Earle, and Harold Williams
2009 Myth, Ritual and Rock Art: Coso Decorated Animal-Humans and the Animal Master. *Rock Art Research* 26(2):179-197.

Garfinkel, Alan P., Jerry N. Hopkins, and Craig E. Skinner
2008 Ancient Stones of Black Glass: Tracing and Dating Paleoindian Obsidian Artifacts from China and Tulare Lakes. In *Contributions to Tulare Lake Archaeology IV: Ice-age Stone Tools from the San Joaquin Valley,* edited by Jerry N. Hopkins and Alan P. Garfinkel, pp. 59-97. Coyote Press Publications, Salinas, California.

Garfinkel, Alan P., Geron Marcom, and Robert A. Schiffman
2007 Culture Crisis and Rock Art Intensification: Numic Ghost Dance Paintings and Coso Representational Petroglyphs. *American Indian Rock Art* 33:83-103.

Garfinkel, Alan P., Robert A. Schiffman, and Kelly R. McGuire
1980 Archaeological Investigations in the Southern Sierra Nevada: The Lamont Meadow and Morris Peak Segments of the Pacific Crest Trail. *Cultural Resources Publications, Archaeology*. Department of the Interior, Bureau of Land Management, Bakersfield District, Bakersfield, California.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Garfinkel, Alan P. and Harold Williams
2011 *Handbook of the Kawaiisu: A Sourcebook and Guide to Primary Resources on the Native Peoples of the far southern Sierra Nevada, Tehachapi Mountains, and southwestern Great Basin*. Wa-hi Sina'avi Publications, Bakersfield, California.

2015 *The Handbook of the Kawaiisu: A Sourcebook and Guide to Primary Resources on the Native Peoples of the far southern Sierra Nevada, Tehachapi Mountains, and southwestern Great Basin*. Revised Second Edition. Wa-hi San'avi Publications and the Tehachapi Heritage League, Tehachapi, California.

Gifford, Edward
1918 Clans and Moieties in Southern California. *University of California Publications in American Archaeology and Ethnology* 23(1):1-122.

Garfinkel, Alan P., David A. Young, and Robert M. Yohe
2010 Rock Art, Resource Depression, and Ritual Bighorn Hunting in the Coso Range of Eastern California: A Simulation Model. *Journal of Archaeological Science* 37:42-51.

Giambastiani, Mark A.
2008 An Archaeological Survey of 10,121 Acres in the Spangler Hills Open Area and on Adjacent Lands within Searles Valley, Inyo County, California. On file, Bureau of Land Management, Ridgecrest, California.

2011 An Archaeological Inventory of Approximately 2,700 Acres in the Lost Cabin, Water Canyon, and Pyramid Point Areas, North and South Ranges, Naval Air Weapons Station, China Lake, Inyo and San Bernardino Counties, California. Submitted by ASM Affiliates, Inc., Reno, Nevada. On file, Environmental Planning and Management Department, Naval Air Weapons Station, China Lake, California.

Giambastiani, Mark A. and Thomas Bullard
2010 Terminal Pleistocene-Early Holocene Occupations on the Eastern Shoreline of China Lake, California. *Pacific Coast Archaeological Society Quarterly* 43 (1-2):50-70.

Gilreath, Amy J.
2007 Rock Art in the Golden State: Pictographs and Petroglyphs, Portable and Panoramic. In *California Prehistory: Colonization, Culture and Complexity* edited by Terry L. Jones and Kathryn A. Klar, pp. 273-290. Alta Mira Press, New York.

Gilreath, Amy J. and William R. Hildebrandt
1997 Prehistoric Use of the Coso Volcanic Field. *Contributions of the University of California* No. 56. University of California, Berkeley.

2008 Coso Rock Art within its Archaeological Context. *Journal of California and Great Basin Anthropology* 28(1):1–22.

2011 Current Perspectives on the Production and Conveyance of Coso Obsidian. In *Perspectives on Prehistoric Trade and Exchange in California and the Great Basin*, edited by Richard E. Hughes, pp. 171–188. University of Utah Press, Salt Lake City.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Goebel, Ted, Michael R. Waters, and Dennis H. O'Rourke
2008 The Late Pleistocene Dispersal of Modern Humans in the Americas. *Science* 319(5869):1497–1502.

Gold, Alan (Garfinkel)
2005 Linguistic Archaeology: Prehistoric Population Movements and Cultural Identity in the Southwestern Great Basin and far southern Sierra Nevada. Ph.D. dissertation. Department of Prehistoric Forager Ecology. University of California, Davis.

Goldsmith, Paul and Alan P. Garfinkel
2013 *Talking Stone: Rock Art of the Cosos*. E-book, documentary film and photographic archive. Bradshaw Foundation, London.

Grant, Campbell, James. W. Baird, and J. Kenneth. Pringle
1968 Rock Drawings of the Coso Range, Inyo County, California: An Ancient Sheep-hunting Cult Pictured in Desert Rock Carvings. *Maturango Museum Publication* 4. China Lake, California.

Grayson, Donald K.
2011 *The Great Basin: A Natural Prehistory*. Revised and expanded edition. University of California Press, Berkeley.

Harrington, John P.
1986 *John P. Harrington Papers, Volume 3: Southern California / Basin*. Washington: Smithsonian Institution, National Anthropological Archives. [Microfilm edition, Millwood, New York, Kraus, International Publications].

Harrington, Mark R.
1948a An Ancient Site at Borax Lake, California. *Southwest Museum Papers* 16. Southwest Museum, Los Angeles.

1948b A New Pinto Site. *Masterkey* 22(4):116-118.

1949 A New Pinto Site at Little Lake. *Masterkey* 23(5):135-136.

1950a Pinto Man at Little Lake. *Desert Magazine* 13(11):22-24. Los Angeles.

1950b A Storage Cave Near Walker Pass. *Masterkey* 24(3):89-90.

1951 A Colossal Quarry. *Masterkey* 25(1):15-18.

1952 The Fossil Falls Site. *Masterkey* 26(6):191-195.

1953 A Cave Near Little Lake. *Masterkey* 27(3):77-82.

1957 A Pinto Site at Little Lake, California. *Southwest Museum Papers* No. 17. Southwest Museum, Los Angeles.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Haynes, Gregory M.
2004 An Evaluation of the Chronological Relationship between Great Basin Stemmed and Pinto Series Projectile Points in the Mojave Desert. In *Proceedings of the Millennium Conference*: *The Human Journey and Ancient Life in California's Deserts: Proceedings from the 2001 Millennium Conference*, edited by Mark W. Allen and Judyth Reed, pp. 117–128. Maturango Museum Publication Number 15, Ridgecrest, California.

Hedges, Ken
2001 Traversing the Great Gray Middle Ground: An Examination of Shamanistic Interpretations of Rock Art. *American Indian Rock Art* 27:123–136.

Heizer, Robert F. and Martin A. Baumhoff
1961 The Archaeology of Wagon Jack Shelter. *University of California Anthropological Records* 20(4):119-138. Berkeley.

Heizer, Robert F., Martin A. Baumhoff, and C. William Clewlow, Jr.
1968 Archaeology of South Fork Shelter (NV-EL-11), Elko County, Nevada. *University of California Archaeological Survey Reports* 71:1-58. Berkeley.

Heizer, Robert F., Herbert R. Harvey, and Nora C. Willoughly
1974 *California Indians II*. Garland Publishing, New York.

Heizer, Robert F. and Thomas R. Hester
1978 Great Basin. In *Chronologies in New World Archaeology*, edited by R. Ervin Taylor and Clement W. Meighan, pp. 147-199. Academic Press, New York.

Heizer, Robert F. and M. A. Whipple
1951 *The California Indians*. University of California Press, Berkeley.

Hildebrandt, William R. and Kelly R. McGuire
2002 The Ascendance of Hunting during the California Middle Archaic: An Evolutionary Perspective. *American Antiquity* 67(2):231–256.

Johnson, John R. and Joseph G. Lorenz
2006 Genetics, Linguistics, and Prehistoric Migrations: An Analysis of California Indian Mitochondrial DNA Lineages. *Journal of California and Great Basin Anthropology* 26(1):33-64.

Justice, Noel D.
2002 *Stone Age Spear and Arrow Points of California and the Great Basin*. Indiana University Press, Bloomington, Indiana.

Kelly, Robert L.
1983 Hunter-Gatherer Mobility Strategies. *Journal of Anthropological Research* 39:277–306.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

1985 *Hunter-Gatherer Mobility and Sedentism: A Great Basin Study*. Ph.D. dissertation, Department of Anthropology, University of Michigan, Ann Arbor.

1988 Three Sides of a Biface. *American Antiquity* 53:717–734.

King, Chester
2003 Japchibit Ethnohistory. On file at the United States Department of Agriculture, Angeles National Forest.

Kroeber, Alfred. L.
1908 Ethnography of the Cahuilla Indians. *University of California Publications in Archaeology and Ethnology* 8(1).

1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Washington, D.C.

Kyle, D.E.
1990 *Historic Spots in California*. Palo Alto: Stanford University Press.

Lamb, Sydney
1958 Linguistic Prehistory in the Great Basin. *International Journal of American Linguistics* 24(2):95–100.

Lanning, Edward P.
1963 The Archaeology of the Rose Spring Site (INY-372). *University of California Publications in American Archaeology and Ethnology* 49(3):327–336. Berkeley.

Leakey, Louis S. B., Ruth D. Simpson, and Thomas Clements
1968 Excavations at Nine Prehistoric Sites in in the Calico Mountains, California: Preliminary Report. *Science* 160:1022–1033.

Lengner, Kenneth R.
2013 *A Prehistory and History of the Death Valley Region's Native Americans and the Environments In Which They Lived*. Deep Enough Press, Pahrump, Nevada.

Masiel-Zamora, Myra

2016 *'Ėxva Temeeku: Where We Began*. Great Oak Press, Pechanga, California.

McGuire, Kelly R. and Alan P. Garfinkel
1976 The Development of Pinyon Exploitation in Central Eastern California. *The Journal of California Anthropology* 3(2):83–85.

1980 Archaeological Investigations in the Southern Sierra Nevada: The Bear Mountain Segment of the Pacific Crest Trail. *Cultural Resources Publication, Archaeology*. Bureau of Land Management, Bakersfield, California. Reprinted by Coyote Press, Salinas, California.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

McGuire, Kelly R., Alan P. Garfinkel, and Mark E. Basgall
1982 Archaeological Investigations in the El Paso Mountains of the Western Mojave Desert: The Bickel and Last Chance Sites, CA-Ker-250, -261. On file, Bureau of Land Management, Ridgecrest, California.

McGuire, Kelly R. and William R. Hildebrandt
2005 Re-thinking Great Basin Foragers: Prestige Hunting and Costly Signaling During the Middle Archaic Period. *American Antiquity* 70:695–712.

Mehringer, Peter J., Jr. and J. C. Sheppard
1978 Holocene History of Little Lake, Mojave Desert, California. In *The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country*, edited by Emma Lou Davis, pp. 153-166. *Natural History Museum of Los Angeles County, Science Series* 29.

Meyer, Jack and Jeffrey S. Rosenthal
2010 Filling the Middle Holocene Gap. *California Archaeology* 2(2):279–283.

Moratto, Michael J.
1984 *California Archaeology*. Academic Press, New York.

Moratto, Michael, Garfinkel, Alan P., Robert M. Yohe, II, Alexander K. Rogers, Tim R. Carpenter, Craig Skinner, Jeff Rosenthal, Michael F. Rondeau, and Jon M. Erlandson
2018 Clovis in the Far West: Classification and Chronology of Western Fluted and End-thinned Points from the Rose Valley Sites, Inyo County, California. *Journal of California Archaeology* 10(1):27-60.

Moreno Valley, City of
1996-2006 The History of Moreno Valley. Electronic document, http://www.ci.moreno-valley, ca.us/community/about/city-history.html. Accessed July 10, 2006.

O'Connell, J. F.
1967 Elko Eared/Elko Corner-notched Projectile Points as Time Markers in the Great Basin. *University of California Archaeological Survey Reports* 70:129-140. Berkeley.

Robinson, Alfred
1947 *Life in California. A Historical Account of the Origin, Customs, and Traditions of the Indians of Alta-California*. Biobooks, Oakland.

Robinson, Roger
1977 The Prehistory of the Antelope Valley, California. An Overview. *Kern County Archaeological Society Journal* 1:43-48.

Rogers, Malcolm J.
1939 Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas. *San Diego Museum of Man Archaeological Papers* 3. San Diego, California.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

1966 How Stones Became Tools and Weapons. In *Ancient Hunters of the Far West*, pp. 139–192. Union-Tribune Publishing Company, San Diego.

Rondeau, Michael, Jim Cassidy, and Terry L. Jones
2007 Colonization Technologies: Fluted Projectile Points and the San Clemente Island Woodworking/ Microblade Complex. In *California Prehistory: Colonization, Culture and Complexity* edited by Terry L. Jones and Kathryn A. Klar, pp. 63-70. Alta Mira Press, Lanham, Maryland.

Sample, L. L.
1950 Trade and Trails in Aboriginal California. *University of California Archaeological Survey Reports* 8. Berkeley.

Schneider, Joan S., H. C. L. Brewer, and Matthew C. Hall
2000 Research, Inventory, and Management Strategies for At-Risk and Other Prehistoric Cultural Resources, Death Valley National Park, California: Program Design Report. On file, Eastern California Information Center, University of California, Riverside, California.

Schroth, Adella B.
1994 *The Pinto Point Controversy in the Western United States*. Ph.D. dissertation, Department of Anthropology, University of California, Riverside, California.

Schuiling, Walter C.
1984 *San Bernardino County: Land of Contrasts*. Windsor Publications, Woodland Hills, California.

Shipek, Florence C.
1977 *A Strategy for Change. The Luiseno of Southern California*. Ph.D. dissertation, University of Hawaii. University Microfilms International, Ann Arbor, Michigan.

Shott, Michael J.
1986 Technological Organization and Settlement Mobility: An Ethnographic Examination. *Journal of Anthropological Research* 42(1):15–51.

1989 On Tool-Class Use Lives and the Formation of Archaeological Assemblages. *American Antiquity* 54(1):9–30.

Smith, Gerald A. and Steven M. Freers
1994 *Fading Images: Indian Pictographs of Western Riverside County*. Riverside Museum Press, Riverside, California.

Sparkman, Philip S.
1908 The Culture of the Luiseno Indians. *University of California Publications in Archaeology and Ethnology* 8(4).

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Stewart, Richard, Russell Kaldenberg, and Alexander Rogers
2005 Petroglyphs as Story-Boards: Providing Text for Ritual and Tradition and Recounting the "Power" Experience. In Something Resembling an Archaeologist: Papers in Memory of Paul H. Ezell, edited by Russell Kaldenberg. *San Bernardino County Museum Quarterly* 54(4):209-220. San Bernardino County Museum, Redlands,

Strong, William Duncan
1929 Aboriginal Society in Southern California. *University of California Publications in American Archaeology and Ethnology* 26(1):1-358.

Sutton, Mark Q.
1980 Some Aspects of Kitanemuk Prehistory. *Journal of California and Great Basin Anthropology* 2(2):214-225.

Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen
2007 Advances in Understanding Mojave Desert Prehistory. In *California Prehistory: Colonization, Culture and Complexity* edited by Terry L. Jones and Kathryn A. Klar, pp. 229-246. Alta Mira Press, New York.

Talley, R. Paige
1982 *The Life History of a Luiseno Indian: James (Jim) Martinez*. Unpublished M.A. Thesis, Department of Anthropology, San Diego State University.

Thomas, David H.
1981 How to Classify the Projectile Points from Monitor Valley, Nevada. *Journal of California and Great Basin Anthropology* 3(1):7-43.

1983a The Archaeology of Monitor Valley 1: Epistemology. *Anthropological Papers of the American Museum of Natural History* 58(1). American Museum of Natural History, New York.

1983b The Archaeology of Monitor Valley 2: Gatecliff Shelter. *Anthropological Papers of the American Museum of Natural History* 59(1). American Museum of Natural History, New York.

Ugan, Andrew S. and Jeffrey S Rosenthal
2013a Archaeological Testing and National Register Evaluations of 40 Sites within Airport Lake, Charlie, and George Target Ranges, Naval Air Weapons Station China Lake, Inyo and Kern Counties, California. Submitted by Far Western Anthropological Research Group, Inc., Davis, California. On file, Naval Facilities Engineering Command, Southwest Division, San Diego, California.

Van Tilburg, Jo Anne, Gordon E. Hull, and John C. Bretney (editors)
2012 *Rock Art at Little Lake: An Ancient Crossroads in the California Desert*. Cotsen Institute of Archaeology, University of California, Los Angeles.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Vaughan, Sheila J. and Claude N. Warren
1987 Toward a Definition of Pinto Points. *Journal of California and Great Basin Anthropology* 9:199–213.

Wallace, William J.
1962 Prehistoric Cultural Development in the Southern Californian Deserts. *American Antiquity* 28(2):172–180.

Warren, Claude N.
1967 The San Dieguito Complex: A Review and Hypothesis. *American Antiquity* 32(2):168–185.

1984 The Desert Region. In *California Archaeology*, by Michael J. Moratto, pp. 339–430. Academic Press, Orlando, Florida.

1986 Projectile Points. *In Flood, Sweat, and Spears in the Valley of Death: Site Survey and Evaluation in Tiefort Basin, Fort Irwin, California*, edited by Dennis L. Jenkins, pp. 195–218. Coyote Press, Salinas, California.

2008 The Age of Clovis Points at China Lake, California. In Avocados to Millingstones: Papers in Honor of D. L. True, edited by Georgie Waugh and Mark E. Basgall. *Monographs in California and Great Basin Anthropology* Vol. 5, Archaeological Research Center, Department of Anthropology, California State University, Sacramento.

Warren, Claude N. and Robert H. Crabtree
1986 Prehistory of the Southwestern Area. In *Great Basin*, edited by Warren L. d'Azevedo, pp. 183–193. Handbook of North American Indians, Vol. 11, William C. Sturtevant, general editor. Smithsonian Institution, Washington, DC.

Warren, Claude N. and Joan S. Schneider
2003 Pleistocene Lake Mojave Stratigraphy and Associated Cultural Material. *Proceedings of the Society for California Archaeology* 16:61–74.

Warren, Claude N., Delbert Leroy True and A. A. Eudey
1961 Early Gathering Complexes of Western San Diego County: Results and Interpretations of an Archaeological Survey. *University of California, Los Angeles, Archaeological Survey Annual Report* 1960-1961:1-106.

Waters, Michael R. and Thomas W. Stafford
2007 Redefining the Age of Clovis: Implications for the Peopling of the Americas. *Science* 315:1122–1126.

Waters, Michael R., Thomas W. Stafford, H. G. McDonald, C. Gustafson, M. Rasmussen, E. Cappellini, J. V. Olsen, D. Szklarczyk, L. J. Jensen, M. Thomas P. Gilbert, and E. Willerslev
2011 Pre-Clovis Mastodon Hunting 13,800 Years Ago at the Manis Site, Washington. *Science* 334:351–353.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

White, Raymond C.
1963 Luiseño Social Organization. *University of California Publications in American Archaeology and Ethnology* 48(2):91-194.

Whitley, David S.
1987 Comment on the Signs of All Times by J. D. Lewis-Williams and Thomas A. Dowson. *Current Anthropology* 29(2):238.

1998 History and Prehistory of the Coso Range: The Native American Past on the Western Edge of the Great Basin. In *Coso Rock Art: A New Perspective*, edited by Eva Younkin, pp. 29-68. Ridgecrest: Maturango Press.

2003 What is Hedges Arguing About? *American Indian Rock Art* 29:83-104.

Whitley, David S. and Ronald I. Dorn
1987 Rock Art Chronology in Eastern California. *World Archaeology* 19:150-164.

2010 The Coso Petroglyph Chronology. *Pacific Coast Archaeological Society Quarterly* 43: 135-157.

Wigand, Peter E. and Rhode, David
2002 Great Basin Vegetation history and aquatic systems: The Last 150,000 years. In *Great Basin Aquatic Systems History*, edited by R. Hershler, David R. Madsen, and D. R. Currey, Smithsonian Contributions to the Earth Sciences 33:309.

Willig, Judith A. and C. Melvin Aikens
1988 The Clovis-Archaic Interface in Far Western North America. In Early Human Occupation in Western North America: The Clovis-Archaic Interface, edited by Judith A. Willig, C. Melvin Aikens and John L. Fagan, pp. 1–40. *Nevada State Museum Anthropological Papers.* Vol. 21. Carson City, Nevada.

Yohe, Robert, II
1992 *A Re-evaluation of Western Great Basin Cultural Chronology and Evidence for the Timing of the Introduction of the Bow and Arrow to Eastern California Based on New Excavations at the Rose Spring Site (CA-INY-372)*. Ph.D. dissertation, Department of Anthropology, University of California, Riverside.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

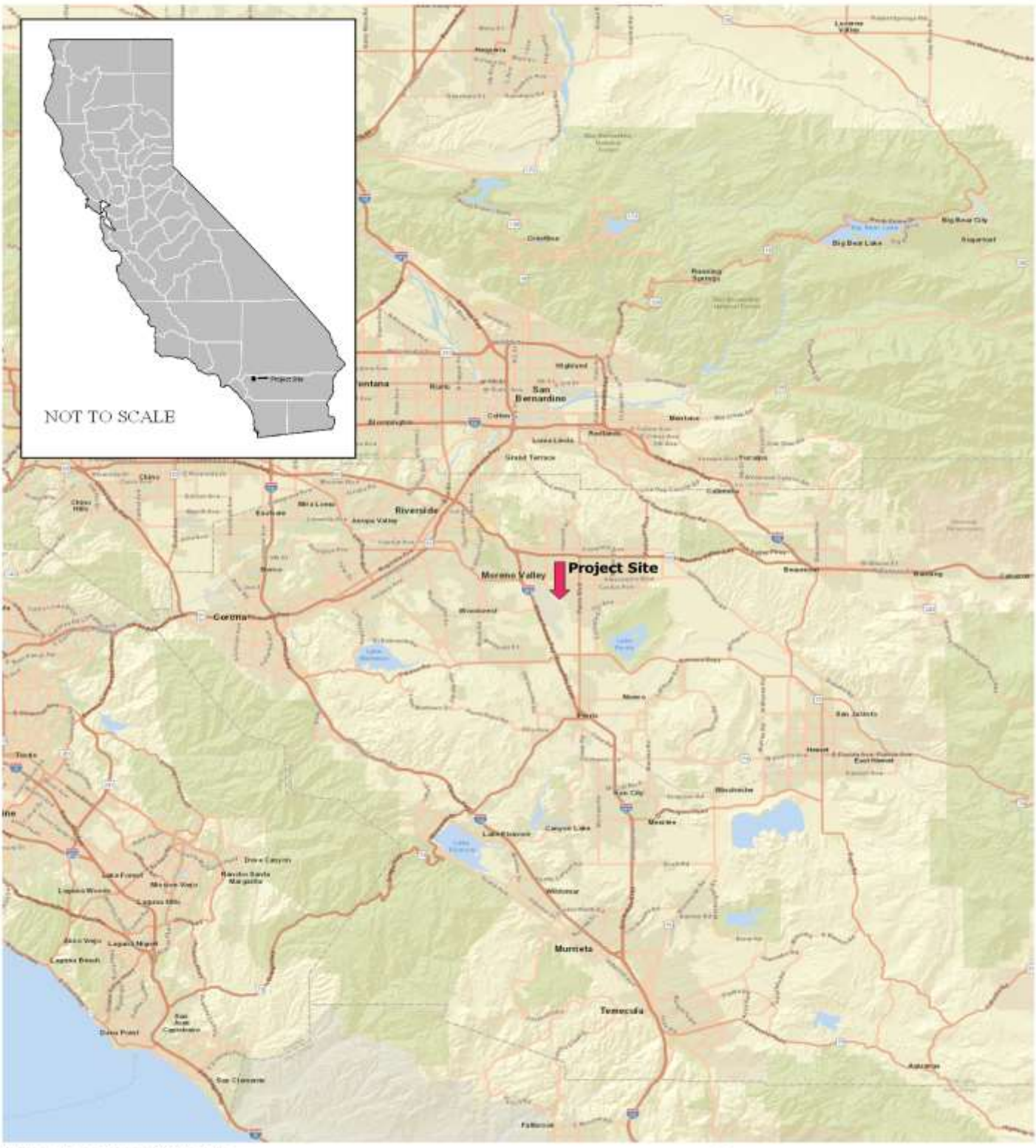
Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Appendix A

Figures

Figure 1

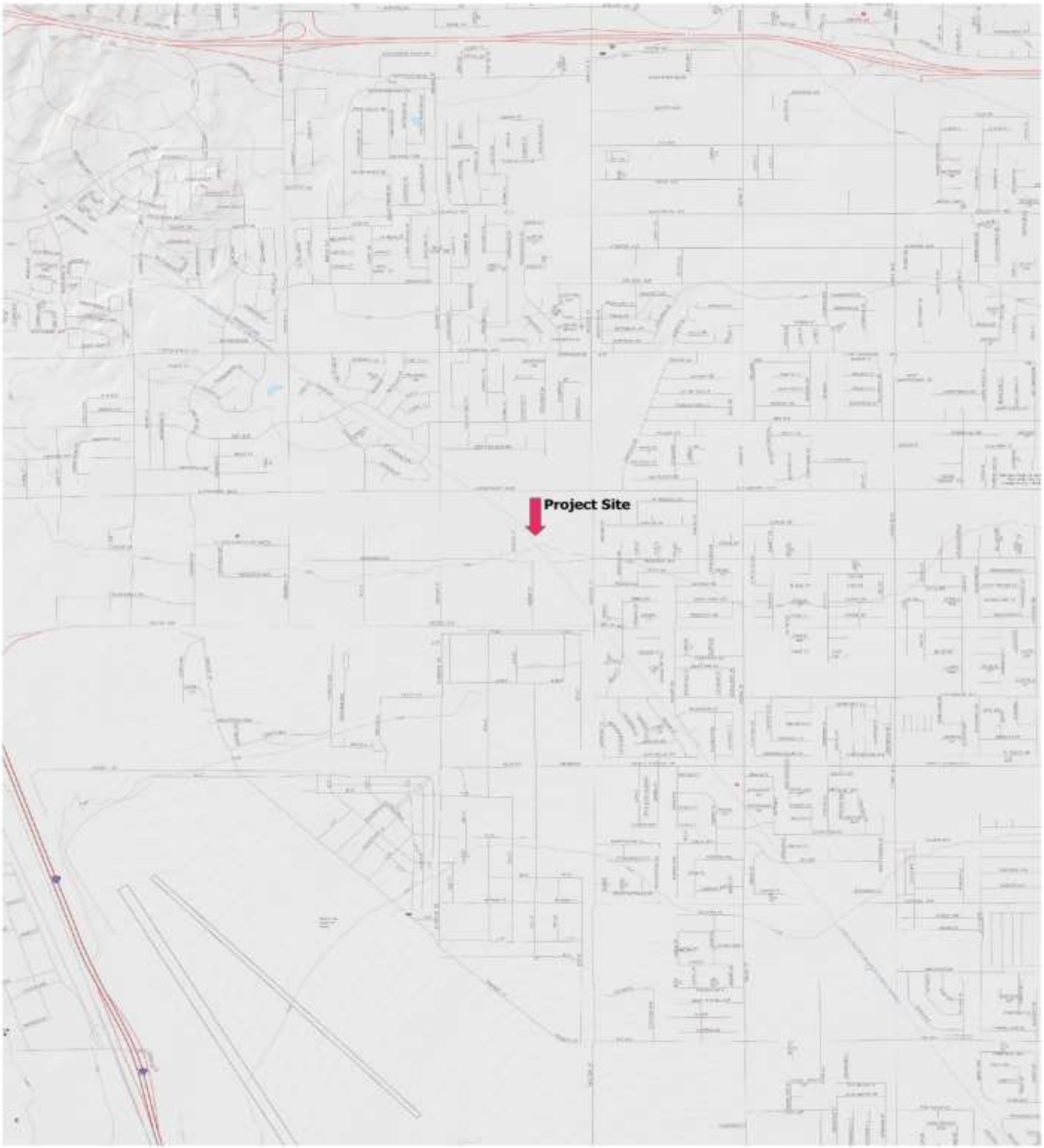
Regional Vicinity Map



Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Figure 2

Local Topographic Map



RCA ASSOCIATES, INC

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Figure 3

Local Vicinity Map

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Site Photographs

SITE LOOKING NORTH

SITE LOOKING EAST

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Site Photographs Cont.

SITE LOOKING SOUTH

SITE LOOKING WEST

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Appendix B

Native American Consultation

RCA
ASSOCIATES, INC

15555 Main Street, #D4-235
Hesperia, California 92345
(760) 956-9212 fax (760) 244-0791
rca123@aol.com
www.rcaassociatesllc.com

April 13, 2018

Michael Mirelez, Cultural Resource Coordinator
Torres- Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA 92274

Dear Mr. Mirelez,

I am writing you to bring to your attention a proposed project in compliance with CEQA and the City of Moreno Valley. The proposed project is a business park which includes 7 buildings. The property is located on Rebecca Street and Brodiaea Avenue (APN 297-170-083) (Township 3 south, Range 4 west, Section 12) USGS Riverside East, California 2015.

As part of the cultural resources study for the project, I am requesting your insight on potential Native American cultural properties and resources in or near the area of potential effect. Please respond at your earliest convenience if you have any information to consider for this study. Thank you.

Respectfully,

Alina Landa
Cultural Resource Specialist
RCA Associates, LLC
Email: alinalanda@ymail.com

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

PECHANGA CULTURAL RESOURCES
Temecula Band of Luiseño Mission Indians

Post Office. Box 2183 • Temecula, CA 92593
Telephone (951) 770-6300 • Fax (951) 506-9491

Chairperson:
Neal Ibanez

Vice Chairperson:
Bridgett Barcello

Committee Members:
Andrew Masiel, Sr.
Darlene Miranda
Evie Gerber
Richard B. Scearce, III
Robert Villalobos

Director:
Gary DuBois

Coordinator:
Paul Macarro

Planning Specialist:
Tuba Ebru Ozdil

May 7, 2018

VIA E-Mail and USPS

Alina Landa, Cultural Resource Specilaist
RCA Associates, Inc.
15555 Main Street, #D4-235
Hesperia, CA 92345

RE: Request for Information for the Rebecca and Brodiaea Project in the City of Moreno Valley.

Dear Ms. Landa,

The Pechanga Band of Luiseño Indians ("the Tribe") appreciates your request for information regarding the above referenced Project. After reviewing the provided maps and our internal documents, we have determined that the Project area is not within reservation lands although it is within our ancestral territory.

The Tribe is interested in participating in this Project based upon traditional knowledge of the area. The Tribe formally requests, pursuant to Public Resources Code §21092.2, to be notified and involved in the entire CEQA environmental review process for the duration of the above referenced project (the "Project").

The Tribe is dedicated to providing comprehensive cultural information to you and your firm for inclusion in the archaeological study as well as to the Lead Agency for CEQA review. At this time, the Tribe requests the following so we may continue the consultation process and to provide adequate and appropriate recommendations for the Project:

1) Notification once the Project begins the entitlement process, if it has not already;
2) Copies of all applicable archaeological reports, site records, proposed grading plans and environmental documents (EA/IS/MND/EIR, etc);
3) Government-to-government consultation with the Lead Agency; and
4) The Tribe believes that monitoring by a Riverside County qualified archaeologist and a professional Pechanga Tribe monitor may be required during earthmoving activities. Therefore, the Tribe reserves its right to make additional comments and recommendations once the environmental documents have been received and fully reviewed. Further, in the event that subsurface cultural resources are identified, the Tribe requests consultation with the Project proponent and Lead Agency regarding the treatment and disposition of all artifacts.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

As a sovereign governmental entity, the Tribe is entitled to appropriate and adequate government-to-government consultation regarding the proposed Project. We would like you and your client to know that the Tribe does not consider initial inquiry letters from project consultants to constitute appropriate government-to-government consultation, but rather tools to obtain further information about the Project area. Therefore, the Tribe reserves its rights to participate in the formal environmental review process, including government-to-government consultation with the Lead Agency, and requests to be included in all correspondence regarding this Project.

Please note that we are interested in participating in surveys within Luiseño ancestral territory. Prior to conducting any surveys, please contact the Cultural Department to schedule specifics. Please be advised, the lead contact for this project is Ebru Ozdil and she can be reached at eozdil@pechanga-nsn.gov or at (951) 770-6313. If you have any questions or concerns regarding this letter, please contact me at crs@pechanga-nsn.gov or 951-770-6314.

Sincerely,

Molly Earp-Escobar
Cultural Resource Specialist

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

May 9, 2018

Attn: Alina Landa, Cultural Resource Specialist
RCA Associates, LLC
15555 Main Street, #D4-235
Hesperia, CA 92345

RE: proposed Business Park, which includes 7 buildings – located on Rebecca Street and Brodiaea Avenue (APN 297-170-083) – City of Moreno Valley, Riverside County, CA

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation in your project. The information provided to us on said project has been assessed through our Cultural Resource Department, where it was concluded that although it is outside the existing reservation, the project area does fall within the bounds of our Tribal Traditional Use Areas. This project location is in proximity to known sites, is a shared use area that was used in ongoing trade between the tribes, and is considered to be culturally sensitive by the people of Soboba.

Soboba Band of Luiseño Indians is requesting the following:

1. To initiate a consultation with the project proponents and lead agency.
2. The transfer of information to the Soboba Band of Luiseno Indians regarding the progress of this project should be done as soon as new developments occur.
3. Soboba Band of Luiseño Indians continues to act as a consulting tribal entity for this project.
4. Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests that Native American Monitor(s) from the Soboba Band of Luiseño Indians Cultural Resource Department to be present during any ground disturbing proceedings. Including surveys and archaeological testing.
5. Request that proper procedures be taken and requests of the tribe be honored (Please see the attachment)

Multiple areas of potential impact were identified during an in-house database search. Specifics to be discussed in consultation with the lead agency.

Sincerely,

Joseph Ontiveros, Tribal Historic Preservation Officer
Soboba Band of Luiseño Indians
P.O. Box 487
San Jacinto, CA 92581
Phone (951) 654-5544 ext. 4137
Cell (951) 663-5279
jontiveros@soboba-nsn.gov

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Cultural Items (Artifacts). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer should agree to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

The Developer should waive any and all claims to ownership of Native American ceremonial and cultural artifacts that may be found on the Project site. Upon completion of authorized and mandatory archeological analysis, the Developer should return said artifacts to the Soboba Band within a reasonable time period agreed to by the Parties and not to exceed (30) days from the initial recovery of the items.

Treatment and Disposition of Remains.

A. The Soboba Band shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity.

B. The Soboba Band, as MLD, shall complete its inspection within twenty-four (24) hours of receiving notification from either the Developer or the NAHC, as required by California Public Resources Code § 5097.98 (a). The Parties agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes.

C. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The Soboba Band, as the MLD in consultation with the Developer, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains.

D. All parties are aware that the Soboba Band may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near, the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The Developer should accommodate on-site reburial in a location mutually agreed upon by the Parties.

E. The term "human remains" encompasses more than human bones because the Soboba Band's traditions periodically necessitated the ceremonial burning of human remains. Grave goods are those artifacts associated with any human remains. These items, and other funerary remnants and their ashes are to be treated in the same manner as human bone fragments or bones that remain intact

Coordination with County Coroner's Office. The Lead Agencies and the Developer should immediately contact both the Coroner and the Soboba Band in the event that any human remains are discovered during implementation of the Project. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c).

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

Non-Disclosure of Location Reburials. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer agrees to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

Confidentiality: The entirety of the contents of this letter shall remain confidential between Soboba and RCA Associates, LLC. No part of the contents of this letter may be shared, copied, or utilized in any way with any other individual, entity, municipality, or tribe, whatsoever, without the expressed written permission of the Soboba Band of Luiseño Indians.

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

VIEJAS
TRIBAL GOVERNMENT

P.O. Box 908
Alpine, CA 91903
#1 Viejas Grade Road
Alpine, CA 91901

Phone: 6194453810
Fax: 6194455337
viejas.com

April 25, 2018

Alina Landa
Cultural Resource Specialist
RCA Associates, LLC
15555 Main Street, #D4-235
Hesperia, CA 92345

Re: Business Park Located on Rebecca St. and Brodiaea Ave. Project

Dear Ms. Landa,

The Viejas Band of Kumeyaay Indians ("Viejas") has reviewed the proposed project and at this time we have determined that the project site has little cultural significance or ties to Viejas. We further recommend that you contact the tribe(s) closest to the cultural resources. We, however, request to be informed of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains in order for us to reevaluate our participation in the government-to-government consultation process.

Please do not hesitate to contact me if you have further questions. Please call Ernest Pingleton at 619-659-2314 or me at 619-659-2312, or email, epingleton@viejas-nsn.gov or rteran@viejas-nsn.gov. Thank you.

Sincerely,

Ray Teran, Resource Management
VIEJAS BAND OF KUMEYAAY INDIANS

Attachment: Phase 1 Cultural Resource Assessment (3285 : PAMA Business Center)

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Subject Property Address

APN 297-170-077

Moreno Valley, CA

Odic Project Number

6363793ESAI

Report Date

4/19/2017

Prepared for

Mr. Everet Miller

Pama Management Co.

4900 Santa Anita Avenue #2C

El Monte, CA 91731

Odic Environmental

Environmental Consulting and Real Estate Due Diligence
3255 Wilshire Blvd. Suite 1510, Los Angeles, CA 90010
888.634.2368, 888.ODICENV, Fax 213-380-0505

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Odic Environmental

Environmental Consulting and Real Estate Due Diligence

3255 Wilshire Blvd. Suite 1510, Los Angeles, CA 90010
888.634.2368, 888.ODICENV, Fax 213-380-0505

4/19/2017

Mr. Everet Miller

Pama Management Co.

4900 Santa Anita Avenue #2C

El Monte, CA 91731

Phone: 626-575-3070 ext. 228

Fax: 626-575-3084

Attached please find our PHASE I ENVIRONMENTAL SITE ASSESSMENT, ("the Report") for the above-mentioned Subject Property. This report has been prepared by Odic for the Client under the professional supervision of the principal and/or senior staff whose seal(s) and signatures appear hereon. Neither Odic, nor any staff member assigned to this investigation has any interest or contemplated interest, financial or otherwise, in the subject or surrounding properties, or in any entity which owns, leases, or occupies the subject or surrounding properties , and has no personal bias with respect to the parties involved.

The assessment was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession, and in accordance with generally accepted practices of other consultants currently practicing in the same locality under similar conditions. No other representation, expressed or implied, and no warranty or guarantee is included or intended. The Report speaks only as of its date, in the absence of a specific written update of the Report, signed and delivered by Odic.

There are no intended or unintended third party beneficiaries to this Report, unless specifically named. Odic is an independent contractor, not an employee of either the issuer or the borrower, and its compensation was not based on the findings or recommendations made in the Report or on the closing of any business transaction. Thank you for the opportunity to prepare this Report, and assist you with this project. Please call us if you have any questions or if we may be of further assistance.

By signing below, Odic declares that, to the best of our professional knowledge and belief, the undersigned meet the definition of an Environmental Professional as defined in §312.10 of 40 CFR 312 and have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. Odic has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Respectfully Submitted,

Mike Miller

Senior Consultant per §312.10 of 40 CFR 312

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

ODICE-1

2.I

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 03/14/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Van Oppen & Co. 2, Inc. P.O. Box 793 Teton Village, WY 83025 Rick van Oppen	CONTACT NAME: Brenda Todd PHONE (A/C, No, Ext): 800-746-0048 FAX (A/C, No): E-MAIL ADDRESS: service@vanoppenco2.com
INSURED ODIC Environmental, Inc. 3255 Wilshire Blvd., #1510 Los Angeles, CA 90010	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A: Westchester Surplus Lines — 10172 INSURER B: SCIF — 35076 INSURER C: Hartford Accident & Indemnity — 22357 INSURER D: INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE / X OCCUR X CPL(Pollution) GEN'L AGGREGATE L MIT APPL ES PER: X POLICY / PRO-JECT / LOC OTHER:			G27165357 002	10/21/2015	10/21/2017	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ $ $ $ $ $	1,000, 100, 10, 1,000, 2,000, 2,000,
C	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS / X SCHEDULED AUTOS X HIRED AUTOS / X NON-OWNED AUTOS			34UECVT5982	10/24/2016	10/24/2017	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ $ $ $	1,000,
A	UMBRELLA LIAB / X OCCUR X EXCESS LIAB / X CLAIMS-MADE DED / X RETENTION $ $0			G27165473 002	10/21/2015	10/21/2017	EACH OCCURRENCE AGGREGATE XS GL/CPL	$ $ $	4,000, 4,000, E&O/AL
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N (Mandatory in NH) If yes, describe under DESCR PTION OF OPERATIONS below	N / A		9095492-17	04/01/2017	04/01/2018	X PER STATUTE / OTH-ER E.L. EACH ACC DENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $	1,000, 1,000, 1,000,
A	Professional Liab "Claims Made"			G27165357 002 SUBJECT TO GL AGG	10/21/2015	10/21/2017	Ea Claim Aggregate		1,000, 2,000,

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Umbrella policy provides additional limits/coverage over primary General Liability, Contractors Pollution Liability, Professional Liability, Auto Liability and Employer's Liability.

CERTIFICATE HOLDER

General Information

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

F. van Oppen

© 1988-2014 ACORD CORPORATION. All rights reserved.

The ACORD name and logo are registered marks of ACORD

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

TABLE OF CONTENTS

EXECUTIVE SUMMARY 2
1.0 INTRODUCTION 4
2.0 PROPERTY DESCRIPTION 10
2.1 Project Information 10
2.2 Property Improvements 10
2.3 Property Occupants & Use 11
2.4 Municipal Services & Utilities 11
2.5 Physical Setting 11
3.0 PROPERTY RECONNAISSANCE 13
3.1 Limiting Conditions 13
3.2 Property Reconnaissance 13
3.3 Detailed Description of Site Reconnaissance and Environmental Conditions 15
3.4 Current Uses of Adjacent Properties 15
3.5 Non-Scope (Non-ASTM) Considerations 15
4.0 PROPERTY AND VICINITY HISTORY 19
4.1 Previous Environmental Reports 19
4.2 Sanborn Map Company Fire Insurance Maps 19
4.3 Historical Aerial Photographs 19
4.4 Local Street Directories / Historical City Directories 20
4.5 City/County Building Department, Zoning/Land Use, Property Tax Records, Profiles 21
4.6 Historical Topographic Maps 21
4.7 Oil & Gas Maps 21
4.8 Other Historical Records 21
5.0 STANDARD ENVIRONMENTAL RECORDS RESEARCH 22
5.1 Procedure 22
5.2 Property Listing(s) 22
5.3 Surrounding Sites: Federal Agency Listings 23
5.4 Surrounding Sites: State Agency Listings 24
5.5 Vapor Encroachment Condition 25
6.0 USER PROVIDED INFORMATION 26
6.1 User Provided Information 26
6.2 Preliminary Title Report or Land Title Records 28
6.3 Interviews 28
7.0 CONCLUSIONS 29
8.0 RECOMMENDATIONS AND OPINIONS 30
9.0 REFERENCES 31

APPENDIX A – PROPERTY LOCATION MAP & PLOT PLAN
APPENDIX B – PROPERTY & VICINITY PHOTOGRAPHS
APPENDIX C – DATABASE REPORT
APPENDIX D – HISTORICAL RECORDS SEARCH
APPENDIX E – PUBLIC AGENCY RECORDS / OTHER RELEVANT DOCUMENTS
APPENDIX F – QUALIFICATION OF ENVIRONMENTAL PROFESSIONAL

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

ODIC Environmental (hereinafter referred to as ODIC) performed a *Phase I Environmental Site Assessment* (hereinafter *Phase I ESA* or *Report*) of the subject property (hereinafter referred to as the Property) in conformance with the scope and limitations of ASTM Standard Practice E1527-13. Any exceptions to or deletions from this practice are described in the individual sections of this Report. A summary of findings is provided below:

REPORT COMPONENT	SUMMARY OF FINDINGS
Current Property Address(es)	The Property does not have an assigned street address. It is identified as APN # 297-170-083-9, Alessandro Boulevard, Moreno Valley, Riverside County, CA 92553.
Property Description	The Property is a 16.77-acre irregular-shaped vacant parcel of land. There are no improvements, and the Property unpaved dirt with natural vegetation (weeds). Access to the Property is from Alessandro Boulevard, adjacent to the north; Brodiaea Avenue, adjacent to the south; and Rebecca Street, adjacent to the west.
Summary of Property Reconnaissance	The Property is vacant undeveloped land. There were no issues of environmental concern observed.
Historical Use of the Property and Vicinity	The Property is vacant land that has never been developed. The immediate vicinity was vacant land until commercial development began in the 1990s and light industrial development began in the 2000s. The immediate vicinity has been a mixture of commercial/light industrial development and vacant land since that time.
Federal, State, and Local Agency Records Research	The Property was not identified on any of the researched environmental databases. Refer to Section 5.2 for records research details.
Potential Off-site Concerns	There were no potential offsite concerns identified.
Non-Scope Items	Unless the *Client* contracted ODIC to investigate specific Non-Scope or Non-CERCLA items, evaluation of Non-Scope or Non-CERCLA items, including those addressed in Section 3.5 of this Report, is not required nor relevant for compliance with the AAI Rule or ASTM Standard Practice E1527-13.
Inaccessible or Un-surveyed Portions of the Property	Full access to the entire property was provided to ODIC.
Significant Data Gap	There were no significant data gaps identified.
Conclusion	REC identified: ☐ Yes ☒ No HREC identified: ☐ Yes ☒ No CREC identified: ☐ Yes ☒ No Significant data gap identified: ☐ Yes ☒ No For detailed discussion of Recognized Environmental Conditions (RECs), Historical Recognized Environmental Conditions (HRECs), and/or Controlled Recognized Environmental Conditions (CRECs) in connection with the Property, see Section 8.0 of this *Report*.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

REPORT COMPONENT	SUMMARY OF FINDINGS
Recommendations and Opinions	Refer to Section 8.0 for ODIC's professional opinions and recommendations.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

1.0 INTRODUCTION

ODIC Environmental (ODIC) performed a *Phase I Environmental Site Assessment Report* (hereinafter referred as "*Phase I ESA" or "Report"*) of the Property in conformance with the scope and limitations of the *ASTM International*, formerly known as the *American Society for Testing and Materials (ASTM), Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM Designation E1527-13.*

This *Report* documents the methods and findings of the *Phase I ESA* performed in general conformance with the scope and limitations of ASTM Standard Practice E1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) for the Property.

This *Report* has been prepared by ODIC for the *Client* under the professional supervision of the principal and/or senior staff whose seal(s) and signature(s) appear hereon. Neither ODIC, nor any staff member assigned to this investigation has any interest or contemplated interest, financial or otherwise, in the subject or surrounding properties, or in any entity which owns, leases, or occupies the subject or surrounding properties or which may be responsible for environmental issues identified during the course of this investigation, and has no personal bias with respect to the parties involved.

PURPOSE AND OBJECTIVE

The purpose of this practice is to define good commercial and customary practice for conducting an *environmental site assessment* of a parcel(s) of *commercial real estate* with respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) and *petroleum products*. As such, this practice is intended to permit a *User (Client, Purchaser, Lender, Owner)* to satisfy one of the requirements to qualify for the *innocent landowner*, *contiguous property owner*, or *bona fide prospective purchaser* limitations on CERCLA liability (hereinafter, the "*landowner liability protections*," or "*LLPs*"): that is, the practice that constitutes "*all appropriate inquiry* into the previous ownership and uses of the *Property* consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601(35)(B).

Another purpose of this *Phase I ESA* is to assist the *Client* in its underwriting of a proposed mortgage loan on the Property, if this *Report* is prepared as a part of a pre-financing environmental due diligence, and to identify *Recognized Environmental Conditions (RECs)* in connection with the Property described in this *Report*.

ASTM Standard Practice E1527-13 defines *a Recognized Environmental Condition (REC)* as the presence or likely presence of any *hazardous substances* or *petroleum products* in, on, or at a *property*: (*1*) due to *release to the environment*; (*2*) under conditions indicative of a *release* to the *environment*; or (*3*) under conditions that pose a *material threat* of a future *release* to the *environment*. Conditions determined to be *de minimis* generally do not present a threat to human health or the *environment* and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis conditions* are not *Recognized Environmental Conditions* or *Controlled Recognized Environmental Conditions*.

A *Controlled Recognized Environmental Condition (CREC)* is a *Recognized Environmental Condition* resulting from a past *release* of *hazardous substances* or *petroleum products* that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with *hazardous substances* or *petroleum products* allowed to remain in place subject to the implementation of required controls (for example, *property use restrictions*, *activity and use limitations*, *institutional controls*, or *engineering controls*).

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

A *Historical Recognized Environmental Condition (HREC)* is *a* past *release* of any *hazardous substances* or *petroleum products* that has occurred in connection with the *Property* and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the *Property* to any required controls (for example, property use restrictions, *activity and use limitations*, *institutional controls*, or *engineering controls*).

Referenced Documents for ASTM Standard Practice E1527-13:

- *ASTM E2091 Guide for Use of Activity and Use Limitations, Including Institutional and Engineering Controls*
- *ASTM E2600 Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*
- *Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA" or "Superfund"), as amended by Superfund Amendments and Reauthorization*
- *Act of 1986 ("SARA") and Small Business Liability Relief and Brownfields Revitalization Act of 2002 ("Brownfields Amendments"), 42 U.S.C. §§9601 et seq.*
- *Emergency Planning and Community Right-To-Know Act of 1986 ("EPCRA"), 42 U.S.C. §§11001 et seq.*
- *Freedom of Information Act, 5 U.S.C. §552, as amended by Public Law No. 104-231, 110 Stat. 3048*
- *Resource Conservation and Recovery Act (also referred to as the Solid Waste Disposal Act), as amended ("RCRA"), 42*
- *U.S.C §6901 et seq.*
- *"All Appropriate Inquiries" Final Rule, 40 C.F.R. Part 312 Chapter 1 EPA, Subchapter J-Superfund, Emergency*
- *Planning, and Community Right-To-Know Programs, 40 C.F.R Parts 300-399 National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300*
- *OSHA Hazard Communication Regulation, 29 C.F.R. §1910.1200*

SCOPE OF WORK

This *Report* was prepared for the exclusive use of the *Client or User of this Report*. The information reported was obtained through sources deemed reasonably ascertainable, as defined in ASTM Standard Practice E1527-13; a visual survey of areas readily observable, easily accessible or made accessible by the Property contact, and interviews with owners, agents, occupants, or other appropriate persons involved with the Property. Municipal information was obtained through file reviews of reasonably ascertainable standard government record sources, and interviews with the authorities having jurisdiction over the Property. Findings, conclusions, and recommendations included in the *Report* are based on our visual observations in the field, the municipal information reasonably obtained, information provided by the *Client (or User)*, and/or a review of readily available and supplied documents.

The scope of work for this *Phase I ESA* is in general accordance with the requirements of ASTM Standard Practice E 1527-13. This assessment included: 1) Property and adjacent site reconnaissance; 2) interviews with key personnel; 3) a review of standard historical sources; 4) a review of standard regulatory agency records; and 5) a review of a regulatory database report provided by a third-party company such as Environmental Data Resources (EDR).

LIMITATIONS AND EXCEPTIONS

ODIC renders no opinion as to the Property condition at un-surveyed and/or inaccessible portions of the Property, which are described below. ODIC relies completely on the information, whether written, graphic or verbal, provided by the Property contact or as shown on any documents reviewed or received from the Property contact, owner or agent, or municipal source, and assumes that information to be true and correct. The observations in this *Report* are valid on the date of the survey. Where access to portions of

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

the Property or to structures on the Property was unavailable or limited, ODIC renders no opinion as to the presence of petroleum products or hazardous substances in that portion of the Property or structure. In addition, ODIC renders no opinion as to the presence of, or indirect evidence relating to, petroleum products or hazardous substances where direct observation of the interior walls, floor, or ceiling of a structure was obstructed by objects or coverings on or over these surfaces.

The conclusions provided by ODIC are based on the information obtained by visual survey of the Property, and information provided by agents representing the Property, or agents of the owner. In addition, ODIC has relied on certain information provided by state and other referenced parties, and on information contained in the files of federal, state and/or local agencies available to ODIC at the time of the assessment. Although there may have been some degree of overlap in the information provided by these various sources, ODIC did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of these Environmental Services.

CERCLA Requirements Other Than *All Appropriate Inquiry* (ASTM Standard Practice E1527-13 1.1.3) - This practice does not address whether requirements in addition to *All Appropriate Inquiries* have been met in order to qualify for the *LLPs* (specified in 42 U.S.C. §9607(b)(3)(a) and (b) including the continuing obligation not to impede the integrity and effectiveness of *Activity and Use Limitations*), or the duty to take reasonable steps to prevent releases, or the duty to comply with legally required release reporting obligations).

It is acknowledged that ODIC's judgments shall not be based on scientific or technical tests or procedures beyond the Scope of Services or beyond the time and budgetary constraints imposed by the *Client*. It is acknowledged further that ODIC's conclusions shall not rest on pure science but on such considerations as economic feasibility and available alternatives. The *Client* also acknowledges that, because geologic and soil formations are inherently random, variable, and indeterminate in nature, the conclusions and opinion of this *Report* are not guaranteed to be a representation of actual conditions on the Property, which are also subject to change with time as a result of natural or man-made processes, including water permeation.

In performing the Services, ODIC shall use that the degree of care and skill ordinarily exercised by environmental consultants or engineers performing similar services in the same or similar locality. The standard of care shall be determined solely at the time the Services are rendered and not according to standards utilized or in effect at a later date. The Services shall be rendered without any other warranty, expressed or implied, including, without limitation, the warranty of merchantability and the warranty of fitness for a particular purpose.

It should be noted that certain conditions may not have been reasonably identifiable or ascertainable from the available information during the course of this *Report*. ODIC assumes that information obtained from the record review and the interviews concerning the Property is reliable. However, ODIC cannot and does not warrant or guarantee that the information provided by these other sources is accurate or correct.

Some of the information provided in this *Report* is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This *Report* is subject to the limitations of historical documentation, availability, and accuracy of the pertinent records, and the personal recollections of those persons contacted. This practice does not address requirements of any state or local laws or of any federal laws other than the all appropriate inquiry provisions of the LLPs. Furthermore, this *Report* does not intend to address health and safety concerns, if any, associated with the Property.

The assessment was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession, and in accordance with generally accepted practices of other consultants currently practicing in the same locality under similar conditions. No other representation, expressed or implied, and no warranty or guarantee is included or intended. The *Report* speaks only as of its date, in the absence of a specific written update of the *Report*, signed and delivered by ODIC.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Controlled substances are not included within the scope of this standard. Persons conducting an *environmental site assessment* as part of an EPA Brownfields Assessment and Characterization Grant awarded under CERCLA 42 U.S.C. §9604(k)(2)(B) must include controlled substances as defined in the Controlled Substances Act (21 U.S.C. §802) within the scope of the assessment investigations to the extent directed in the terms and conditions of the specific grant or cooperative agreement. Additionally, an evaluation of *business environmental risk* associated with a parcel of *commercial real estate* may necessitate investigation beyond those identified in this practice.

SIGNIFICANT ASSUMPTIONS AND LIMITING CONDITIONS

The objective of ASTM Standard Practice E1527-13 is to help *Users* qualify for one of the CERCLA Landowner Liability Protections (LLPs). *Users* should be aware that there are other federal, state, and local environmental laws and regulations that can impose liabilities and obligations on owners and operators of real property that are outside the scope of this practice. This practice does not address all possible environmental liabilities that a *User* may need to consider in the context of a commercial real estate transaction. Therefore, *Users* may desire to expand the scope of pre-purchase or pre-finance due diligence to assess other business environmental risks that exist beyond CERCLA liability associated with the Property.

Business Environmental Risk (BER) is a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of commercial real estate, and is not an issue required to be investigated under this practice. A BER may include one or more of the non-scope issues contained in Non-Scope Considerations. Evaluation of Non-Scope or Non-CERCLA items, including those addressed in this *Report*, is not required nor relevant for compliance with the AAI Rule or ASTM Standard Practice E1527-13. Inclusion of any non-scope item in a Phase I Environmental Site Assessment report is entirely within the discretion of the *User* based on its own risk tolerance. Non-Scope Consideration should not be construed as requiring the inclusion of any non-scope issues in a Phase I Environmental Site Assessment report.

Any additional services contracted for between the *User* and ODIC including a broader scope of assessment, more detailed conclusions, liability/risk evaluations, recommendation for Phase II testing or other assessment activities, remediation techniques, etc., are beyond the scope of ASTM Standard Practice E1527-13, not part of this *Report*, and should only be included in the *Report* if so specified in the terms of engagement between the *User* and ODIC. Such additional services may include *business environmental risk* issues not included within the scope of this practice (ASTM Standard Practice E1527-13).

ASTM Standard Practice E1527-13 does not encompass analytical testing to evaluate Asbestos Containing Materials (ACM), radon, lead-based paint (LBP), drinking water quality, lead in drinking water, wetlands, regulatory compliance, cultural and historical resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, biological agents, mold, stored chemicals, debris, fill materials, surface water, or subsurface samples (soil and groundwater) as part of a Phase I ESA. Such additional information regarding non-ASTM Standard Practice E1527-13 issues may be provided merely for the *User's* convenience, and cannot be used to bind this *Report* as a whole to the compliance and conformance with ASTM Standard Practice E1527-13. No disassembly of systems or building components or physical or invasive testing is to be performed unless the *Client* specifically calls for such testing as an additional scope of work.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

ODIC has performed this *Phase I ESA* in conformance with the scope and limitations of ASTM Standard Practice E1527-13. This *Report* may not include all environmental conditions which can materially impact the Property other than those defined as RECs in ASTM Standard Practice E1527-13.

ODIC is not contracted to perform *Environmental Liens* and *Activity and Use Limitations (AULs)* searches via title records, and such is beyond the scope of services included in this *Report*. Information pertaining to deed restrictions and environmental liens, Activity/Use Limitations, title search/report was requested from the *Report User*. This information may or may not be provided to ODIC at the time of the assessment. See pertinent sections of this *Report* for further discussion.

Interviews with past or current owners, operators and occupants may not be reasonably ascertainable and can constitute a data gap. Based on information obtained from other historical sources (as discussed in Section 4.0), this data gap may or may not be expected to alter the findings of this assessment. See Section 8.0 for further discussion.

Adjoining sites, neighboring sites, or surrounding properties mentioned in this *Report* are defined only up to one parcel immediately next to the Property, and ODIC will only check immediately adjoining properties to identify historical use of the surrounding areas via historical sources or data on such adjoining properties, and/or walk-through visual inspection along the Property's perimeters to identify obvious signs of environmental concerns.

It is often not possible (under the "*reasonably ascertainable*" clause of the ASTM Standard Practice E1527-13) to identify every single historical business tenant or occupant of the Property. ODIC cannot be liable for not identifying all such past tenants or occupants of the project site.

This ESA did not necessarily comply with the ASTM Standard Practice E2600-15 "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions." For assessment of potential "vapor encroachment conditions" (VECs) and to determine if a "vapor intrusion condition" (VIC) exists on-site, additional investigation beyond ASTM Standard Practice E1527-13 is required.

For the purposes of ASTM Standard Practice E1527-13, "migrate" and "migration" refers to the movement of *hazardous substances* or *petroleum products* in any form, including, for example, solid and liquid at the surface or subsurface, and vapor in the subsurface. Vapor migration in the subsurface is described in ASTM Standard Practice E2600-15; however, nothing in this practice (ASTM Standard Practice E1527-13) should be construed to require application of ASTM Standard Practice E2600-15 standard to achieve compliance with all appropriate inquiries.

USER RELIANCE

This investigation was conducted in accordance with the *Client's* Environmental Site Assessment scope of work for the use and benefit of the *Client* and assignees. It is based, in part, upon documents, writings, and information owned, possessed, or secured by the *Client*. Neither this *Report*, nor any information contained herein, shall be used or relied upon for any purpose by any other person or entity without the express written permission of the *Client*.

All reports, both verbal and written, are for the sole use and benefit of the *Client*. Either verbally or in writing, third parties may come into possession of this *Report* or all or part of the information generated as a result of this work. In the absence of a written agreement with ODIC granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against ODIC, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold ODIC, the *Client* and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such use. Unauthorized use of this *Report* shall constitute acceptance of and commitment to these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted. Additional legal penalties

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

may apply.

INDEPENDENT CONTRACTOR STATUS / PROFESSIONAL RESPONSIBILITY

In performing Services under the mutually agreed contractual agreement and verbal engagement, ODIC operates as, and has the status of, an independent contractor. Subject to any limitations established by the *Client* as to the degree of care and amount of time and expenses to be incurred and any other limitations contained in the mutually agreed contractual agreement and verbal engagement, ODIC performs the Services consistent with the level of care and skill ordinarily exercised by other professional consultants under similar circumstances at the time the Services are performed. *Client* hereby acknowledges that whenever a Project involves hazardous or toxic materials there are certain inherent risk factors involved (such as limitations on laboratory analytical methods, variations in subsurface conditions, economic loss to *Client* or Property owner, a potential obligation for disclosure to regulatory agencies, a potential for a decrease in market value of real property, and the like) that may adversely affect the results of the Project, even though the Services are performed with such skill and care. No other representation, warranty, or guarantee, express or implied, is included or intended by the mutually agreed contractual agreement and verbal engagement.

QUALIFICATION STATEMENT OF ENVIRONMENTAL PROFESSIONAL

ODIC states that this ESA was performed under *Environmental Professional (EP)'s* direct supervision, that he/she has prepared and/or reviewed and approved the *Report*, and that the methods and procedures utilized in the development of this *Report* conform to minimum industry standards using both the *ASTM International*, formerly known as the *American Society for Testing and Materials (ASTM)*, Standard Practice E1527-13 and the United States – Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) as guidelines. ODIC certifies that ODIC's *Environmental Professionals* and *Subcontractors* are properly licensed, qualified and/or certified to conduct *Phase I Environmental Site Assessments*.

ODIC's EP declares that, to the best of his/her professional knowledge and belief, he/she meets the definition of *Environmental Professional* as defined in 40 CFR Part 312. ODIC's EP who prepared this assessment possesses the specific qualifications based upon education, training and experience to assess a property of the nature, history, and setting of the Property. ODIC has developed and performed the "*All Appropriate Inquiries*" in accordance with the standards and practices as defined in 40 CFR Part 312.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

2.0 PROPERTY DESCRIPTION

2.1 PROJECT INFORMATION

Project Information	
ITEM	
Project Number	6363793-ESAI
Property Address(es)	The Property does not have an assigned street address. It is identified as APN # 297-170-083-9, Alessandro Boulevard, Moreno Valley, Riverside County, CA 92553.
Historical/Alternate Property Address(es)	None identified.
Tax Assessor's Parcel Number(s)	297-170-083-9
Historical/Alternate Tax Assessor's Parcel Number(s)	297-170-077
	Source: Riverside County Planning Department
Property Name	None
Property Inspection Date	April 15, 2017
Weather Condition	Sunny, approximately 80 degrees Fahrenheit
Site Visit Conducted by	Jennifer Hoff, Environmental Consultant
Report Author	Jennifer Hoff, Environmental Consultant
QA/QC Environmental Professional	Michael A. Miller, M.S., Senior Environmental Consultant
Property Location	The Property is bordered to the north by Alessandro Boulevard and is approximately 700 feet west of Heacock Street and approximately 1,300 feet east of Graham Street. The Property is bordered to the south by Brodiaea Avenue and to west by Rebecca Street.
General Setting	The immediate vicinity is vacant land and light industrial.

2.2 PROPERTY IMPROVEMENTS

Property Improvements & Building / Land Description	
ITEM	
Property Description	The Property is a 16.77-acre irregular-shaped vacant parcel of land. There are no improvements and the Property is unpaved dirt with natural vegetation (weeds). Access to the Property is from Alessandro Boulevard, adjacent to the north; Brodiaea Avenue, adjacent to the south; and Rebecca Street, adjacent to the west.
	Data Source(s) for Parcel Size: First American Title Company property profile
Estimated Year of Construction	Not applicable - there are no improvements at the Property.
Improvement Description	Not applicable - there are no improvements at the Property.
Other Improvements & Features (including description of unimproved areas)	None observed.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

2.3 PROPERTY OCCUPANTS & USE

Property Occupants & Use	
ITEM	
Present Occupant(s) and Detailed Description of Business Operation(s)	Not applicable - the Property is vacant undeveloped land.

2.4 MUNICIPAL SERVICES & UTILITIES

Municipal Services & Utilities	
ITEM	
Potable Water Supply	None
Natural Gas Utility Provider	None
Electrical Utility Provider	None
Sewage Disposal System	None
Solid Waste Disposal	None
Any Septic System, Cesspool, Seepage Pits	None
Private Water Well	None
Heating/Cooling System	None

2.5 PHYSICAL SETTING

TOPOGRAPHY

The Property's physical location was researched employing a United States Geological Survey (USGS) 7.5 Minute Topographic Quadrangle (Quad) Map relevant to the Property. The USGS 7.5 Minute Quad Map has an approximate scale of 1 inch to 2,000 feet, and may show physical features with environmental significance such as wetlands, water bodies, roadways, mines, and buildings. The elevation of the Property is approximately 1,560 feet above mean sea level. There is a regional downslope to the south.

GEOLOGY AND HYDROGEOLOGY

Geologic and hydrogeologic information was obtained from a Site Assessment Report prepared for 23501 Alessandro Boulevard, located approximately 1,100 feet west of the property:

> *The subject property lies in the Perris Plain. The southeast trending San Jacinto Fault Zone is located approximately 5 miles northeast of the site. The concealed trace of an unnamed, southeast trending fault is located approximately 2 miles north of the site. The site is underlain by Quaternary Age alluvial deposits composed of dense, interbedded silty sand and sandy silts, and fine to course grained sand. Underlying the alluvium is crystalline Mesozoic Age basement rock composed of granite, tonolite and diorite. Based on observations and activities conducted at the subject site, subsurface soils are primarily comprised of very dense/fine to course grained silty sands and sandy silts to approximately 51.5 feet below ground surface (bgs), the maximum depth explored..*

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

The subject site lies within the Perris Groundwater Basin, one of twelve designated groundwater basins in Eastern Riverside County. Groundwater is anticipated to be present at a depth of approximately 80 feet bgs. Groundwater was not encountered to the maximum depth explore, 51.5 feet bgs, beneath the site.

Source:

http://geotracker.waterboards.ca.gov/regulators/deliverable_documents/9556765496/Arco%205344_20001 6218_Current_a.pdf

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

3.0 PROPERTY RECONNAISSANCE

3.1 LIMITING CONDITIONS

The information reported herein was obtained through sources deemed reliable, a visual site survey of areas readily observable, easily accessible or made accessible by the Property contact, and interviews with owners, agents, occupants, or other appropriate persons involved with the Property.

No disassembly of systems or building components or physical or invasive testing was performed. ODIC renders no opinion as to the Property condition at un-surveyed and/or inaccessible portions of the Property. ODIC relies completely on the information, whether written, graphic or verbal, provided by the Property contact or as shown on any documents reviewed or received from the Property contact, owner or agent, or municipal source, and assumes that information to be true and correct. The observations in this *Report* are valid on the date of the survey. Note: Typically lenders have environmental policies where due diligence reports are valid for one year from the report date. However, such policies and standards can vary from each lender or *User*. For CERCLA landowner liability protection, Phase I ESA reports are valid for 180 days, per ASTM Standard Practice E1527-13.

3.2 PROPERTY RECONNAISSANCE

ODIC conducted interior and exterior observations of the Property with the intent to identify *releases* or *material threat* of future *releases* of *hazardous substances* or *petroleum products* to the *environment*. The site reconnaissance table below lists items *visually and/or physically observed*.

Property Reconnaissance	
ITEM	
Processes involving Petroleum Products or Hazardous Substances	There were none observed
Underground Storage Tanks (USTs)	There were none observed
Aboveground Storage Tanks (ASTs)	There were none observed
Fuel Islands / Dispensers, or any type of fueling system/operation	There were none observed
Containers or Drums of Hazardous Materials and/or Petroleum Products related to the Property's operations/processes	There were none observed
Unidentified Substance Containers: Other containers of suspect hazardous materials in drums, barrels, or other storage, or unlabeled/unidentified containers on site	There were none observed
Stained or Corroded Surfaces / Stained Soil (paved or unpaved)	There were none observed
Unusual areas of asphalt/cement patch or surface depressions including any possible boring locations	There were none observed

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Property Reconnaissance	
ITEM	
Stockpiled soils, fill materials, or soil piles	There were none observed
Stressed vegetation	There were none observed
Any type of heavy equipment or machinery of environmental concern	There were none observed
Electrical or hydraulic equipment or machinery of environmental concern	There were none observed
Drains for machinery/equipment cleaning or flushing	There were none observed
Evidence of onsite surface water impoundment, pits, dry wells or sensitive surface water features such as lagoons, ponds, and other water bodies	There were none observed
Drains, sumps, wastewater treatment units, oil/water separators, clarifiers, catch basins, drip pads, or sumps	There were none observed
Any regulated surface-water discharges, illegal dumping, unauthorized surface runoff or discharge to potentially impact water bodies	There were none observed
Storm water or surface-water drainage system having any abnormal accumulation of petroleum or chemical run-off or foreign materials, any unusual blockage of the storm-water control systems	There were none observed
Pools of liquid such as standing surface water, pools or sumps containing liquids likely to be hazardous substances or petroleum products	There were none observed
Odors (strong, pungent, or noxious odors and their sources)	There were none observed
Septic systems, cesspools, seepage pits	There were none observed
Wells (private water wells, irrigation wells, injection wells, abandoned wells, groundwater-monitoring wells, dry wells, septic wells, oil wells, gas wells, domestic water wells, vapor recovery wells or other-monitoring wells)	There were none observed
Railroad tracks or spurs	There were none observed

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Property Reconnaissance	
ITEM	
Visual evidence of improper handling/disposal of solid wastes	There were none observed

3.3 DETAILED DESCRIPTION OF SITE RECONNAISSANCE AND ENVIRONMENTAL CONDITIONS

The Property is vacant undeveloped land. There were no issues of environmental concern observed.

3.4 CURRENT USES OF ADJACENT PROPERTIES

For the scope of this assessment, properties are defined and categorized based upon their physical proximity to the Property. An adjoining property is defined as any real property or properties in which the border is contiguous or partially contiguous with that of the Property, or that would be contiguous or partially contiguous with that of the Property but for a street, road, or other public thoroughfare separating them.

Adjacent Properties	
ITEM	
North	North of the Property is Alessandro Boulevard, followed by Alessandro Plaza at 23750 Alessandro Boulevard.
South	South of the Property is Brodiaea Avenue, followed by: • Vacant land • Gilbert Street • Serta Simmons Bedding Manufacturer at 23532 Brodiaea Avenue.
West	West of the Property is vacant land and Rebecca Street, followed by RESMED at 23650 Brodiaea Avenue.
East	East of the Property is vacant land.
Northwest	Northwest of the Property is Alessandro Boulevard, followed by Alessandro Plaza at 23750 Alessandro Boulevard..
Northeast	Northeast of the Property is Alessandro Boulevard, followed by Oasis Community Church at 23750 Alessandro Boulevard.
Southwest	Southwest of the Property is Brodiaea Avenue, followed by Serta Simmons Bedding Manufacturer at 23532 Brodiaea Avenue.
Southeast	Southeast of the Property is Brodiaea Avenue, followed by vacant land.

3.5 NON-SCOPE (NON-ASTM) CONSIDERATIONS

Evaluation of Non-Scope or Non-CERCLA items, including those addressed in Section 3.4 of this *Report*, is not required nor relevant for compliance with the AAI Rule or ASTM Standard Practice E1527-13. Inclusion of any non-scope item in a Phase I Environmental Site Assessment report is entirely within the discretion of the *User* based on its own risk tolerance. Non-Scope Consideration should not be construed as requiring the inclusion of any non-scope issues in a Phase I Environmental Site Assessment report.

Any additional services contracted for between the *User* and ODIC Environmental including a broader scope of assessment, more detailed conclusions, liability/risk evaluations, recommendation for Phase II testing or other assessment activities, remediation techniques, etc., are beyond the scope of Standard Practice E1527-13, are not part of this *Report*, and should only be included in the *Report* if so specified in the terms of engagement between the *User* and ODIC. Such additional services may include *business environmental risk* issues not included within the scope of this practice (ASTM Standard Practice E1527-

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

13). No implication is intended as to the relative importance of inquiry into such non-scope considerations, and this list of non-scope considerations is not intended to be all-inclusive.

There may be environmental issues or conditions at a *Property* that parties may wish to assess in connection with *commercial real estate* that are outside the scope of this practice (the non-scope considerations). As noted by the legal analysis in Appendix X1 of ASTM Standard Practice E1527-13, some substances may be present on the Property in quantities and under conditions that may lead to contamination of the *property* or of nearby properties but are not included in CERCLA's definition of *hazardous substances* (42 U.S.C. §9601(14)) or do not otherwise present potential CERCLA liability. In any case, they are beyond the scope of this practice.

Whether or not a *User* elects to inquire into non-scope considerations in connection with this practice or any other *environmental site assessment*, no assessment of such non-scope considerations is required for appropriate inquiry as defined by this practice.

NON-SCOPE, NON-CERCLA ITEMS	
ITEM	
Suspect asbestos-containing building materials (ACBM) in damaged condition if the structure is built prior to 1978	Not applicable - there are no improvements at the Property.
Suspect lead-based paint (LBP) in damaged condition if the structure is residential and was built prior to 1978	Not applicable - there are no improvements at the Property.
Lead in drinking water (LIW)	Not applicable - there are no improvements at the Property.
Radon	Radon sampling and testing was not requested by the *User/Client* as part of this Phase I ESA. Radon is a naturally-occurring, odorless, invisible gas. Natural radon levels vary and are closely related to geologic formations. Radon may enter buildings through basement sumps or other openings. A review of the EPA's Map of Radon Zones indicates that Riverside County falls within Zone 2, a zone of low radon potential. Counties located within Zone 2 a predicted average indoor radon screening level of 2 to 4 picocuries per liter (pCi/L), generally below EPA's radon action level of 4 pCi/L for residential structures. A radon survey was not included in the current scope of services. Source: http://www.epa.gov/radon/zonemap.html It should be noted that site-specific radon levels vary greatly within the EPA radon zones and on-site radon measurements would need to be collected in order to determine the Property radon levels.
Urea Formaldehyde	Not applicable - there are no improvements at the Property.
Suspect PCB-oil concern with hydraulic equipment, ballasts, transformers, etc.	Not applicable - there are no improvements at the Property.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

NON-SCOPE, NON-CERCLA ITEMS	
ITEM	
Wetlands, creeks, swale, pits, ponds, lagoons, or any other water bodies	A wetland is defined as areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands provide a number of economically and environmentally important functions such as flood control, water quality protection, groundwater recharge, spawning areas for commercially important fish, and wildlife habitat. Wetlands are evaluated using three indicators: hydrology, hydrophytic vegetation, and hydric soils. Section 404 of the Clean Water Act requires a permit before dredged or fill material may be discharged into regulated wetlands (known as Jurisdictional Wetlands). The Army Corps of Engineers has primary responsibility for making wetlands jurisdictional determinations and issuing wetlands permits. A number of activities are authorized through the use of nationwide permits. A wetland study or survey is not included in the current scope of services for this Phase I ESA. However, based on a review of the EDR Radius Report, the site is not within a mapped National Wetland Inventory location.
Visual evidence of mold problems from wet areas, roof leaks, moisture around air conditioning or plumbing units	Not applicable - there are no improvements at the Property.
Indoor air quality unrelated to *releases* of *hazardous substances* or *petroleum products* into the *environment* (unusual smells, noxious odors, or visual emissions, air emission stacks), excluding impacts to indoor air from releases of hazardous substances into the environment	Not applicable - there are no improvements at the Property.
Flood Zone	The Federal Emergency Management Agency Flood Insurance Rate Map is typically used to determine if the Property is located within a flood zone. Such evaluation is not included in the scope of work for this Phase I ESA. However, based on a review of a flood zone map contained in an EDR Radius Map Report, the Property is not located within a 100-year or 500-year flood zone.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

NON-SCOPE, NON-CERCLA ITEMS	
ITEM	
Methane Gas	In response to concern regarding the potential for methane accumulation beneath buildings, and potential methane intrusion into buildings, some cities or regulatory oversight agencies have established methane zones and/or methane buffer zones based on the proximity to oil wells, landfills, or naturally occurring methane deposits. A methane risk assessment is not included in the scope of work for this Phase I ESA.
Other non-scope considerations discussed in Appendix X1 and Appendix X5 of ASTM Standard Practice E1527-13	No implication is intended as to the relative importance of inquiry into such non-scope considerations, and this list of non-scope considerations is not intended to be all-inclusive. These items are not included in the current scope of services for Phase I ESA. *Endangered Species Act*—Under the Endangered Species Act (ESA), the government protects endangered and threatened plants and animals (listed species) and their habitats. The presence of listed species can restrict use of the Property to ensure that the proposed activities do not adversely affect endangered or threatened species as well as their critical habitats. This includes *Biological agents, Cultural and historical resources, and* Ecological resources. *Compliance with AULs*—Parties who wish to qualify for one of the *LLPs* will need to know whether they are in compliance with AULs, including land use restrictions that were relied upon in connection with a response action. A determination of compliance with AULs is beyond the scope of ASTM Standard Practice E1527-13. *Regulatory Compliance (Includes Health and Safety and Industrial Hygiene)*—Properties used for industrial, commercial and even residential purposes are frequently subject to a panoply of environmental laws and regulations that relate to many aspects of operations conducted at the Property. In the context of a property transaction, noncompliance with environmental laws and regulations may create a material risk of financial loss for both building operators and owners of the properties. *Potential Effects of Noncompliance*—Depending on the circumstances, noncompliance with various regulatory requirements could result in material costs to owners and operators of industrial, commercial or residential properties, including fines or other monetary penalties, injunctions or other equitable relief that slows or eliminates productivity, and could result in increased transaction costs associated with defending claims of noncompliance. Furthermore, even in the absence of administrative or legal enforcement proceedings, the costs to bring facilities into compliance with applicable regulatory requirements could be material in some circumstances.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

4.0 PROPERTY AND VICINITY HISTORY

The objective of consulting historical sources is to develop a history of the previous uses of the Property and surrounding area, in order to help identify the likelihood of past uses having led to Recognized Environmental Conditions (RECs), Controlled Recognized Environmental Conditions (CRECs), or Historical Recognized Environmental Conditions (HRECs) in connection with the Property. ODIC exercises professional judgment and consider the possible *releases* that might have occurred at a Property in light of the historical uses and, in concert with other relevant information gathered as part of the Phase I process, to use this information to assist in identifying RECs, CRECs, and/or HRECs in connection with the Property. Historical Records Search was conducted for the Property in conformance with the scope and limitations of ASTM Standard Practice E1527-13.

4.1 PREVIOUS ENVIRONMENTAL REPORTS

ODIC was not provided with or made aware of previous environmental site assessments or other documentation of environmental studies performed for the Property.

4.2 SANBORN MAP COMPANY FIRE INSURANCE MAPS

Sanborn Map Company maps were created for insurance underwriters from 1867 to present, and often contain information regarding the uses of individual structures, and the locations of fuel and/or chemical storage tanks that may have been on a particular property. In 1996, the entire Sanborn Map Company collection was acquired by Environmental Data Resources, Inc. (EDR). ODIC subcontracted with EDR to provide copies of Sanborn Map Company maps, if available, for the Property and vicinity.

EDR responded that Sanborn Map Company fire insurance maps were not drawn for the Property or surrounding vicinity.

4.3 HISTORICAL AERIAL PHOTOGRAPHS

ODIC reviewed aerial photographs supplied by the EDR Aerial Photo Decade Package. A summary of observations is provided below:

Historical Aerial Photographs	
YEAR	DESCRIPTION
1938	**Property**: The Property is vacant land.
	Adjacent North: Alessandro Boulevard is to the north, followed by vacant land.
	Adjacent South: The south-adjacent property is vacant land.
	Adjacent West: The west-adjacent property is vacant land.
	Adjacent East: The east-adjacent property is vacant land.
1949	The general configuration of the Property and adjacent properties remain relatively unchanged from the previous photograph.
1953	The general configuration of the Property and adjacent properties remain relatively unchanged from the previous photograph.
1967	The general configuration of the Property and adjacent properties remain relatively unchanged from the previous photograph. Commercial development is visible in the southern vicinity.
1978	The general configuration of the Property and adjacent properties remain relatively unchanged from the previous photograph. Commercial development is visible in the southern and western vicinity.
1985	The general configuration of the Property and adjacent properties remain relatively unchanged

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Historical Aerial Photographs	
YEAR	DESCRIPTION
	from the previous photograph. Commercial development is visible in the southern, western and northern vicinity. Residential development is visible in the eastern vicinity.
1989	The general configuration of the Property and adjacent properties remain relatively unchanged from the previous photograph.
1994	**Property**: The general configuration of the Property remains relatively unchanged from the previous photograph.
	Adjacent North: The north-adjacent vicinity is commercially developed and appears in the current configuration.
	Adjacent South: The general configuration of the south-adjacent property remains relatively unchanged from the previous photograph.
	Adjacent West: The general configuration of the west-adjacent property remains relatively unchanged from the previous photograph.
	Adjacent East: The general configuration of the east-adjacent property remains relatively unchanged from the previous photograph.
2005	The general configuration of the Property and adjacent properties remain relatively unchanged from the previous photograph. Light industrial development is now also visible in the western vicinity.
2006	The general configuration of the Property and adjacent properties remain relatively unchanged from the previous photograph.
2009	**Property**: The general configuration of the Property remains relatively unchanged from the previous photograph.
	Adjacent North: The general configuration of the north-adjacent property remains relatively unchanged from the previous photograph.
	Adjacent South: The south-adjacent vicinity is occupied by the current light industrial building and partially remains vacant land.
	Adjacent West: The west-adjacent property is occupied by the current light industrial building and partially remains vacant land.
	Adjacent East: The general configuration of the east-adjacent property remains relatively unchanged from the previous photograph.
2010	The general configuration of the Property and adjacent properties remain relatively unchanged from the previous photograph.
2012	The general configuration of the Property and adjacent properties remain relatively unchanged from the previous photograph.

4.4 LOCAL STREET DIRECTORIES / HISTORICAL CITY DIRECTORIES

ODIC reviewed Historical City Directories provided by EDR for the years spanning 1975-2013. A summary of listings is provided below:

Historical City Directories	
YEAR	LISTING
1975-2013	No listings

For discussion of nearby properties of environmental concern, if any, refer to Sections 5.3 and 5.4.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

4.5 CITY/COUNTY BUILDING DEPARTMENT, ZONING/LAND USE, PROPERTY TAX RECORDS, PROFILES

Building and Planning Department Records:

There were no records for the Property on file at the City of Moreno Valley Building Department.

Property Profile:

ODIC obtained the following Property information from one or more title company property profiles:

- Current Property Owner(s): Group V San Bernardino
- Assessor Parcel Number(s): 297-170-083
- Lot Size: 16.77 acres
- Building Size: Not provided
- Construction Date: Not provided
- Site Use / Use Code: Commercial Acreage

4.6 HISTORICAL TOPOGRAPHIC MAPS

Development history of the Property and surrounding area was researched using historical 7.5 Minute USGS topographic maps provided by EDR. There were no issues of environmental concern observed.

4.7 OIL & GAS MAPS

ODIC reviewed California Department of Conservation, Division of Oil, Gas & Geothermal Resources (DOGGR) maps for the Property and immediate vicinity via the DOGGR Online Mapping System (DOMS), but found no active or abandoned oil and/or gas wells on the Property or in the immediate vicinity.

Source: http://maps.conservation.ca.gov/doggr/#close

4.8 OTHER HISTORICAL RECORDS

This category includes, but is not limited to: miscellaneous maps, newspaper archives, internet sites, community organizations, local libraries, historical societies, current *owners* or *occupants* of neighboring properties, or records in the files and/or personal knowledge of the *Property owner* and/or *occupants*.

No other historical records were used during the course of this assessment.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

5.0 STANDARD ENVIRONMENTAL RECORDS RESEARCH

5.1 PROCEDURE

The most current databases sources maintained by state and federal offices were provided by governmental record search database suppliers, such as Environmental Data Resources (EDR). For definitions of database acronyms, review the database report in Appendix C and/or refer to ASTM Standard Practice E1527-13, Sections 3.3 and 8.2.

Database sources maintained by local offices were obtained via records requests. Databases were searched for properties with reported environmental listings within distances specified by ASTM Standard Practice E1527-13, either by using geocoding information that identified the coordinates of the properties in the databases or by checking the street addresses of practically reviewable non-geocoded "orphan" properties within the same zip code. The database report is included as an appendix to this *Report*. The database report may identify certain "orphan sites" which are those facilities that could not be mapped or geocoded due to inadequate address information. ODIC cannot be held liable for not correctly locating these orphan sites to determine their impact to the Property.

ASTM Standard Practice E1527-13 Sections 3.3 and 8.2 use terminology such as Leaking Storage Tank and Registered Storage Tank to refer to both Leaking Underground/Aboveground Storage Tanks and Underground/Aboveground Storage Tanks. For the purposes of this assessment, ODIC has used state-specific terminology to refer to Leaking Storage Tanks and/or other Registered Storage Tanks as generally defined by the state in which the Property is located.

5.2 PROPERTY LISTING(S)

FEDERAL AGENCY LISTINGS		STATE AGENCY LISTINGS	
DATABASE	**PROPERTY LISTED**	**DATABASE**	**PROPERTY LISTED**
NPL	No	State/Tribal Equivalent NPL	No
De-listed NPL	No	State/Tribal Equivalent CERCLIS	No
CERCLIS/SEMS	No	State/Tribal SWLF	No
CERCLIS-NFRAP/SEMS-ARCHIVE	No	State/Tribal Voluntary Cleanup Sites	No
RCRA-CORRACTS	No	State/Tribal Brownfield Sites	No
RCRA-TSDF	No	State/Tribal Leaking Storage Tank	No
RCRA-Generator	No	State/Tribal SLIC	No
ERNS	No	State/Tribal Registered Storage Tank	No
Federal IC/EC Registries	No	State/Tribal IC/EC Registries	No
Other Federal List	No	Other State List	No

LOCAL ENVIRONMENTAL AGENCY LISTINGS:

ODIC was unable to request records for the Property from the local environmental agencies due to the absence of a physical address.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

5.3 SURROUNDING SITES: FEDERAL AGENCY LISTINGS

FEDERAL AGENCY LISTING(S)		
DATABASE	**MINIMUM SEARCH DISTANCE (MILES)**	**PROPERTIES IDENTIFIED WITHIN SEARCH DISTANCE**
NPL	1.0	1
De-listed NPL	0.5	0
CERCLIS/SEMS	0.5	1
CERCLIS-NFRAP/SEMS-ARCHIVE	0.5	0
RCRA-CORRACTS	1.0	0
RCRA-TSDF	0.5	0
RCRA-Generator	Adjoining Sites	1

NPL (National Priority List):

LISTING	ADDRESS	DISTANCE
March Air Force Base	22 CSG/CC	S 1/8 - 1/4

This site is located approximately 1,200 feet south of the Property. The following summary was available on the EPA's National Priority List website:

> *The March Air Reserve Base opened in 1918 and consists of approximately 7,123-acres of land utilized for aircraft maintenance and repair; refueling operations; and training activities. On site operations have resulted in the generation of a variety of hazardous wastes. In 1980, a total of 39 potentially contaminated sites on base were identified to include the following: fire training areas, inactive landfills, underground solvent storage tanks, an engine test cell and spills. Five additional sites were identified later, totaling 44 sites.*
>
> *The eastern boundary of the base discharges to the Perris Valley Storm Drain (PVSD). The PVSD approximately two miles to east where it connects to another drainage to flow south approximately six miles to the San Jacinto River. Prior to the installation of an oil/water separator in 1974, the channel has reportedly received a variety of waste oils, fluids, paint thinners, acids and solvents, including TCE.*
>
> *Three zones of groundwater contamination below the base were identified with migration to off-site wells consisting of TCE, PCE, volatile organic compounds (VOCs) and jet fuel. Soil contamination consisted of VOCs and heavy metals. All wells on base were shut down and a groundwater containment system was installed to further prevent off-site migration. In 1992, a groundwater contamination interception and treatment system was put into operation. All USTs and contaminated soils were removed from the base. On-site remediation and groundwater monitoring is on-going.*
>
> *There are approximately 11,600 individuals that receive drinking water from off-site municipal wells within three miles of the base. Bottled water was provided to all affected residents and later connected to the public water supply. Municipal water on base is now purchased from the Eastern Municipal Water District.*

Source: http://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0902761

Due to the on-going remediation and horizontal distance, this site is not assessed to pose a significant environmental risk to the Property.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

CERCLIS (Comprehensive Environmental Response, Compensation & Liability Information System)/SEMS:

LISTING	ADDRESS	DISTANCE
March Air Force Base	22 CSG/CC	S 1/8 - 1/4

This site appears on multiple databases. Refer to the NPL section above for additional information.

RCRA-LQG (Resource Conservation Recovery Act - Large Quantity Generator):

LISTING	ADDRESS	DISTANCE
March Air Force Base	22 CSG/CC	S 1/8 - 1/4

This site appears on multiple databases. Refer to the NPL section above for additional information.

5.4 SURROUNDING SITES: STATE AGENCY LISTINGS

STATE ENVIRONMENTAL AGENCY LISTING(S)		
DATABASE	MINIMUM SEARCH DISTANCE (MILES)	PROPERTIES IDENTIFIED WITHIN SEARCH DISTANCE
State/Tribal Equivalent NPL	1.0	0
State/Tribal Equivalent CERCLIS	0.5	0
State/Tribal SWLF / SWAT / WMUDS	0.5	0
State/Tribal Leaking Storage Tank	0.5	1
State/Tribal Registered Storage Tank	Adjoining Sites	0
State/Tribal IC/EC Registries	Adjoining Sites	0
State/Tribal Voluntary Cleanup Sites	0.5	0
State/Tribal Brownfield Sites	0.5	0
State/Tribal SLIC (CA only)	0.5	0
Other State List	Adjoining Sites	0

State/Tribal List – LUST (Leaking Underground Storage Tank):

LISTING	ADDRESS	DISTANCE
Arco 382311	23501 Alessandro Boulevard	1/8 - 1/4 WNW

ARCO #82311: This site is approximately 1,100 feet west of the Property. ODIC researched this site via the State Water Resources Control Board's online GeoTracker database. A release of gasoline was reported in 1998. Contamination was confined to soil; groundwater was not reportedly affected. Regulatory case closure was granted in 2001. Based on the lack of groundwater impact, this site is not assessed to pose a significant environmental concern to the Property.

Source: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500632

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

5.5 VAPOR ENCROACHMENT CONDITION

ODIC performed this Phase I ESA of the Property in conformance with the scope and limitations of ASTM Standard Practice E1527-13. It should be noted that ASTM Standard Practice E1527-13 does not necessarily comply with ASTM Standard Practice E2600-15 "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions." For assessment of potential "vapor encroachment conditions" (VECs) and to determine if a "vapor intrusion condition" (VIC) exists on-site, additional investigation beyond ASTM Practice E1527-13 is required.

For the purposes of ASTM Standard Practice E1527-13, "migrate" and "migration" refers to the movement of *hazardous substances* or *petroleum products* in any form, including, for example, solid and liquid at the surface or subsurface, and vapor in the subsurface. Vapor migration in the subsurface is described in ASTM Standard Practice E2600-15; however, nothing in this practice (ASTM Standard Practice E1527-13) should be construed to require application of the ASTM Standard Practice E2600-15 to achieve compliance with all appropriate inquiries.

ODIC did not identify any indication that a significant release of chemicals of concern (COCs) that has occurred from historical/current use of the Property or nearby sites listed in the Standard Environmental Database discussed in Sections 5.3 and 5.4 of this *Report*, currently resulting in an unacceptable or adverse risk of vapor migration at the Property.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

6.0 USER PROVIDED INFORMATION

6.1 USER PROVIDED INFORMATION

The United States Environmental Protection Agency (USEPA) All Appropriate Inquiry (AAI) and ASTM Standard Practice E1527-13 Phase I Standards require that the *Report User* conduct independent research and consider certain information before purchasing a property.

The purpose of this section is to describe tasks to be performed by the *User*. The "All Appropriate Inquiries" Final Rule (40 CFR Part 312) requires that these tasks be performed by or on behalf of a party seeking to qualify for an *landowner liability protections (LLP)* to CERCLA liability. While such information is not required to be provided to the *environmental professional*, the *environmental professional* shall request that the *User* provide the results of these tasks as such information can assist the *environmental professional* in identifying Recognized Environmental Conditions.

Per ASTM Standard Practice E1527-13, the "*User*" is defined as follows:

> *User—the party seeking to use Practice E 1527-13 to complete an environmental site assessment of the property. A User may include, without limitation, a potential purchaser of property, a potential tenant of property, an owner of property, a lender, or a property manager.*

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "*Brownfields Amendments*"), the *User* must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. These inquiries must also be conducted by EPA Brownfield Assessment and Characterization grantees. The *User* should provide the following information to the *environmental professional*. Failure to conduct these inquiries could result in a determination that "*all appropriate inquiries*" is not complete.

USER/CUSTOMER QUESTIONNAIRE	
QUESTION	**USER/CUSTOMER TO ANSWER**
(1.) Environmental cleanup liens that are filed or recorded against the site (40 CFR 312.25). *Reasonably Ascertainable Title and Judicial Records for Environmental Liens and Activity and Use Limitations*. Are you aware of any environmental cleanup liens against the *Property* that are filed or recorded under federal, tribal, state or local law?	The *User* has not informed ODIC of any knowledge of cleanup liens filed or recorded against the Property. An environmental cleanup lien/AUL search is not required from ODIC as part of this Phase I ESA. An Environmental Lien Search was not requested by the *User* of this *Report*; however, based on our review of the California Department of Toxic Substances Control (DTSC) EnviroStor Database, no Environmental Liens or Activity of Use Limitations enforced by the DTSC against the Property were identified. Source: *http://www.envirostor.dtsc.ca.gov/public/deed_restrictions.asp*

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

(2.) Activity and land use limitations (AULs) that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26). *Reasonably Ascertainable Title and Judicial Records for Environmental Liens and Activity and Use Limitations*. Are you aware of any AULs, such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?	The *User* has not informed ODIC of any knowledge of activity or land use limitations associated with the Property. An environmental cleanup lien/AUL search is not required from ODIC as part of this Phase I ESA. An Environmental Lien Search was not requested by the *User* of this *Report*; however, based on our review of the California Department of Toxic Substances Control (DTSC) EnviroStor Database, no Environmental Liens or Activity of Use Limitations enforced by the DTSC against the Property were identified. Source: *http://www.envirostor.dtsc.ca.gov/public/deed_restrictions.asp*
(3.) Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28). As the *User* of this *ESA* do you have any specialized knowledge or experience related to the *Property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the *Property* or an adjoining *property* so that you would have specialized knowledge of the chemicals and processes used by this type of business?	The *User* has not informed ODIC of any specialized knowledge or experience related to the Property or nearby properties.
(4.) Relationship of the purchase price to the fair market value of the *Property* if it were not contaminated (40 CFR 312.29). Does the purchase price being paid for this *Property* reasonably reflect the fair market value of the *Property*? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *Property*?	The *User* has not informed ODIC of any information pertaining to the purchase price with respect to the fair market value of the Property.
(5.) Commonly known or *reasonably ascertainable* information about the *Property* (40 CFR 312.30). Are you aware of commonly known or *reasonably ascertainable* information about the *Property* that would help the *Environmental Professional(EP)* to identify conditions indicative of releases or threatened releases? For example, as *User*, (a.) Do you know the past uses of the *Property*? (b.) Do you know of specific chemicals that are present or once were present at the *Property*? (c.) Do you know of spills or other chemical releases that have taken place at the *Property*? (d.) Do you know of any environmental cleanups that have taken place at the *Property*?	The *User* has not informed ODIC of any commonly known or reasonably ascertainable information about the Property that would identify conditions indicative of releases or threatened releases, other than as described in Section 6.3 (Interviews), if applicable.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

(6.) The degree of obviousness of the presence of likely presence of contamination at the *Property*, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31). As the *User* of this *ESA*, based on your knowledge and experience related to the *Property* are there any *obvious* indicators that point to the presence or likely presence of contamination at the *Property*?	The *User* has not informed ODIC of any obvious indicators that point to the presence or likely presence of contamination at the Property, other than as described in Section 6.3 (Interviews), if applicable.

6.2 PRELIMINARY TITLE REPORT OR LAND TITLE RECORDS

No Preliminary Title Reports, recorded Land Title Records, or Historical Chain of Title was reviewed during this ESA. ODIC's scope of investigation as well as the contractual agreement between ODIC and the Client does not include obtaining and/or reviewing a Preliminary Title Reports, recorded Land Title Records, or Historical Chain of Title.

6.3 INTERVIEWS

Interview with Property Owner(s)	
	INTERVIEW DETAILS
Reason for no Interview	Contact information for the Property owner was not provided to ODIC.

Interview with Current Property Occupant	
	INTERVIEW DETAILS
Reason for no Interview	The Property is currently vacant.

Interview with Real Estate Agent			
	INTERVIEW DETAILS		
Name	Mr. Everet Miller		
Business Title	Chairman of the Board/CEO		
Name of Firm	PAMA Management, Incorporated		
Contact Information	626-575-3070		
Relation to Property	Buyer's Agent	Seller's Agent	Both
		X	
Purpose of this Environmental Assessment	Property Sale	Refinance	Other
	X		
Summary	Mr. Miller stated that the Property has always been undeveloped land. He is not aware of any environmental concerns associated with the Property.		

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

7.0 CONCLUSIONS

ODIC Environmental (ODIC) performed a Phase I Environmental Site Assessment of the Property in conformance with the scope and limitations of ASTM Standard Practice E1527-13. ASTM Standard Practice E1527-13 defines a *Recognized Environmental Condition (REC)* as the presence or likely presence of any *hazardous substances* or *petroleum products* in, on, or at a *Property*: (*1*) due to *release* to the *environment*; (*2*) under conditions indicative of a *release* to the *environment*; or (*3*) under conditions that pose a *material threat* of a future *release* to the *environment*. Conditions determined to be *de minimis* generally do not present a threat to human health or the *environment* and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* conditions are not *Recognized Environmental Conditions*.

A *Historical Recognized Environmental Condition (HREC)* is *a* past *release* of any *hazardous substances* or *petroleum products* that has occurred in connection with the *Property* and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the *Property* to any required controls (for example, *Property use restrictions*, *activity and use limitations*, *institutional controls*, or *engineering controls*).

A *Controlled Recognized Environmental Condition (CREC)* is a *Recognized Environmental Condition* resulting from a past *release* of *hazardous substances* or *petroleum products* that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with *hazardous substances* or *petroleum products* allowed to remain in place subject to the implementation of required controls (for example, *Property* use restrictions, *activity and use limitations*, *institutional controls*, or *engineering controls*).

Conclusions and Findings

ODIC performed a Phase I Environmental Site Assessment of the Property in conformance with the scope and limitations of ASTM Standard Practice E1527-13. This environmental assessment has revealed the following in connection with the Property:

REC identified:	☐ Yes	☒ No
HREC identified:	☐ Yes	☒ No
CREC identified:	☐ Yes	☒ No
Significant data gap identified:	☐ Yes	☒ No

Refer to Section 8.0, Recommendations and Opinions, for further details.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

8.0 RECOMMENDATIONS AND OPINIONS

ODIC performed a Phase I Environmental Site Assessment of the Property in conformance with the scope and limitations of ASTM Standard Practice E1527-13.

This environmental assessment has revealed no Recognized Environmental Conditions (RECs), Controlled Recognized Environmental Conditions (CRECs), or Historical Recognized Environmental Conditions (HRECs) in connection with the Property. ODIC recommends No Further Investigation at this time.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

9.0 REFERENCES

During the preparation of this *Report*, a number of sources were contacted, individuals were interviewed, and various federal, state, county or local municipal agencies were consulted. Documentation applicable to the Property in those departments and agencies was requested and reviewed when and where reasonably ascertainable, as detailed in ASTM Standard Practice E1527-13. Individuals listed without phone numbers were contacted in person or by e-mail. Reference sources for site-specific information, hydrogeologic setting, technical data, historical research data, environmental reports and other records used are identified throughout this *Report* in corresponding sections. Any additional reference sources not cited in each applicable section of this *Report*, if applicable, are disclosed in this section.

- *ASTM Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM Designation E1527-13*
- *EDR Radius Map Report*
- *EDR Historical City Directories*
- *EDR Historical Sanborn Fire Insurance Maps*
- *EDR Historical Aerial Photographs*
- *EDR Historical Topographic Maps*
- *Current USGS 7.5 Minute Topographic Map*
- *Historical Aerial Photographs*
  http://www.historicaerials.com/
- *Google Earth*
  http://earth.google.com/
- *United States Environmental Protection Agency, EPA Map of Radon Zones (Document EPA-402-R-93-071)*
  https://www.epa.gov/radon/find-information-about-local-radon-zones-and-state-contact-information#radonmap
- *California Water Resources Control Board GeoTracker online database*
  http://geotracker.waterboards.ca.gov/default.asp
- *Department of Toxic Substances Control ENVIROSTOR online database*
  http://www.envirostor.dtsc.ca.gov/public/Default.asp
- *Department of Toxic Substances Control Hazardous Waste Tracking System online database*
  http://hwts.dtsc.ca.gov/report_search.cfm?id=5

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

APPENDIX A
PROPERTY LOCATION MAP / PLOT PLAN

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

FIGURE 1

Site Location Map

N
W E
S

No Scale

ODIC Environmental

3255 Wilshire Blvd. #1510, Los Angeles, CA 90010
Tel: 213-380-0090 Fax: 213-380-0505

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

No Scale

FIGURE 2	**Site Plot Plan**	**ODIC** Environmental
SITE ADDRESS:	**APN # 297-170-083-9, Alessandro Boulevard, Moreno Valley, Riverside County, CA 92553**	3255 Wilshire Blvd. #1510 Los Angeles, CA 90010 Tel: 213-380-0090 Fax: 213-380-0505

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

APPENDIX B
PROPERTY & VICINITY PHOTOGRAPHS

Eastern view of the Property.	Eastern view of the Property.

Northeast view of the Property.	Northeast view of the Property.

Northern view of the Property.	Northern view of the Property.

Northwest view of the Property.	Southwest view of the Property.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Southeast view of the Property.	Southeast view of the Property.

Southern view of the Property.	Southern view of the Property.

Northeast-adjacent property.	East-adjacent property.

Southeast-adjacent property.	South-adjacent property.

Southwest-adjacent property.	West-adjacent property.

Northwest-adjacent property.	North-adjacent property.

APPENDIX C
REGULATORY DATABASE REPORT

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

6363793-ESAI
APN 297-170-077
Moreno Valley, CA 92553

Inquiry Number: 4903567.2s
April 10, 2017

The EDR Radius Map™ Report with GeoCheck®

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	8
Orphan Summary	81
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-11
Physical Setting Source Map Findings	A-13
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2017 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

APN 297-170-077
MORENO VALLEY, CA 92553

COORDINATES

Latitude (North):	33.9155120 - 33° 54' 55.84''
Longitude (West):	117.2469260 - 117° 14' 48.93''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	477173.8
UTM Y (Meters):	3752621.5
Elevation:	1563 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5641326 SUNNYMEAD, CA
Version Date:	2012
West Map:	5641312 RIVERSIDE EAST, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140527, 20140603
Source:	USDA

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAPPED SITES SUMMARY

Target Property Address:
APN 297-170-077
MORENO VALLEY, CA 92553

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & DIRECTIC
Reg	MARCH AIR FORCE BASE		DOD	Same	1 ft.
Reg	MARCH AIR FORCE BASE	22 CSG/CC	NPL, SEMS, RCRA-LQG, US ENG CONTROLS, US INST...	Same	1255, 0.238
A1		23932 ALESSANDRO BL	EDR Hist Auto	Higher	191, 0.036,
A2	MENOS NO 2 AUTO REP	23952 ALESSANDRO BLV	RCRA-SQG, FINDS	Higher	191, 0.036,
A3		23942 ALESSANDRO BL	EDR Hist Auto	Higher	191, 0.036,
A4		23920 ALESSANDRO BL	EDR Hist Auto	Higher	191, 0.036,
A5	MARK C BLOOME CO	23920 ALESSANDRO BLV	RCRA-SQG, FINDS, ECHO	Higher	191, 0.036,
A6	MORENO VALLEY TRANS	23920 ALESSANDRO UNI	RCRA-SQG, FINDS, ECHO	Higher	191, 0.036,
A7		23952 ALESSANDRO BL	EDR Hist Auto	Higher	191, 0.036,
A8	STAR BRIGHT CLEANERS	23962 ALESSANDRO	RCRA-SQG, FINDS, ECHO	Higher	191, 0.036,
B9	99 CLEANERS	23750 ALESSANDRO BLV	RCRA-SQG, FINDS, DRYCLEANERS, HAZNET, ECHO	Higher	348, 0.066,
B10		23750 ALESSANDRO BL	EDR Hist Cleaner	Higher	348, 0.066,
B11	99 CLEANERS	23750 ALESSANDRO LVD	DRYCLEANERS	Higher	348, 0.066,
12	U S POST OFFICE-MORE	23580 ALESSANDRO BLV	SWEEPS UST, CA FID UST	Higher	924, 0.175,
C13	ARCO #82311	23501 ALESSANDRO BLV	LUST, UST	Higher	1097, 0.208
C14	ARCO #5344	23501ALESSANDRO BL;V	UST	Higher	1097, 0.208
C15	ARCO AM/PM MINI MARK	23501 ALESSANDRO BLV	SWEEPS UST, CA FID UST, HIST CORTESE	Higher	1097, 0.208
C16	PRESTIGE STATIONS IN	23501 ALESSANDRO BLV	RCRA NonGen / NLR, FINDS, ECHO	Higher	1097, 0.208
17	RANCHO VERDE HIGH AD	17750 LA SALLE STREE	ENVIROSTOR, SCH	Higher	3307, 0.626
18	PROPOSED ALTERNATIVE	SEC CACTUS AVENUE AN	ENVIROSTOR, SCH	Lower	3874, 0.734
19	MARCH FIELD	14310 FREDERICK STRE	ENVIROSTOR, HWT	Higher	3948, 0.748
20	MARCH FIELD SKEET RA		UXO	Higher	4224, 0.800
21	ELEMENTARY SCHOOL NO	HEACOCK STREET/ATWOO	ENVIROSTOR, SCH	Higher	4429, 0.839
22	BAY AVENUE ELEMENTAR	24801 BAY AVENUE	ENVIROSTOR, SCH	Higher	5109, 0.968

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Information System

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land
SLIC ---------- Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ---------- Underground Storage Tank Listing
AST ---------- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---------- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ---------- Voluntary Cleanup Priority Listing
VCP ---------- Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---------- Waste Management Unit Database
SWRCY ---------- Recycler Database
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---------- Delisted National Clandestine Laboratory Register
HIST Cal-Sites ---------- Historical Calsites Database
SCH ---------- School Property Evaluation Program
CDL ---------- Clandestine Drug Labs
Toxic Pits ---------- Toxic Pits Cleanup Act Sites
US CDL ---------- National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

HIST UST ---------- Hazardous Substance Storage Container Database

Local Land Records

LIENS ---------- Environmental Liens Listing

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS	Formerly Used Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
FINDS	Facility Index System/Facility Registry System
DOCKET HWC	Hazardous Waste Compliance Docket Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
ICE	ICE
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

MWMP ---------- Medical Waste Management Program Listing
NPDES ---------- NPDES Permits Listing
PEST LIC ---------- Pesticide Regulation Licenses Listing
PROC ---------- Certified Processors Database
Notify 65 ---------- Proposition 65 Records
UIC ---------- UIC Listing
WASTEWATER PITS ---------- Oil Wastewater Pits Listing
WDS ---------- Waste Discharge System
WIP ---------- Well Investigation Program Case List
FUELS PROGRAM ---------- EPA Fuels Program Registered Listing
ABANDONED MINES ---------- Abandoned Mines
ECHO ---------- Enforcement & Compliance History Information

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---------- EDR Proprietary Manufactured Gas Plants

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF ---------- Recovered Government Archive Solid Waste Facilities List
RGA LUST ---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: Also known as Superfund, the National Priority List database is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund program. The source of this database is the U.S. EPA.

A review of the NPL list, as provided by EDR, and dated 12/05/2016 has revealed that there is 1 NPL site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARCH AIR FORCE BASE	***22 CSG/CC***	***S 1/8 - 1/4 (0.238 mi.)***	***0***	***8***

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

Federal CERCLIS list

SEMS: SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the SEMS list, as provided by EDR, and dated 10/10/2016 has revealed that there is 1 SEMS site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARCH AIR FORCE BASE	*22 CSG/CC*	*S 1/8 - 1/4 (0.238 mi.)*	*0*	*8*

Federal RCRA generators list

RCRA-LQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

A review of the RCRA-LQG list, as provided by EDR, and dated 12/12/2016 has revealed that there is 1 RCRA-LQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARCH AIR FORCE BASE	*22 CSG/CC*	*S 1/8 - 1/4 (0.238 mi.)*	*0*	*8*

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 12/12/2016 has revealed that there are 5 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MENOS NO 2 AUTO REP	*23952 ALESSANDRO BLV*	*NE 0 - 1/8 (0.036 mi.)*	*A2*	*48*
MARK C BLOOME CO	*23920 ALESSANDRO BLV*	*NE 0 - 1/8 (0.036 mi.)*	*A5*	*51*
MORENO VALLEY TRANS	*23920 ALESSANDRO UNI*	*NE 0 - 1/8 (0.036 mi.)*	*A6*	*52*
STAR BRIGHT CLEANERS	*23962 ALESSANDRO*	*NE 0 - 1/8 (0.036 mi.)*	*A8*	*54*
99 CLEANERS	*23750 ALESSANDRO BLV*	*NW 0 - 1/8 (0.066 mi.)*	*B9*	*56*

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

Federal institutional controls / engineering controls registries

US ENG CONTROLS: A listing of sites with engineering controls in place.

A review of the US ENG CONTROLS list, as provided by EDR, and dated 11/15/2016 has revealed that there is 1 US ENG CONTROLS site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARCH AIR FORCE BASE	*22 CSG/CC*	*S 1/8 - 1/4 (0.238 mi.)*	*0*	*8*

US INST CONTROL: A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

A review of the US INST CONTROL list, as provided by EDR, and dated 11/15/2016 has revealed that there is 1 US INST CONTROL site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARCH AIR FORCE BASE	*22 CSG/CC*	*S 1/8 - 1/4 (0.238 mi.)*	*0*	*8*

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 10/31/2016 has revealed that there are 5 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RANCHO VERDE HIGH AD Facility Id: 33820009 Status: No Action Required	*17750 LA SALLE STREE*	*E 1/2 - 1 (0.626 mi.)*	*17*	*68*
MARCH FIELD Facility Id: 80000870 Status: Inactive - Action Required	*14310 FREDERICK STRE*	*W 1/2 - 1 (0.748 mi.)*	*19*	*73*
ELEMENTARY SCHOOL NO Facility Id: 36880002 Status: No Action Required	*HEACOCK STREET/ATWOO*	*NNE 1/2 - 1 (0.839 mi.)*	*21*	*75*
BAY AVENUE ELEMENTAR Facility Id: 33820010	*24801 BAY AVENUE*	*ENE 1/2 - 1 (0.968 mi.)*	*22*	*77*

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

Status: No Further Action

Lower Elevation	Address	Direction / Distance	Map ID	Page
PROPOSED ALTERNATIVE	***SEC CACTUS AVENUE AN***	***ESE 1/2 - 1 (0.734 mi.)***	***18***	***71***
Facility Id: 60000563				
Status: No Further Action				

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARCO #82311	***23501 ALESSANDRO BLV***	***WNW 1/8 - 1/4 (0.208 mi.)***	***C13***	***63***
Database: LUST REG 8, Date of Government Version: 02/14/2005				
Database: LUST, Date of Government Version: 12/12/2016				
Database: RIVERSIDE CO. LUST, Date of Government Version: 01/19/2017				
Status: Completed - Case Closed				
Facility Status: Case Closed				
Facility Id: 200016218				
Global Id: T0606500632				
Facility Status: 9				
Global ID: T0606500632				

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, has revealed that there are 2 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARCO #82311	***23501 ALESSANDRO BLV***	***WNW 1/8 - 1/4 (0.208 mi.)***	***C13***	***63***
Database: RIVERSIDE CO. UST, Date of Government Version: 10/20/2016				
ARCO #5344	23501ALESSANDRO BL;V	WNW 1/8 - 1/4 (0.208 mi.)	C14	65
Database: UST, Date of Government Version: 09/12/2016				
Facility Id: 80059				

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Registered Storage Tanks

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 2 SWEEPS UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
U S POST OFFICE-MORE	***23580 ALESSANDRO BLV***	***WNW 1/8 - 1/4 (0.175 mi.)***	***12***	***62***
Status: A Tank Status: A Comp Number: 11115				
ARCO AM/PM MINI MARK	***23501 ALESSANDRO BLV***	***WNW 1/8 - 1/4 (0.208 mi.)***	***C15***	***65***
Status: A Tank Status: A Comp Number: 17				

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there are 2 CA FID UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
U S POST OFFICE-MORE	***23580 ALESSANDRO BLV***	***WNW 1/8 - 1/4 (0.175 mi.)***	***12***	***62***
Facility Id: 33006873 Status: A				
ARCO AM/PM MINI MARK	***23501 ALESSANDRO BLV***	***WNW 1/8 - 1/4 (0.208 mi.)***	***C15***	***65***
Facility Id: 33004554 Status: A				

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 12/12/2016 has revealed that there is 1 RCRA NonGen / NLR site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PRESTIGE STATIONS IN	***23501 ALESSANDRO BLV***	***WNW 1/8 - 1/4 (0.208 mi.)***	***C16***	***67***

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 DOD site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARCH AIR FORCE BASE		0 - 1/8 (0.000 mi.)	0	8

ROD: Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid the cleanup.

A review of the ROD list, as provided by EDR, and dated 11/25/2013 has revealed that there is 1 ROD site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARCH AIR FORCE BASE	***22 CSG/CC***	***S 1/8 - 1/4 (0.238 mi.)***	***0***	***8***

UXO: A listing of unexploded ordnance site locations

A review of the UXO list, as provided by EDR, and dated 10/25/2015 has revealed that there is 1 UXO site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARCH FIELD SKEET RA		W 1/2 - 1 (0.800 mi.)	20	75

DRYCLEANERS: A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaners' agents; linen supply; coin-operated laundries and cleaning; drycleaning plants except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

A review of the DRYCLEANERS list, as provided by EDR, and dated 09/02/2016 has revealed that there are 2 DRYCLEANERS sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
99 CLEANERS EPA Id: CAD983656554 EPA Id: CAL000319087 EPA Id: CAL000265973	***23750 ALESSANDRO BLV***	***NW 0 - 1/8 (0.066 mi.)***	***B9***	***56***
99 CLEANERS EPA Id: CAL000116087	23750 ALESSANDRO LVD	NW 0 - 1/8 (0.066 mi.)	B11	61

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there is 1 HIST CORTESE site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARCO AM/PM MINI MARK Reg Id: 083303648T	***23501 ALESSANDRO BLV***	***WNW 1/8 - 1/4 (0.208 mi.)***	***C15***	***65***

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there are 4 EDR Hist Auto sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	23932 ALESSANDRO BL	NE 0 - 1/8 (0.036 mi.)	A1	48
Not reported	23942 ALESSANDRO BL	NE 0 - 1/8 (0.036 mi.)	A3	49
Not reported	23920 ALESSANDRO BL	NE 0 - 1/8 (0.036 mi.)	A4	50
Not reported	23952 ALESSANDRO BL	NE 0 - 1/8 (0.036 mi.)	A7	54

EDR Hist Cleaner: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Cleaner list, as provided by EDR, has revealed that there is 1 EDR Hist Cleaner site within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	23750 ALESSANDRO BL	NW 0 - 1/8 (0.066 mi.)	B10	61

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

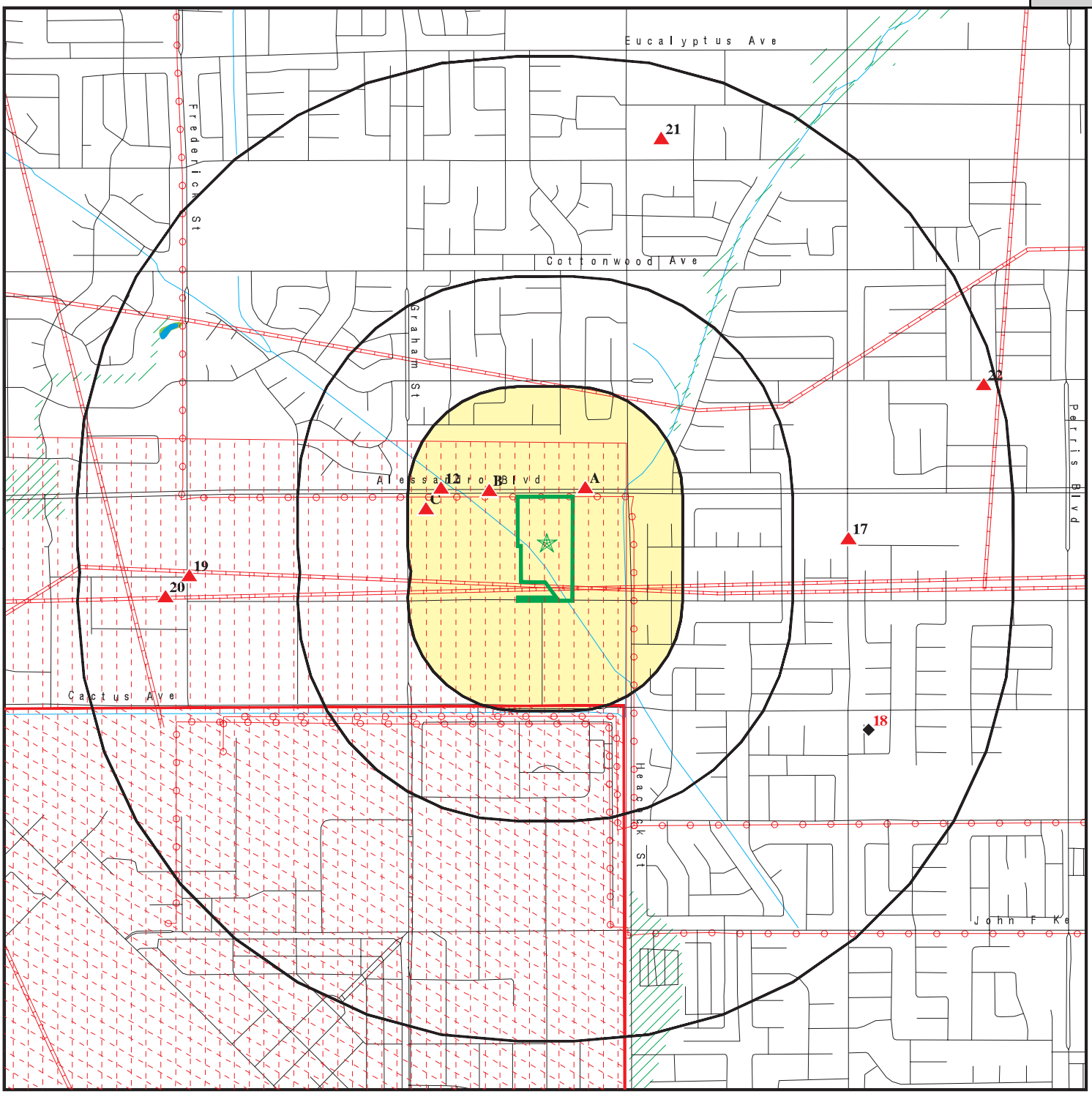
EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 6 records.

Site Name	Database(s)
UCR - PARKING LOT 6	LUST
U.S. AIR FORCE - MARCH AFB (FORMER	SLIC
RIVERSIDE PLUME	SLIC
UCR (PESTICIDE PITS)	SLIC
PROPOSED ALESSANDRO ADMINISTRATION	ENVIROSTOR, SCH
INDIAN MIDDLE SCHOOL	ENVIROSTOR, SCH

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

OVERVIEW MAP - 4903567.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

Power transmission lines

Pipelines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

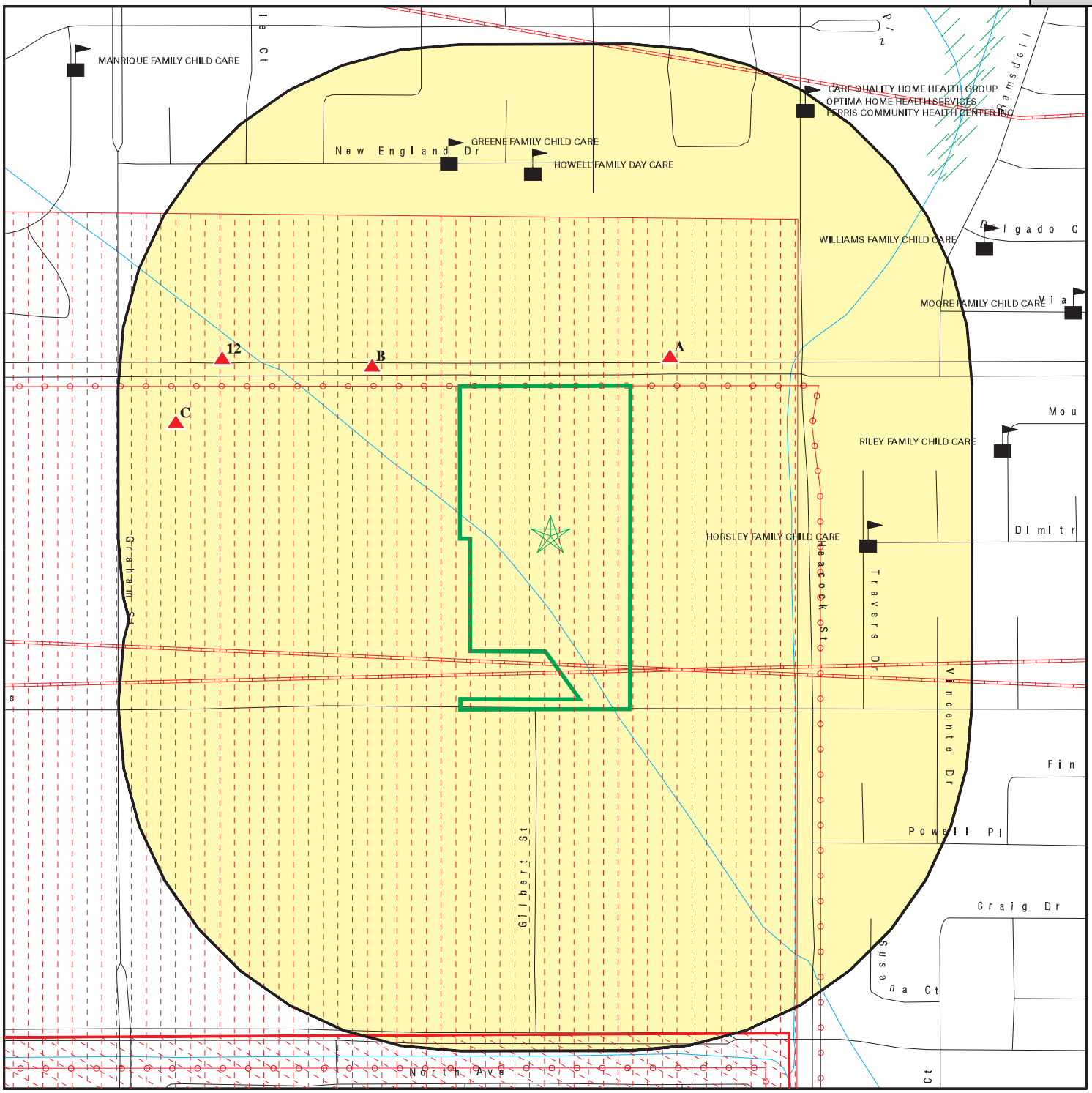
Areas of Concern

This report includes Interactive Map Layers display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	6363793-ESAI	CLIENT:	ODIC Environmental
ADDRESS:	APN 297-170-077 Moreno Valley CA 92553	CONTACT:	Frank Trinidad
		INQUIRY #:	4903567.2s
LAT/LONG:	33.915512 / 117.246926	DATE:	April 10, 2017 4:37 pm

Copyright © 2017 EDR, Inc. © 2015 TomTom Rel. 2015.

DETAIL MAP - 4903567.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 6363793-ESAI	CLIENT: ODIC Environmental
ADDRESS: APN 297-170-077 Moreno Valley CA 92553	CONTACT: Frank Trinidad
LAT/LONG: 33.915512 / 117.246926	INQUIRY #: 4903567.2s DATE: April 10, 2017 4:47 pm

Copyright © 2017 EDR, Inc. © 2015 TomTom Rel. 2015.

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	1	0	0	NR	1
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	1	0	NR	NR	1
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	1	NR	NR	NR	1
RCRA-SQG	0.250		5	0	NR	NR	NR	5
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	1	0	NR	NR	1
US INST CONTROL	0.500		0	1	0	NR	NR	1
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	5	NR	5
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	1	0	NR	NR	1

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	2	NR	NR	NR	2
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	2	NR	NR	NR	2
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	2	NR	NR	NR	2
Local Land Records								
LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	1	NR	NR	NR	1
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		1	0	0	0	NR	1
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	1	0	0	NR	1
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	1	NR	1
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		2	0	NR	NR	NR	2
EMI	TP		NR	NR	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	1	0	NR	NR	1
HWP	1.000		0	0	0	0	NR	0

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HWT	0.250		0	0	NR	NR	NR	0
MINES	TP		NR	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
PEST LIC	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.500		0	0	0	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		4	NR	NR	NR	NR	4
EDR Hist Cleaner	0.125		1	NR	NR	NR	NR	1
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		0	13	15	0	6	0	34

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
DOD Region , CA < 1/8 1 ft.	**MARCH AIR FORCE BASE (CLOSED)**	**DOD**	**CUSA143538 N/A**

DOD:
- Feature 1: Air Force DOD
- Feature 2: Not reported
- Feature 3: Not reported
- URL: Not reported
- Name 1: March Air Force Base (Closed)
- Name 2: Not reported
- Name 3: Not reported
- State: CA
- DOD Site: Yes
- Tile name: CARIVERSIDE

NPL Region South 1/8-1/4 1255 ft.	**MARCH AIR FORCE BASE 22 CSG/CC RIVERSIDE, CA 92518**	**NPL SEMS RCRA-LQG US ENG CONTROLS US INST CONTROL ROD PRP FINDS**	**1000169261 CA4570024527**

NPL:
- EPA ID: CA4570024527
- Cerclis ID: 902761
- EPA Region: 9
- Federal: Y
- Final Date: 1989-11-20 00:00:00
- Site Score: 31.940000000000001
- Latitude: 33.906379999999999
- Longitude: -117.2557

Category Details:
- NPL Status: Currently on the Final NPL
- Category Description: Depth To Aquifer-> 50 And <= 100 Feet
- Category Value: 65

- NPL Status: Currently on the Final NPL
- Category Description: Distance To Nearest Population-> 0 And <= 1/4 Mile
- Category Value: 10

Site Details:
- Site Name: MARCH AIR FORCE BASE
- Site Status: Final
- Site Zip: 92518
- Site City: RIVERSIDE
- Site State: CA
- Federal Site: Yes
- Site County: RIVERSIDE
- EPA Region: 09
- Date Proposed: 07/14/89
- Date Deleted: Not reported
- Date Finalized: 11/21/89

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

Substance Details:

NPL Status:	Currently on the Final NPL
Substance ID:	Not reported
Substance:	Not reported
CAS #:	Not reported
Pathway:	Not reported
Scoring:	Not reported

NPL Status:	Currently on the Final NPL
Substance ID:	A046
Substance:	POLYCHLORINATED BIPHENYLS
CAS #:	1336-36-3
Pathway:	GROUND WATER PATHWAY
Scoring:	3

NPL Status:	Currently on the Final NPL
Substance ID:	U210
Substance:	TETRACHLOROETHENE
CAS #:	127-18-4
Pathway:	GROUND WATER PATHWAY
Scoring:	2

NPL Status:	Currently on the Final NPL
Substance ID:	U228
Substance:	TRICHLOROETHYLENE (TCE)
CAS #:	79-01-6
Pathway:	GROUND WATER PATHWAY
Scoring:	2

Summary Details:

Conditions at proposal July 14, 1989): March Air Force Base MAFB) covers approximately 7,000 acres near Riverside in the Moreno Valley in Riverside County, California. MAFB is adjacent to light industrial, agricultural, and residential areas. Established in 1918 as the Alessandro Aviation Field, MAFB has served as a training base and refueling operations base. Industrial operations including aircraft maintenance and repair) involved use of solvents and disposal of solvent wastes. MAFB is participating in the Installation Restoration Program IRP), established in 1978. Under this program, the Department of Defense seeks to identify, investigate, and clean up contamination from ha ardous materials. As part ofIRP, the Air Force investigated 28 potentially contaminated disposal areas. MAFB Well No. 1 on-base was found to be contaminated with trichloroethylene, tetrachloroethylene, and cis-1,2-dichloroethylene at levels that exceed State drinking water standards. It was taken out of service. Soils on the base are contaminated with toluene and ben ene. An estimated 11,600 people obtain drinking water from municipal wells within 3 miles of ha ardous substances on MAFB. The Air Forceis conducting a remedial investigation/ feas bility study RI/FS) to determine the type and extent of contamination at the base and identify alternatives for remedial action. Status November 21, 1989): Field work continues on the RI/FS.

Site Status Details:

NPL Status:	Final
Proposed Date:	07/14/1989
Final Date:	11/21/1989
Deleted Date:	Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Narratives Details:
NPL Name: MARCH AIR FORCE BASE
City: RIVERSIDE
State: CA

SEMS:
Site ID: 902761
EPA ID: CA4570024527
Federal Facility: Y
NPL: Currently on the Final NPL
Non NPL Status: Not reported

Following information was gathered from the prior CERCLIS update completed in 10/2013:
Site ID: 0902761
EPA ID: CA4570024527
Facility County: RIVERSIDE
Short Name: MARCH AIR FORCE BASE
Congressional District: 41
IFMS ID: 09N6
SMSA Number: 6780
USGC Hydro Unit: 18070202
Federal Facility: Federal Facility
DMNSN Number: 7000.00000
Site Orphan Flag: N
RCRA ID: Not reported
USGS Quadrangle: Not reported
Site Init By Prog: Not reported
NFRAP Flag: Not reported
Parent ID: Not reported
RST Code: Not reported
EPA Region: 09
Classification: Federal Facility
Site Settings Code: SU
NPL Status: Currently on the Final NPL
DMNSN Unit Code: ACRE
RBRAC Code: Not reported
RResp Fed Agency Code: USAF
Non NPL Status: Not reported
Non NPL Status Date: / /
Site Fips Code: 06065
CC Concurrence Date: / /
CC Concurrence FY: Not reported
Alias EPA ID: Not reported
Site FUDS Flag: Not reported

CERCLIS Site Contact Name(s):
Contact ID: 9000102.00000
Contact Name: John Lucey
Contact Tel: (415) 972-3145
Contact Title: Remedial Project Manager (RPM)
Contact Email: Not reported

Contact ID: 13003854.00000
Contact Name: Leslie Ramirez
Contact Tel: (415) 972-3978

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

Contact ID: 13003858.00000
Contact Name: Sharon Murray
Contact Tel: (415) 972-4250
Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

Contact ID: 13004003.00000
Contact Name: Carl Brickner
Contact Tel: Not reported
Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

CERCLIS Site Alias Name(s):
Alias ID: 101
Alias Name: MARCH AFB
Alias Address: Not reported
CA
Alias ID: 102
Alias Name: MARCH AIR FORCE BASE
Alias Address: 22 CSG/CC
MARCH AFB, CA 92518
Alias ID: 103
Alias Name: MARCH AIR FORCE BASE
Alias Address: 22 CSG/CC
RIVERSIDE, CA 92518
Alias ID: 9270150
Alias Name: MARCH USAF BASE
Alias Address: OLDB MARCH 3430 BUNDY AVENUE
MARCH AFB, CA 92311
Alias ID: 101
Alias Comments: PREVIOUS EPA ID# AZD 981 416 977

Site Description: March Air Force Base originally a 640 acres site called Alessandro Aviation Field, was officially opened March 1, 1918. The base was initially used to train "Jenny" pilots during World War I. The base was closed for about four years after the war and was then reopened in 1927. By 1938, the base was considered to be the central location for west coast bombing and gunnery training. In 1949, the Strategic Air Command took control of the base. Since that time, the base has hosted bombers, refuelers, and cargo aircraft. In June 1992, the base became an Air Mobility Command installation. Its primary mission is refueling, but reserve and guard units have cargo and fighter missions as well. In September 1993, March AFB was designated by Congress to realign its forces. The Base will be redesignated "March Air Reserve Base" and is xpected to decrease to about 1/3 of its present size. After realignment, property that is not retained by the base will be available for transfer.
The U.S. Air Force, due to its primary mission in national defense, has long been engaged in a wide variety of operations that involve the use, storage, and disposal of hazardous waste. In 1980, the Installation Restoration Program (IRP) was developed by the Department of Defense (DOD) to locate and cleanup hazardous waste sites. At March AFB, aircraft maintenance, fuel storage operations, fire-training exercises, and base operations have generated a variety of hazardous wastes. Consequently, several areas of soil and groundwater on-base have been contaminated. In September 1983 the IRP process began. The results were records indicating 30 potentially contaminated sites which required further investigation. A second study,

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

completed in March 1987, indicated that 5 of the 30 sites required even further investigation to determine the type and extent of contamination in the soil and groundwater. In June 1987, further investigation was done, indicating that additional work was required to better define the extent of contamination and to research possible off-base migration of TCE in groundwater. In November 1989, March AFB was add to the National Priorities List (NPL) primarily due to the contamination of groundwater on-base. In September 1990, a Federal Facilities Agreement (FFA) was signed by the Air Force, U.S. Environmental Protection Agency (EPA), and the State of California. Three separate OUs were created based on geographic location of sites, similarity of contaminants, and location of groundwater contaminant plumes. The subject of this ROD (6/20/96) is OU-1, OU-1 includes Sites 4,5,7,9,10,13,14,15,16,18,29,31,34, and 38. Groundwater at Sites 4, 18,31,and the OU-1 Groundwater Plume, and soil at Sites 4,10,15,18,31, and 34 require remedial action. Sites 5,7,9,13,14,6,29, and 38 are considered no further action. Sites 21 and 23 are covered in OU-2 ROD. Site 33, the Panero Aircraft Fueling System is detailed in OU-3. The following are Sites that require Groundwater remediation: OU 1-Groundwater Plume - The OU-1 Groundwater Plume is the most widespread plume at the base, extending from Site 31 south and east through the area of Sites 34, 9, and 5, and extending to a maximum of approximately 1300 feet beyond the eastern boundary and 1500 feet south of Site 5 off-base. Numerous contaminants, including TCE, were detected. Site 4 Groundwater Plume - This plume is localized in the vicinity of Site 4 with the apparent source area near the southern end of Site 4. The contaminants with the highest concentration are TCE and PCE. Site 18 - Groundwater Plume - This plume is localized in the vicinity of Site 18 with the apparent source area west of the engine test cell in the center of Site 18. Fuel has been detected in four of the ten monitoring wells to date. Site 31 - Groundwater Plume - Concentrations of contaminants at Site 31, primarily TCE, are much higher than those in the rest of the OU-1 Plume, and these high concentrations are confined to a relatively small area. These conditions coupled with the history of Site 31 (reported solvent disposal) indicate that Site 31 is a likely source for much of the TCE found in OU-1 groundwater. Therefore, even though the Site 31 plume has the same contaminants and is continuous with the OU-1 plume, it is appropriate to treat Site 31 separately from the remainder of the OU-1 plume, in order to eliminate the source of contamination. Sites That Require Soil Remediation Include: Site 4 - Landfill No.6 - a landfill operating from 1955 to 1969, covering 8.5 acres, and located along the eastern boundary of the base, south of the East Gate. The landfill is up to 25 feet deep, containing primarily sanitary waste, construction rubble, and debris. Small amounts of medical wastes and empty fuel containers are also present. There are low levels of chlorinated solvents in the soil and soil gas, as well as elevated concentrations of trichloroethylene (TCE) and tetrachloroethylene (PCE) in the groundwater. Both TCE and PCE are found in solvents used to clean and degrease military equipment. Vinyl chloride, a breakdown product of TCE and PCE, has also been detected in Site 4 groundwater. The landfill is considered the source of contaminants detected in groundwater downgradient of the Site. Site 10 - Flightline Drainage Channel - This site, installed prior to 1940, is located southeast of the flightline aircraft maintenance areas. The channel is concrete lined (since the 1960s) up to the eastern boundary of the base where it discharges to the Perris Valley Storm Drain (PVSD). The PVSD flows east approximately 2 miles, where it joins another drainage and flows south approximately 6 miles to the San Jacinto River. The channel has reportedly received various waste oils, hydraulic fluids, diesel fuel, jet fuel, waste paints, paint strippers, paint thinners, battery acids and solvents, including TCE. Prior to 1974, wastes may have been discharged directly to the PVSD. Since 1974, the main oil/water separator has pretreated

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

the runoff before its discharge off-base. Site 15 - Fire Protection Training Area No.3- This site is located southeast of the end of runway 12-30 and between Sites 5 and 7. The area was developed in 1978 and was reportedly constructed by placing an underdrain system and gravel over a clay liner. Firefighting water, solutions of Aqueous Film Forming Foam (AFFF), and residual fuel used during training exercises were drained to a formerly unlined water holding pond located adjacent to Site 15. Approximately 6,000 gallons per year of contaminated JP-4 have been burned in training exercises since the facility was constructed in 1978. This Site is no longer being used as a fire training area. Site 18 - Engine Test Cell - This site is located on the flightline, south of Taxiway No.2, and has been inactive for several years. The test cell was constructed in 1957 for the purpose of testing aircraft engines. An oil/water separator was installed in 1976, water from the seperator was discharged to the base wastewater treatment plant. The oil was collected by a contractor for off-base disposal. Prior to 1976, spills of oil, fuel, and solvents were drained to a nearby ditch. Potential sources of fuel include overflow of tanker trucks and fuel tanks on aircraft that have been parked nearby. Site 31 - Unconfirmed Solvent Disposal - Site 31 is located off Graeber Street on the east side of Building 1211. The practice of discharging solvents on the ground reportedly occurred from about the mid-1950s to the mid-1970s. In addition, floor drains from maintenance shops may have leaked solvents to the subsurface. Groundwater sampling at the site has indicated TCE concentrations which exceed State and Federal drinking water standards. Site 34 - Pritchard Aircraft Fueling System - Site 34 is located next to Building 1245, at the southeast end of Taxiway No, 1. In 1962, six 50,000 gallon tanks were moved to this site from the Pabero Fueling System. In 1990, this system was discontinued, and in 1991, the tanks and system were removed. During a geological investigation stained soils and fuel odors were observed. Sites With No Further Action Planned: Site 5 - Landfill No.3 - This Site covers approximately 5 acres and is located southeast of the present flightline. The landfill was reportedly operated from the late 1940s to approximately 1960. Landfill wastes consist primarily of sanitary waste and construction rubble. Site 7 - Fire Training Area No.2 - This Site is located on the eastern part of the base, north of the Alert Facility. Between 1954 and 1978, fire training exercises were conducted in unlined training pits. Three distinct burn pits were identified in historic aerial photographs of the base. A portion of this Site may have been used for crash rescue training. Wastes used in those exercises reportedly included contaminated fuel, waste solids, and spent solvents. Site 9 - Main Oil/Water Separator - Site 9 is located north of the Site 5 at the southeast end of the flightline apron. The facility was constructed in 1974 and serves the main storm, drainage system for the flightline apron and the flightline shops. The storm drains have reportedly received waste oils, hydraulic fluids, diesel fuel, waste paints, spent solvents, paint strippers, paint thinners, and battery acids. The oil/water separator is of earthen construction with a large baffle that divides the separator into two compartments. The separated oil is picked up by a skimmer and pumped to a holding tank for Off-base disposal. This facility drains into the flightline Drainage Channel (Site 10) and then to the Perris Valley Storm Drain Lateral A. Site 13 - Tank Truck Spill Site - Site 13 is located along the eastern perimeter road of the base, within the northern portion of Site 5. In 1973, approximately 5,000 gallons of JP-4 jet fuel spilled from a tank truck to the ground at this location. The accidental discharge resulted from a mechanical malfunction. There was no reported containment or cleanup activities. Site 14 - Liquid Fuel Pump Station Overflow - Site 14 is located southeast of the flightline apron and about 50 to100 feet west of the East March Sludge Drying Beds (Site 16). In 1973, approximately 1,000 gallons of JP-4 jet fuel spilled onto the ground. The spill occurred due to an overflow

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

of the liquid fuel pump station at Building 1245. The spill was contained in the unpaved area south of the pump station and allowed to percolate into the ground. Site 16 - East March Sludge Drying Beds - Site 16 is located on the eastern part of the base, at the south end of the flight line parking apron, and near the former East March Wastewater Treatment Plant. The treatment plant was constructed in 1938 and provided secondary treatment for sanitary and industrial wasterwater. Primary and secondary sludges were digested anaerobically, dewatered on unlined sludge drying beds, and disposed of in an on-base landfill. The sludge may have contained heavy metals and organics resulting from discharges of industrial wastes to the sanitary sewer system. These drying beds ope3rated from 1938 to 1977, when the plant was destroyed in place. Site 29 - Fire Training Area No.1 - Site 29 is located at the eastern part of the base, north of Site 9. The area was used as a fire training pit prior to 1951. Suspected contaminants at the site include contaminated fuel, waste oil, and spent solvents Site 38 (PCB Contamination, Building 1311), Building 1311 is located at the southeast end of the taxiway, northwest of IRP Site 23. In 1984, soils from four areas contaminated with transformer oils were sampled. Soils from two of the areas (Buildings 317 and 1305) were determined to be PCB-contaminated. The soils were excavated and removed from the Base. Records to verify the cleanup have not been located. The RI/FS report and Proposed Plan for OU-1 were released to the public on April 28, 1994. These two documents were made available via the Administrative Record, the information repositories at the Moreno Valley and March AFB libraries, and at the Moreno Valley Chamber of Commerce. A fact sheet, condensed from the Proposed Plan, was sent to everyone on the March AFB mailing list, which includes Restoration Advisory Board (RAB) members. An OU-1 RI/FS subcommittee, formed by the RAB, provided oral comments to the RAB at its April 26, 1994 meeting. The Final RI/FS Report was published in July 1994. A public comment period was held from April 28 to May 28, 1994. In addition, a public meeting was held on May 12, 1994 at 7 p.m. at Best Western Image Suites in Moreno Valley. Representatives of the U.S. Air Force, EPA, Department of Toxic Substances Control, and California Regional Water Quality Control Board, Santa Ana, attended the public meeting to address any questions about the RI/FS and Proposed Plan. March Air Force Base (AFB) is located on 7,123 Acres in the northern end of the Perris Valley, east of the city of Riverside, in Riverside County, California, approximately 60 miles east of Los Angeles and 90 miles north of San Diego. The base lies in sections of Township 3 South, Range 4 West. The population of Riverside County is 1,700,413 and consists primarily of English and Spanish speaking citizens. The climate of the March AFB area is characterized as Mediterranean to semi-arid, varying according to elevation and distance from the Pacific Ocean. The weather generally consists of warm to hot, dry summers and mild winters. Current land use on March AFB is classified as residential and light industrial. Maintenance facilities, warehouses, and administrative centers support the mission. The land surrounding March AFB area includes areas of residences in all directions around the Site, light industry to the north, and agriculture to the east and south. With the exception of small surface water ponds that are used for agricultural purposes, there are two permanent surface water bodies within 3.5 miles of March AFB. Lake Perris, located 4 miles southeast of the base, provides approximately 130,000 acre feet of storage for State Project Water brought in by the California Aqueduct which runs north and east of the base. An east-west portion of the Colorado River Aqueduct is located approximately 3.5 miles south of the base. This aqueduct flows in to Lake Matthews, which is located about 10 miles west of March AFB. A very small recreation lake is located approximately 2 miles east of the base. It is maintained by the Moreno Valley Ranch homeowners association and is located just south of Iris Street and west of Lasselle Street in the City of Moreno Valley. A number of

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

wetlands and riparian areas have been identified on and in the immediate area of the base, most are located on West March, outside OU-1. The U.S. Army Corps of Engineers determined that approximately 2.17 acres of jurisdictional wetlands exist in the Heacock Drain Channel, with .8 acres of wetlands adjacent to the Site 4 landfill. The wetlands are not continuous but are localized patches of wetland vegetation that change position each year due to high volume, high velocity storm water flow from the spring rains through these channels which causes scouring of the earthen bottom and sides. Manyindustrial, agricultural and domestic wells exist in the Perris Valley. Four on-base wells and two off-site wells southeast of the base were formerly used for the base water supply. One of these wells was shut down in February 1984 due to trichloroethylene (TCE) contamination, the other 3 on-base wells were shut down due to low yields. The two off-site wells are located southeast of the base in the center of Perris Valley. Although both of these wells are operable only one is occasionally used for emergency service, while the other is dormant. All base water is currently supplied by the Eastern Municipal Water District. OU-1 is made up of Sites 4,5,7,9,10,13,14,15,16,18,29,31,34, and 38. Sites 21 and 23 are included in the OU-2 ROD. Site 10 (Flightline Drainage Channel). This site is located southeast of the flightline aircraft maintenance areas. The drainage channel, which was installed prior to 1940, has reportedly received various waste oils, hydraulic fluids, diesel fuel, jet fuel, waste paints, paint strippers, paint thinners, battery acids and solvents (including TCE). The drainage channel is concrete lined (since the 1960s) up to the eastern boundary of the base where it discharges to the Penis Valley Storm Drain. The Penis Valley Storm Drain flows east approximately 2 miles, where joins another drainage and flows south approximately 6 miles to the San Jacinto River. Prior to 1974, waste disposed of in the drainage channel may have been discharged directly to the Penis Valley Storm Drain. Since 1974, the main oil/water separator (Site 9) has pretreated the runoff before its discharge off base. Primary contaminants of concern are polycyclic aromatic hydrocarbons (PAHs), which were detected in drainage ditch sediments. PAHs are a series of petroleum derivatives found in many fuel and asphalt compounds. Site 15 (Fire Protection Training Area Number 3). This site is located southeast of runway 12-30 and between Sites 5 and 7. The area was developed in 1978 and was reportedly constructed by placing an underdrain system and gravel over a clay liner. Firefighting water, solutions of Aqueous Film Forming Foam (AFFF), and residual fuel used during training exercises were drained to a formerly unlined water holding pond located adjacent to Site 15. Approximately 6,000 gallons per year of contaminated JP-4 have been burned in framing exercises since the facility was constructed in 1978. The site is no longer being used as a fire training area. The primary contaminant of concern is phenanthrene, a PAH. Selected Remedy (as described in the OU 1 ROD): For both Sites 10 and 15, the preferred method of cleanup of these soils is excavation and low-temperature thermal desorption. Need for Explanation of Significant Differences (ESD): The Record of Decision (ROD) selected remedy for soils at Sites 10 and 15 was excavation and low temperature thermal desorption. The soils were excavated and treated by bio-remediation and properly recycled to approved regulatory standards. This ESD will be entered in the Administrative Record maintained at March AFB. An Explanation of Significant Differences for Operable Unit 01 for the March Air Force Base Site was completed in August 2000. Sites that require soil remediation include Sites 4, 10, 15, 18, 31, 34. Sites that require groundwater remediation include OU1 and Sites 4,18, and 31 groundwater plumes. Sites with No Further Action Planned: Site 5,7,9,13,14,16,29,38.
OU 2: In 1980, the Installation Restoration Program (IRP) was developed by the Department of Defense as the mechanism for the CERCLA process, incorporating applicable Resource Conservation Recovery Act (RCRA) regulations

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

as well as meeting requirements of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP) (40 CFR. Part 300). The Air Force conducted a Phase I records search of 30 potentially contaminated IRP sites on the Base. There are now a total of 44 IRP sites at the former March AFB and current March ARB. The primary contaminants identified in the IRP include chlorinated solvents, fuels, polychlorinated biphenyls (PCBs), and polynuclear aromatic hydrocarbons (PAHs). Contamination by PAHs and PCBs appears to be restricted to surface and near-surface soils whereas fuel hydrocarbons and solvents tend to be predominant contaminants in subsurface soils and groundwater. The lead agency for cleanup of the closed portions of March AFB is the Air Force. The EPA, the California Department of Toxic Substances Control (DTSC), and the Santa Ana Regional Water Quality Control Board (RWQCB) are all support agencies for cleanup activities at the Base. The current land use and adjacent land use for most of the OU 2 Air Force Real Property Agency (AFRPA) sites is vacant land/open space with limited commercial and residential land use adjacent to some of the sites. Site 3 and the adjacent areas are undeveloped land. Site 6 contains an engineered waste cell. There is a residential area to the south and a golf course is to the east of Site 6. Site 12 was the former civil engineering yard with numerous structures. Site 12 is not currently utilized. Residential land use occurs to the east of Site 17. Air Force commercial facilities such as offices are located to the north and west of the Site 17. Site 19 is currently a part of the operating wastewater treatment plant. Structures relating to plant operations are located on-site and to the west and north. Site 20 and 26 and the adjacent areas are undeveloped land. A former water treatment plant is south of Site 26 and west of Site 20. This facility is no longer used. Site 23 is an active agricultural area, surrounded by currently vacant land to the north, south and east. Air Force land consisting of open space is west of Site 23. Site 25 and the adjacent areas is undeveloped land, with nearby residential development to the south. The three Site 35 subareas and Site 42 are former UST locations within landscaped areas adjacent to structures. The areas near Site 35a, 35b and Site 42 are still actively used as office and dormitory areas, but the Site 35c area is no longer used. Sites 30 and 40 are open space with some riparian vegetation. A residential area is located to the north and west of Site 40. The OU 2 sites are located on that portion of March AFB that may be converted to non-Air Force use. Site 23 is on private land. The anticipated land use for most of the OU 2 Air Force Real Property Agency (AFRPA) sites is commercial or industrial use. Alternative land uses have also been assessed and areas of West March could remain open space such as the Stephens' Kangaroo Rat (SKR) Conservation Area. March AFB is located in the North Perris Groundwater Basin. Currently, there are no potable groundwater resources extracted at the OU 2 AFRPA sites. The relatively thin water-bearing zone on West March is not anticipated to yield substantial quantities of water. Therefore, the potential for extraction and use of groundwater from the West March AFRPA sites is limited, both now and in the foreseeable future. Water-bearing zones producing sufficient groundwater for use may be present at AFRPA sites on the Main Base and Site 23, and should be considered a potential potable water source. Surface water is not currently used at the OU 2 AFRPA sites. Surface water areas such as at Site 6, 30 and 40 may remain as wetlands depending on future site development. OU2 consists of a number of sites. Each site is descr bed below. Site 3 is a former 23-acre landfill located south of Cactus Avenue and west of Plummer Road. Riparian vegetation is found in the drainage areas. Site 3 is located in the 1,300-acre Stephens' Kangaroo Rat (SKR) reserve. The Site 3 landfill was used from 1954 through 1974. The landfill received household and dumpster waste, construction debris, and military waste from the Base. The military wastes included empty tanks, spent munitions, and miscellaneous wastes such as parachutes, medical waste, and fire hoses. Some of the contaminants found in the wastes included

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

volatile organic compounds, pesticides, PCBs, PAHs, and munitions residues. The Air Force was concerned that the waste in the landfill might contaminate the soil and groundwater. After discussions with the regulatory agencies and the public, a decision was made to clean up the site by removing the landfilled waste. An interim removal action was completed in late 1995 and early 1996. Approximately 223,200 cubic yards of landfilled materials and soil were removed. Excavated materials from Site 3 to be transported to and disposed of in the engineered waste cells at Site 6 were tested for organic and inorganic constituents during the remedial investigation and monitored during the removal action according to approved work plans. Site 6 is located on West March, north of the Air Force Village West residential development, south of Van Buren Boulevard, east of Plummer Road, and west of Air Force Village West Drive. The landfill comprised three discrete areas: Site 6a (approximately 15 acres) the location of the main former landfill area; Site 6b Quarry (approximately 0.6 acre) the location of a former quarry; and Site 6b Pond (approximately 2.6 acres) the location of a pond. Site 6 was used by March AFB from the early 1950s to the early 1 980s for disposal of household waste and construction debris. Polynuclear aromatic hydrocarbons (PAHs), PCBs, pesticides, herbicides, and dioxins were found in samples of soil and water collected during the OU2 RI. An interim, removal action was conducted in 1995; approximately 63,000 cubic yards of waste were removed from Site 6a and temporarily stockpiled. Waste at Site 6a was removed from the vadose zone and beneath groundwater including soil contaminated with petroleum hydrocarbons. Waste was also removed from the pond, including debris and tar. Two engineered waste cells, over 12 acres in size, were constructed in the Site 6a area. No confirmation samples were taken of soils and bedrock under Site 6a because the bottom of the excavation was below the water table and sample results would not be meaningful. This site was treated as a closure in place rather than a clean closure. Stockpiled waste from Site 6a was landfilled back into the engineered waste cells over Site 6a. Excavated materials from Site 6a to be disposed of in the engineered waste cells at Site 6 were tested for organic and inorganic constituents during the remedial investigation and monitored during the removal action according to approved work plans. Site 12, the 20-acre Base Civil Engineering Yard, is located north of MacDill Street, between Lackland Avenue and Travis Avenue. The area is developed with numerous structures and is partially paved with asphalt. From the l950's to 1996, Site 12 was the civil engineering yard for general maintenance operations for March AFB. It included a carpentry shop, electrical shop, paint shop, pesticide shop, and storage areas for heavy equipment. These shops used and stored a variety of hazardous materials including paints and paint-related products, pesticides, solvents, acids, and drums labeled hazardous waste. During the OU2 RI, PAHs and hexavalent chromium were found in soil samples. The contaminant 1,1-dichloroethene (1, 1-DCE) was found in soil vapor samples in a small area in deeper soils near Building 2507. Groundwater beneath Site 12 has become impacted by trichloroethene (TCE) and tetrachloroethene (PCE). The groundwater contamination is in a small area and is only slightly above maximum contaminant levels (MCLs). Periodic monitoring of the groundwater to observe changes in contaminant concentrations is being conducted. After discussions with the regulatory agencies and the public, a limited interim removal action was taken in 1996 to ensure that the site could be used for industrial purposes by removing soils contaminated with PAHs and hexavalent chromium at the northwest portion of Site 12. Approximately 2,000 cubic yards of non-hazardous contaminated soil was excavated from a small area in the northwest portion of the site and placed in the engineered waste cells at Site 6. Excavated materials from Site 12 to be transported to and disposed of in the engineered waste cells at Site 6 were tested for organic and inorganic constituents during the remedial investigation and prior to excavation activities for the removal

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

action according to approved work plans. Site 17 is a former Base swimming pool located on the Main Base on U Street between DeKay and K Streets. The area is vacant land, adjoining Base housing to the east and south. The former swimming pool at Site 17 was closed in the 1 970s. After it was closed, the pool was used as a disposal site and the wastes were covered with soil. After discussions with the regulatory agencies and the public, a decision was made to clean the site by removing the waste. The pool and its contents were removed during a 1994 interim removal action. The wastes were taken off the Base for disposal. After the interim removal action, low levels of PCBs were still detected in soils at least 8 feet beneath the ground surface. The pool excavation was filled with clean soil, leaving the PCBs in place. No PCB contamination has been found in the groundwater and the PCBs are not expected to migrate to groundwater. Confirmation sampling conducted after the interim removal action demonstrated that PCBs remain at the site at levels of concern to human health Site 19 is about 7 acres in size, located at the southern end of West March, east of the active wastewater treatment plant. The site is generally vacant land with four concrete lined drying beds in the western portion of the site. Site 19 contains the four active lined sludge-drying beds and three inactive, unlined sludge-drying beds associated with the wastewater treatment plant. The plant was constructed in 1941 and used to process the wastewater from Camp Haan and March AFB. A total of 10 sludge-drying beds have historically been used at the site. Three of these beds have been backfilled. In 1990 when the plant was upgraded, four lined drying beds were constructed at the location of previously unlined beds. In the past, wastewater treatment sludge was spread out in the unlined drying beds to dry. When dry, the sludge was removed from the drying beds. Recently, the dried sludge has been removed from the Base for disposal. Past disposal practices are unknown. PAHs, PCBs, hexavalent chromium, and thallium were found in soil samples in the area of the unlined sludge beds at levels above residential PRGs. Site 20 is located adjacent to the southwest portion of March AFB, on the property acquired by the Department of Veterans Affairs from the Air Force in the 1970s. Site 20 is a former landfill about 7 acres in size used between 1958 and 1965 as a disposal site for household waste and construction debris. Some of the chemicals found in the soils at Site 20 included PAHs, dieldrin, PCBs, and 1 ,4-dichlorobenzene. The Air Force was concerned the waste in the landfill could contaminate soil and groundwater. After discussions with the regulatory agencies and the public, a decision was made to clean up the site by removing the landfilled waste. The interim removal action at Site 20 was conducted in conjunction with the removal of dried sludge at Site 26a and 26b Dried sludge of Site 26b covered a portion of Site 20. Approximately 116,000 cubic yards of non-hazardous soil, debris, and dried sludge were removed from Sites 20 and 26 in 1996 and placed in the engineered waste cells at Site. Excavated materials from Site 20 to be transported to and disposed of in he engineered waste cells at Site 6 were tested for organic and inorganic constituents during the remedial investigation and monitored during the removal action according to approved work plans According to the As-Built Construction Report OU2, Site 6a, all materials from Site 20 placed in the Site 6 engineered waste cells met the requirements of CCR Title 23, Section 2523 (currently CCR Title 27, Section 20220) for a non-hazardous solid waste landfill. After the waste was removed from Site 20, confirmation samples from beneath the former landfill were tested. The results confirmed that the site had been cleaned to levels protective of human health and the environment. No restriction on future use of the land is required. Site 22 is a suspected former landfill east of and adjacent to Interstate 215. The original 7-acre area of Site 22 was expanded to 15 acres by extending the northern site boundary to ensure all potential areas of concern were investigated. The location of the landfill was based on limited evidence. Investigations could not locate any landfllled materials or debris.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Geophysical surveys were used to fmd buried metal or disturbed soils. Soil gas sampling was also conducted at this site. Finally, soil and groundwater were sampled. No contaminants were found in any of the samples and the geophysical surveys found no buried waste. This evidence showed that a landfill did not exist in this area. This site was investigated during the OU2 remedial investigation and levels of contamination requiring remedial action were not identified. There was no risk assessment completed on Site 22 because no contaminants were found and the site poses no risk to human health or the environment. No restriction on future use of the land is required. Site 23 is located off-Base to the east, near the intersection of Nandina Avenue andHeacock Street in the City of Moreno Valley. Between 1938 and 1977, Site 23 was a 1-acre holding pond for wastewater that had been treated and used for irrigation of agricultural crops. In 1991, the pond was filled in, and it and the surrounding areas were leveled. The land is now used as a commercial sod farm and irrigated with reclaimed water from the Moreno Valley wastewater treatment plant. This site was investigated during the OU1 remedial investigation and no contamination requiring remedial action was identified. There was no risk assessment completed on Site 23 because no contaminants were found and the site poses no risk to human health or the environment. No restriction on future use of the land is required. Site 24 is a former 3-acre landfill, west of Site 19. Site 24 was reportedly used between 1941 and 1965 to dispose of household waste and military waste. A small amount of soil from bullet backstop berms may have been placed in the landfill as well as some ash from an incinerator. Some of the contaminants found in the waste included PAHs, PCBs, antimony, barium, and cadmium. The Air Force was concerned that the waste in the landfill could contaminate groundwater. After discussions with the regulatory agencies and the public, a decision was made to clean up the site by removing the landfilled waste. In December 1996, approximately 19,300 cubic yards of non-hazardous, landfilled waste was removed and placed in the engineered waste cells at Site 6. Excavated materials from Site 24 to be transported to and disposed of in the engineered waste cells at Site 6 were tested for organic and inorganic constituents during the remedial investigation and monitored during the removal action according to approved work plans. Site 25 covers approximately 33 acres and is located south of Cactus Avenue. Site 25 was used in the past for open air detonation and burning of munitions. Three areas with shallow trenches were used to bury munitions residue after destruction. Some of the contaminants found in the soils at this site included nickel, l,3,5-trinitrobenzene, nitroglycerin, benzo(a)pyrene, and RDX, all of which are munition residues. Additionally, 1,1 -dichloroethene was also found. The Air Force was concerned that the contaminants in soil would cause groundwater contamination. After discussions with the regulatory agencies and the public, a decision was made to clean up the site by removing the debris and contaminated soils. Approximately 3,000 cubic yards of non-hazardous waste from the trenches and contaminated soils were removed and disposed of in the engineered waste cells at Site 6. Excavated materials from Site 25 to be transported to and disposed of in the engineered waste cells at Site 6 were tested for organic and inorganic constituents at a rate of about 1 sample for every 200 cubic yards of excavated materials during the removal action. Testing was also performed as part of the remedial investigation. Site 26 covers approximately 3 acres and is located in the southwest portion of March AFB. Site 26 is subdivided into two areas, Site 26a and 26b. Site 26b is located over a portion of the Site 20 landfill. Site 26a is located on property controlled by the AFRPA and Site 26b is on the property of the Department of Veterans Affairs. Site 26 was used for disposal of lime sludge that was a waste from the treatment of drinking water for March AFB. From 1941 to 1984, the water treatment plant treated Colorado River water used to supplement the drinking water supply for the Base. Arsenic from the treated Colorado River

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

water was found in the lime sludge at low levels. After discussions with the regulatory agencies and the public, a decision was made to clean up the site by removing the sludge. As mentioned in the description of the landfill at Site 20, approximately 116,000 cubic yards of non-hazardous soil and dried sludge were removed from Sites 20 and 26 in 1996 and disposed of in the engineered waste cells at Site 6. Excavated materials from Site 26 to be transported to and disposed of in the engineered waste cells at Site 6 were tested for organic and inorganic constituents during the remedial investigation and monitored during the removal action according to approved work plans. Site 30 covered approximately 40 acres, south of Alessandro Boulevard and west of Interstate 215. Site 30 is located in the 1,300 acre SKR reserve. There is no evidence that Site 30 ever operated as a March AFB-controlled landfill, but illegal dumping of domestic waste from the surrounding community has occurred and some minor amounts of construction debris were found. Soil and groundwater samples taken at the site did not detect contaminants at levels not protective of human health. After discussions with the regulators and the public, a decision was made to clean up the site by removing the domestic and construction debris. Domestic and construction debris was, removed from the site in April 1997 and disposed of off the Base. The Air Force has installed gates on access roads to prevent vehicular traffic to the site. Warning signs were placed in several areas, and gates remain padlocked to help prevent access by unauthorized persons. Site 35 consisted of three subareas (Sites 35a, 35b, and 35c) located in the former 15th Air Force Headquarter complex on West March. The subareas were locations of former underground storage tanks (USTs) associated with. Buildings 3409 (Site 35a), 3417/34 18 (Site 35b), and 3406 (Site 35c). Site 35a, a former 8,000-gallon fuel oil tank, was located west of Allen Avenue and south of 11th street, east of Building 3409. Site 35b, two former diesel tanks of 6,650-gallon and 3,500-gallon, was located between Building 3417 and 3418, west of Allen Avenue and Bundy Avenue. Site 35c, a former 1,000-gallon diesel tank, was located north of 5th Street and west of Dalla Avenue, east of Building 3406. All tanks have been removed and the locations closed without restrictions in accordance with state and county regulations. Fuel leaks have been associated with the tanks at Site 35. Sites 35a and 35b were investigated during the OU2 remedial investigation and other studies and levels of contamination requiring remedial action were not identified. After discussions with the regulatory agencies, the Air Force decided to clean up the soil by bioventing at Site 35c where fuel had leaked. Bioventing has reduced diesel fuel contamination to levels protective of human health and the environment at Site 35c. No restriction on future use of the land is required.
Site 40 covers approximately 49 acres on West March, north of Van Buren Boulevard and west of Plummer Road. The most prominent feature at the site is the abandoned quarry, containing a pond with riparian vegetation. The pond is replenished by groundwater and by surface flow from an intermittent stream channel entering the pond from the west. Site 40 is located in the 1,300 acre SKR reserve. Site 40 was used as a disposal location for drums, construction debris, battery casings, and motor vehicle parts. After discussions with the regulatory agencies, a decision was made to complete an expedited cleanup of the area exposed by the erosion and other debris at the site. The time-critical removal action completed in 1994 included removal of the drums, miscellaneous waste, and contaminated soil. Hazardous waste from the site was taken off the Base for proper disposal. Approximately 6,800 cubic, yards of non-hazardous materials were disposed of at the Site 6 engineered waste cells. Excavated materials from Site 40 to be transported to and disposed of in the engineered waste cells at Site 6 were tested for organic and inorganic constituents at a rate of about one sample for every 100 cubic yards of excavated materials during the removal action. Testing was also performed as part of the remedial investigation. Building 3404 is located on less than one acre near the

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

intersections of 1 1th Street and Davis Avenue on West March. Transformers located in Building 3404 reportedly leaked oils containing PCBs onto the floor of the transformer room. These oils were also spilled onto the soil surrounding the building. After discussions with the regulatory agencies and the public, a decision was made to clean up the area outside of Building 3404 by removing the contaminated soil. In the interim removal action, the contaminated soils were excavated and taken offsite for proper disposal. A total of 330 tons of contaminated soils were removed from the site. The PCB concentrations were low enough to allow disposal of 292 tons of contaminated soils as non-hazardous waste. An additional 38 tons was disposed of off the Base as hazardous waste. Clean fill was placed in the excavation to grade and a gravel cover was placed on top of the previously excavated area. Confirmation sampling conducted after the interim removal action confirmed that the site had been cleaned to levels protective of human health and the environment. No restriction on future use of the land is required. Transformer oils may be present in the concrete floor of Building 3404. The Air Force attempted to remove the PCBs from the concrete. Minimal levels of PCBs were left and have been encapsulated. The concrete is not addressed in this AFRPA OU2 ROD because building interiors are not regulated under CERCLA. The current landowner, the County of Riverside, has entered into a land use covenant with the State that restricts use of the building to industrial activities and contains other measures to prevent exposure to residual contamination. The current land use and adjacent land use for most of the OU2 AFRPA sites is vacant land/open space with limited commercial and residential land use adjacent to some of the sites as discussed below. Site 3 and the adjacent areas are undeveloped land. Site 6 contains an engineered waste cell. There is a residential area to the south and a golf course is to the east of Site 6. Site 12 was the former civil engineering yard with numerous structures. Site 12 is not currently utilized. Residential land use occurs to the east of Site 17. Air Force commercial facilities such as offices are located to the north and west of the Site 17. Site 19 is currently a part of the operating wastewater treatment plant. Structures relating to plant operations are located on-site and to the west and north. Site 20 and 26 and the adjacent areas are undeveloped land. A former water treatment plant is south of Site 26 and west of Site 20. This facility is no longer used. Site 23 is an active agricultural area, surrounded by currently vacant land to the north, south and east. Air Force land consisting of open space is west of Site 23. Site 25 and the adjacent areas is undeveloped land, with nearby residential development to the south. The three Site 35 subareas and Site 42 are former UST locations within landscaped areas adjacent to structures. The areas near Site 35a, 35b and Site 42 are still actively used as office and dormitory areas, but the Site 35c area is no longer used. Sites 30 and 40 are open space with some riparian vegetation. A residential area is located to the north and west of Site 40. The OU2 sites other than site 23 discussed in this AFRPA OU2 ROD are located on that portion of March AFB that may be converted to non-Air Force use. Site 23 is on private land. The anticipated land use for most of the OU2 AFRPA sites is commercial or industrial use. Alternative land uses have also been assessed and areas of West March could remain open space such as the SKR Conservation Area. March AFB is located in the North Perris Groundwater Basin. Currently, there are no potable groundwater resources extracted at the OU2 AFRPA sites. The relatively thin water-bearing zone on West March is not anticipated to yield substantial quantities of water. Therefore, the potential for extraction and use of groundwater from the West March AFRPA sites is limited, both now and in the foreseeable future. Water-bearing zones producing sufficient groundwater for use may be present at AFRPA sites on the Main Base and Site 23, and should be considered a potential potable water source. Surface water is not currently used at the OU2 AFRPA sites. Surface water areas such as at Site 6, 30 and 40 may remain as wetlands depending on future site

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

development. A Record of Decision (ROD) for OU2 was completed May 11, 2004. A ROD addressing OU2 was completed in September 2005. Operable Unit (OU) 4: A total of three IRP sites (IRP Sites 21, 41, and 44), three AOCs (Water Tower 3410, Water Tank 6601, and the former Base Hospital and Dental Clinic), and one RFA site (Site L) are addressed in this OU4. Site 21 is off base approximately 1.5 miles south of the southern extension of the active March ARB runway. Although never physically part of March AFB, the site is considered to be part of the former base for purposes of the IRP because treated wastewater produced on base was held in this off-base pond. John Cordures, property owner until his death, used the water for irrigation of surrounding agricultural land from 1941 to 1946 and again from 1955 to 1984. The estate was sold to Ross Department Stores in 2001. The site is near the intersection of Morgan Street and Webster Avenue, in the City of Perris. Site 21 encompasses 1.5 acres and is part of a landscaped berm and below-grade parking area for warehouse trucks associated with a Ross warehouse distr bution facility. The general surface-water drainage in the area is to the east following the gently sloping terrain (surface gradient at the site is approximately 20 to 40 feet per mile). Bedrock was not encountered during the investigation phases at Site 21. Groundwater at Site 21 is at a depth of more than 150 feet below ground surface (bgs) and the general groundwater flow direction is to the south and southeast. Site 21 was used from 1941 to 1946, and again from 1955 to 1984, to hold treated wastewater from the base. Sanitary and industrial wastewater received primary and secondary treatment on the base prior to discharge into this holding pond. The treated effluent was held in the pond and used for irrigation of the surrounding agricultural land. The boundaries of the effluent pond were physically well defined by the pond's berm during the 1993 OU1 Remedial Investigation/Feasibility Study (RI/FS). At that time the site covered an area of approximately 2.2 acres and was being used by private parties as an illegal dump. In approximately 1998, the berm was removed, and the site was incorporated into the surrounding sod farm. In 2001, the land was sold and the former pond area now consists of a landscaped berm on the west side of the site and a truck parking area that lies approximately 8 feet below grade on the east side. Based on historic use, the primary contaminants of concern at Site 21 include metals, volatile organic compounds (VOCs), and pesticides. Site 21 is part of a Ross warehouse distribution facility in the city of Perris. Adjacent and surrounding land uses consist of commercial/industrial development, and some land is in agricultural production. Although much of the surrounding property is currently agriculture, other properties are zoned for light industrial/commercial. As development occurs, agriculture zoning will likely change to general industrial. Site 41 is approximately 1 mile south of State Highway 58 and 11 miles east of Kramer Junction (the intersection of U.S. Highway 395 and State Highway 58) in San Bernardino County, California. Structures currently remaining at the site include a concrete bunker no longer in use. The general surface water drainage is to the northeast following the very gently sloping terrain (surface gradient at the site is approximately 20 to 40 feet per mile). Depth to beneficial groundwater is approximately 300 feet bgs. However, perched zone water is found between 100 and 150 feet bgs at nearby sites. A regional hardpan soil, approximately 3 to 4 feet thick at a depth of approximately 34 feet bgs, is reported in the area. The Air Force obtained right of entry for an approximate 315-acre parcel from the Bureau of Land Management (BLM) in the late 1950s for construction and operation of a radio relay station for use by George AFB. The parcel was transferred to Edwards AFB in 1963 and to March AFB in February 1968. The Radio Relay Annex was declared excess and was scheduled for deactivation in October 1968. The station facilities included a septic system, storage tanks for water and petroleum products, 4 miles of runway, a radio tower, a water well, an aboveground bunker, and several support

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

buildings. The Air Force closed the station in the mid-1980s. Investigations and cleanup actions were conducted between February 1995 and May 1996 and included identification and removal of asbestos-containing material and lead-based paint, destruction of the water-supply well, removal of underground storage tanks (USTs) (oil, water, and septic) and contaminated soil, and confirmation sampling. Small amounts of diesel fuel leaked from the USTs. Based on historic use, the primary contaminant of concern at the site is total petroleum hydrocarbons (TPH) diesel fuel. Site 41 is in a remote area of the Mojave Desert. The Hawes site extends across 315 acres of desert land. The site is in the process of being transferred from the DOD back to the BLM, and the site will likely remain vacant due to its remote location and reversion to BLM control. Site 44 is in the central portion of the March ARB, east of the intersection of Graeber Street and Meyer Drive. Site 44 includes a 110-foot-tall, 200,000-gallon water tower, two large water storage tanks, and several buildings used by March ARB water system maintenance personnel. The area is characterized by relatively flat topography. A concrete-lined drainage ditch, just north of the site, flows eastward to the Heacock Storm Drain that drains south along the eastern perimeter of the former base. Groundwater at Site 44 is estimated to be approximately 30 feet bgs. Groundwater flow direction in this area is generally to the south and southeast. The water tower at Site 44 utilized a valve controller with a 6-inch mercury pot for water flow control. Past spills from the mercury pot caused mercury contamination of soils beneath and surrounding the valve controller. The flow controller at the water tower was in a subsurface valve box, 12 feet below grade. During a construction project to place a concrete floor in the below-grade box, approximately 80 cubic feet of soil were removed and stockpiled south and east of the valve box. In November 1995, the Air Force contracted to characterize the valve box and surrounding area for elemental mercury contamination. Based on the results of initial investigations at Site 44, the Air Force initiated a removal action. Soil was excavated in several discrete areas around the water tower. The primary soil removal areas were the valve box and surface soils in areas adjacent to the borings that identified "hot spots" of contamination. The excavated soil was segregated and packaged for off-site disposal. Once excavation of the valve pit was completed, the site was restored by filling the excavated area with sand to approximately 3 feet below the valve. A 6-inch-thick concrete floor was installed in the bottom of the valve pit. Land uses on adjacent and surrounding properties are exclusively industrial and commercial. As Site 44 will remain Air Force property, Site 44 is expected to stay industrial/commercial in the foreseeable future. Water Tower 3410 is an aboveground water storage tank on Former March AFB at the intersection of Plummer Road and 11th Street. Water Tower 3410 is in an area characterized by relatively flat topography, with a gentle slope to the east/northeast. No surface water bodies or major surface water drainages are associated with the site. Groundwater levels underlying Water Tower 3410 are between approximately 33 and 48 feet bgs. The groundwater flow direction is to the east. Although Water Tower 3410 was not specifically included in the Basewide RI/FS Work Plan, due to the presence of mercury pot water flow controllers at other March water storage facilities and the similarity of Water Tower 3410 with Water Tower 407 (Site 44), it was suspected that Water Tower 3410 might also have mercury-contaminated soils. March ARB Department of Public Works was contacted to determine if a mercury vault ever existed at the site. Interviews with Department personnel indicated that the building never contained a mercury vault. The only mercury controls at Water Tower 3410 are those that control associated pumps. Four aboveground controls are attached to the water tower rather than in a vault and contain only small amounts of elemental mercury. Water Tower 3410 is in an area characterized by industrial/commercial land use intermixed with vacant parcels. Adjacent and

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

surrounding land use is also a mix of industrial/commercial use and vacant parcels. March Joint Powers Authority (MJPA) plans for the area, including Water Tower 3410, are for an industrial/business park. Water Tank 6601 is an aboveground storage tank north of Van Buren Boulevard and west of Plummer Road, west of 1-215. Water Tank 6601 is at an elevation of approximately 1,660 feet above mean sea level. The site is characterized by highly dissected upland topography and consists of highly eroded gullies and exposures of weathered bedrock. The primary flow of surface water in the vicinity of Water Tank 6601 is to the east. One primary intermittent stream channel drains to the east near the facility. The site is underlain by shallow surface soils, with a maximum thickness of soil only tens of feet thick. Based on information presented by Tetra Tech in the OU2 RI/FS, just south of the water tank, groundwater is encountered in weathered bedrock at depths ranging from 10 to 40 feet bgs. Groundwater flow is generally to the east. Water Tank 6601 is an active, 200,000-gallon water tank constructed in approximately 1942, with valves, piping, and electronic controls inside a fenced area with a concrete floor and a metal roof. The enclosure was constructed in the mid 1980s, in response to repeated vandalism at the site. Each incidence of vandalism resulted in releases of elemental mercury at the site due to breakage of a reservoir or "mercury pot." Some of the elemental mercury was recovered after each incident; however, no formal cleanup actions were performed. A cage was constructed to protect the controls from additional vandalism. The mercury control was removed and replaced with controls without mercury prior to the OU4 RI/FS investigation. Water Tank 6601 is in an undeveloped area, which is fenced. Adjacent and surrounding land use is mixed industrial/ vacant. Water Tank 6601 is expected to remain industrial. MJPA plans for the adjacent and surrounding land are for industrial/commercial development. The former base Hospital and Dental Clinics are in the northeast corner of the former base, near the intersection of Cactus Avenue and Heacock Street. The main Hospital building is five stories and the Dental Clinic is a one-story structure. The surface topography in and around the site is relatively flat with a gentle slope (surface gradient at the site is approximately 20 to 30 feet per mile). Major drainage features lie north and east of the site and consist of intermittent drainage channels (Cactus Channel Storm Drain and Heacock Storm Drain). There are no major drainages across the site, and there are no perennial water bodies near the site. While groundwater was not part of the investigation, groundwater is reported to be 25 to 30 feet bgs in the area of the former hospital and dental clinic. Groundwater flow direction is to the south and east. Construction of the Hospital was completed in 1966 and modified in subsequent years. The latest addition was completed in 1974. The original construction of the Dental Clinic was completed in 1985. A sewer main extends from the Hospital/Dental Clinic complex, south along the eastern base boundary to the last manhole before the connection of the hospital lines with the "old trunk line" from western portions of the March ARB. The sewer line, which services both the Hospital and Dental Clinic, was first brought on line with completion of the original hospital building. Two primary lines collect effluent from the complex. The two lines ultimately empty into the old sewer main that flows directly south to the current lifting station, from which sewage is transferred around the south end of the active runway to the current wastewater treatment plant. The former base Hospital and Dental Clinic are in an area characterized by institutional (i.e., medical) land use. Adjacent and surrounding land use is a mix of residential, commercial, a small amount of vacant property and land in agricultural use, and a small corridor of public facilities to the east of the Hospital for an electrical transmission line easement. MJPA plans for the Hospital/Dental Clinic site are for similar reuse. Site L, formerly a swimming pool at the Non-Commissioned Officer (NCO) Club, is east of Riverside Drive and north of Meyer Drive. The site is

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

outside the boundary of March ARB that was established as a result of the realignment of March AFB in May 1996. It is part of the land identified as available for transfer by the AFRPA. Site L is in an area characterized by relatively flat topography. No major drainages are associated with the site. Groundwater levels at the site are approximately 26 feet bgs. The groundwater flow direction is to the southeast. The swimming pool at Site L was reportedly constructed in 1953 along with the NCO Club. After decommissioning at an unspecified time, it was used as a repository for a variety of wastes, some potentially hazardous. The pool and wastes were covered with soil, and the area was allowed to become overgrown with grass and weeds. The facility was abandoned and a chain-link fence restricted access to the former pool. In 1993, the pool was identified as an AOC during a comprehensive RFA/Expanded Source Investigation (ESI), which concluded that the pool was filled with a variety of wastes, including waste soils, solvents, and PCBs. In 1994, as part of the RFA investigation, a soil gas survey was conducted to screen for the presence of VOCs. No VOCs were detected above the laboratory reporting limits. Site L is currently open space (parking lot) with no structures, and is bordered on the north by vacant land and on the south by a parking area adjacent to Meyer Drive. The NCO Club is to the east of Site L, and the U.S. Army Reserve Center, with associated landscaping and parking is to the west. Surrounding land uses include institutional/medical, commercial, public facilities/recreation, and vacant land. The MJPA plans for Site L and the surrounding land are commercial in nature. A portion of the parcel in which Site L is located is currently leased to a catering business. A Record of Decision addressing OU4 was completed in September of 2005.

CERCLIS Assessment History:

Action Code:	001
Action:	DISCOVERY
Date Started:	/ /
Date Completed:	02/01/85
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	PRELIMINARY ASSESSMENT
Date Started:	/ /
Date Completed:	02/01/87
Priority Level:	Low priority for further assessment
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	SITE INSPECTION
Date Started:	/ /
Date Completed:	06/01/87
Priority Level:	Low priority for further assessment
Operable Unit:	SITEWIDE

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: HAZARD RANKING SYSTEM PACKAGE
Date Started: / /
Date Completed: 06/01/87
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: PROPOSAL TO NATIONAL PRIORITIES LIST
Date Started: / /
Date Completed: 07/14/89
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: FINAL LISTING ON NATIONAL PRIORITIES LIST
Date Started: / /
Date Completed: 11/21/89
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: Notice Letters Issued
Date Started: / /
Date Completed: 02/07/90
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: INTERAGENCY AGREEMENT NEGOTIATIONS
Date Started: 02/07/90

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

Date Completed: 09/27/90
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Alternate
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: FEDERAL INTERAGENCY AGREEMENT
Date Started: 09/27/90
Date Completed: 09/27/90
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 004
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 01/24/92
Date Completed: 04/30/95
Priority Level: Not reported
Operable Unit: WEST MARCH - SOILS/GW
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 04/07/96
Date Completed: 04/18/96
Priority Level: Not reported
Operable Unit: EAST MARCH - SOILS/GW
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 09/27/90
Date Completed: 06/20/96
Priority Level: Not reported
Operable Unit: EAST MARCH - SOILS/GW
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: RECORD OF DECISION

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

Date Started: / /
Date Completed: 06/20/96
Priority Level: Not reported
Operable Unit: EAST MARCH - SOILS/GW
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: Explanation Of Significant Differences
Date Started: / /
Date Completed: 08/24/00
Priority Level: Not reported
Operable Unit: EAST MARCH - SOILS/GW
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: FEDERAL FACILITY FIVE YEAR REVIEW
Date Started: 09/30/03
Date Completed: 11/19/03
Priority Level: Not reported
Operable Unit: EAST MARCH - SOILS/GW
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 004
Action: RECORD OF DECISION
Date Started: / /
Date Completed: 05/11/04
Priority Level: Not reported
Operable Unit: WEST MARCH - SOILS/GW
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 002
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 09/27/90
Date Completed: 09/29/05
Priority Level: Not reported
Operable Unit: BASEWIDE
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Action Code: 003
Action: RECORD OF DECISION
Date Started: / /
Date Completed: 09/29/05
Priority Level: Not reported
Operable Unit: BASEWIDE
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 005
Action: RECORD OF DECISION
Date Started: / /
Date Completed: 09/30/05
Priority Level: Not reported
Operable Unit: WEST MARCH - SOILS/GW
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 003
Action: FEDERAL FACILITY FIVE YEAR REVIEW
Date Started: / /
Date Completed: 09/30/09
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: Restoration Advisory Board
Date Started: 01/01/93
Date Completed: / /
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 03/05/96
Date Completed: / /
Priority Level: Not reported
Operable Unit: EAST MARCH - SOILS/GW
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

Action Anomaly: Not reported

Action Code: 005
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 10/30/05
Date Completed: / /
Priority Level: Not reported
Operable Unit: SITE 8 & 36
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Federal Register Details:
Fed Register Date: 11/21/89
Fed Register Volume: 54
Page Number: 48184

Fed Register Date: 07/14/89
Fed Register Volume: 54
Page Number: 29820

RCRA-LQG:
Date form received by agency: 02/29/2016
Facility name: MARCH AIR RESERVE BASE
Facility address: 610 MEYER DR
BLDG 2403
MARCH ARB, CA 92518
EPA ID: CA4570024527
Mailing address: MEYER DR
BLDG 2403
MARCH ARB, CA 92518
Contact: CRAIG HUNTER
Contact address: MEYER DR BLDG 2403
MARCH ARB, CA 92518
Contact country: US
Contact telephone: (951) 655-5082
Contact email: CRAIG.HUNTER.1@US.AF.MIL
EPA Region: 09
Land type: Federal
Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Owner/Operator Summary:
- Owner/operator name: GEN. RUSSELL A. MUNCY
- Owner/operator address: Not reported
  Not reported
- Owner/operator country: Not reported
- Owner/operator telephone: Not reported
- Legal status: Federal
- Owner/Operator Type: Operator
- Owner/Op start date: 11/01/2013
- Owner/Op end date: Not reported

- Owner/operator name: US AIR FORCE
- Owner/operator address: GRAEBER BLDG 470
  MARCH ARB, CA 92518
- Owner/operator country: US
- Owner/operator telephone: (951) 655-4665
- Legal status: Federal
- Owner/Operator Type: Owner
- Owner/Op start date: 01/01/1945
- Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Universal Waste Summary:
- Waste type: Batteries
- Accumulated waste on-site: Yes
- Generated waste on-site: No

- Waste type: Lamps
- Accumulated waste on-site: Yes
- Generated waste on-site: No

- Waste type: Thermostats
- Accumulated waste on-site: Yes
- Generated waste on-site: No

. Waste code: 141
. Waste name: 141

. Waste code: 151
. Waste name: 151

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number
EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

. Waste code: 181
. Waste name: 181

. Waste code: 223
. Waste name: 223

. Waste code: 241
. Waste name: 241

. Waste code: 281
. Waste name: 281

. Waste code: 331
. Waste name: 331

. Waste code: 343
. Waste name: 343

. Waste code: 352
. Waste name: 352

. Waste code: 723
. Waste name: 723

. Waste code: 791
. Waste name: 791

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

Historical Generators:
Date form received by agency: 10/22/2014
Site name: MARCH AIR RESERVE BASE
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 03/20/2013
Site name: MARCH AIR RESERVE BASE

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 07/15/2010
Site name: MARCH AIR RESERVE BASE

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Classification: Large Quantity Generator

. Waste code: 181
. Waste name: 181

. Waste code: 214
. Waste name: 214

. Waste code: 223
. Waste name: 223

. Waste code: 281
. Waste name: 281

. Waste code: 342
. Waste name: 342

. Waste code: 343
. Waste name: 343

. Waste code: 352
. Waste name: 352

. Waste code: 461
. Waste name: 461

. Waste code: 541
. Waste name: 541

. Waste code: 792
. Waste name: 792

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE,

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 03/26/2008
Site name: MARCH AIR RESERVE BASE
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D004
. Waste name: ARSENIC

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D011

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: D021
. Waste name: CHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: U188
. Waste name: PHENOL

. Waste code: U227
. Waste name: 1,1,2-TRICHLOROETHANE (OR) ETHANE, 1,1,2-TRICHLORO-

Date form received by agency: 02/08/2006
Site name: MARCH AIR RESERVE BASE
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

Date form received by agency: 02/25/2004

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID
Direction
Distance
Elevation | Site | Database(s) | EDR ID Number
EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Site name: MARCH AIR RESERVE BASE
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D004
. Waste name: ARSENIC

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

Date form received by agency: 04/10/2002
Site name: MARCH AIR RESERVE BASE
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D004
. Waste name: ARSENIC

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

. Waste code: P098
. Waste name: POTASSIUM CYANIDE (OR) POTASSIUM CYANIDE K(CN)

Date form received by agency: 10/12/2000
Site name: MARCH ARB CA
Classification: Large Quantity Generator

Date form received by agency: 07/14/2000
Site name: MARCH AIR RESERVE BASE
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 03/04/1999
Site name: MARCH ARB, CA
Classification: Large Quantity Generator

Date form received by agency: 09/01/1996
Site name: MARCH AIR RESERVE BASE
Classification: Large Quantity Generator

Date form received by agency: 03/26/1996
Site name: MARCH AFB, CA
Classification: Large Quantity Generator

Date form received by agency: 03/31/1994
Site name: MARCH AIR FORCE BASE, CA
Classification: Large Quantity Generator

Date form received by agency: 03/30/1992
Site name: MARCH AIR FORCE BASE
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: FR - 262.30-34.C
Area of violation: Generators - General
Date violation determined: 04/27/1995
Date achieved compliance: 04/27/2000
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 04/28/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 262.10-12.A
Area of violation: Generators - General
Date violation determined: 03/05/1984
Date achieved compliance: 04/04/1995
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/18/1984
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

Evaluation Action Summary:
- Evaluation date: 11/02/2006
- Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
- Area of violation: Not reported
- Date achieved compliance: Not reported
- Evaluation lead agency: State

- Evaluation date: 05/06/1996
- Evaluation: FOLLOW-UP INSPECTION
- Area of violation: Not reported
- Date achieved compliance: Not reported
- Evaluation lead agency: State

- Evaluation date: 04/04/1995
- Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
- Area of violation: Generators - General
- Date achieved compliance: 04/27/2000
- Evaluation lead agency: EPA

- Evaluation date: 03/05/1984
- Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
- Area of violation: Generators - General
- Date achieved compliance: 04/04/1995
- Evaluation lead agency: EPA

US ENG CONTROLS:
- EPA ID: CA4570024527
- Site ID: 0902761
- Name: MARCH AIR FORCE BASE
- Address: 22 CSG/CC
  RIVERSIDE, CA 92518
- EPA Region: 09
- County: RIVERSIDE
- Event Code: Not reported
- Actual Date: 09/30/2005
- Contact Name: Not reported
- Contact Phone and Ext: Not reported
- Event Code Description: Not reported

- Action ID: 001
- Action Name: Explanation Of Significant Differences
- Action Completion date: 08/24/2000
- Operable Unit: 01
- Contaminated Media : Soil
- Engineering Control: Bioremediation (Ex-Situ)
- Contact Name: Not reported
- Contact Phone and Ext: Not reported
- Event Code Description: Not reported

- Action ID: 001
- Action Name: RECORD OF DECISION
- Action Completion date: 06/20/1996
- Operable Unit: 01
- Contaminated Media : Groundwater
- Engineering Control: Discharge
- Contact Name: Not reported
- Contact Phone and Ext: Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Extraction
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Liquid Phase Carbon Adsorption
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Other, (N.O.S.)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Cap
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Soil

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Engineering Control: Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Excavation
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Impermeable Barrier
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Low Temperature Thermal Desorption
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Operations & Maintenance (O&M)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARCH AIR FORCE BASE (Continued) **1000169261**

Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Recycling
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/20/1996
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Soil Vapor Extraction (in-situ)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 09/29/2005
Operable Unit: 04
Contaminated Media : Groundwater
Engineering Control: No Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 09/29/2005
Operable Unit: 04
Contaminated Media : Soil
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 09/29/2005
Operable Unit: 04
Contaminated Media : Soil
Engineering Control: No Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 09/30/2005
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: No Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number / EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 09/30/2005
Operable Unit: 02
Contaminated Media : Soil
Engineering Control: No Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

US INST CONTROL:
EPA ID: CA4570024527
Site ID: 0902761
Name: MARCH AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: 22 CSG/CC
RIVERSIDE, CA 92518
EPA Region: 09
County: RIVERSIDE
Event Code: Not reported
Inst. Control: Covenant
Actual Date: 09/30/2005
Complet. Date: 09/29/2005
Operable Unit: 04
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA4570024527
Site ID: 0902761
Name: MARCH AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: 22 CSG/CC
RIVERSIDE, CA 92518
EPA Region: 09
County: RIVERSIDE
Event Code: Not reported
Inst. Control: Deed Notices
Actual Date: 09/30/2005
Complet. Date: 09/29/2005
Operable Unit: 04
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA4570024527
Site ID: 0902761
Name: MARCH AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: 22 CSG/CC
RIVERSIDE, CA 92518
EPA Region: 09
County: RIVERSIDE
Event Code: Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Inst. Control: Subdivision regulation
Actual Date: 09/30/2005
Complet. Date: 09/29/2005
Operable Unit: 04
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA4570024527
Site ID: 0902761
Name: MARCH AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: 22 CSG/CC
RIVERSIDE, CA 92518
EPA Region: 09
County: RIVERSIDE
Event Code: Not reported
Inst. Control: Zoning regulation
Actual Date: 09/30/2005
Complet. Date: 09/29/2005
Operable Unit: 04
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA4570024527
Site ID: 0902761
Name: MARCH AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: 22 CSG/CC
RIVERSIDE, CA 92518
EPA Region: 09
County: RIVERSIDE
Event Code: Not reported
Inst. Control: Covenant
Actual Date: 06/15/2004
Complet. Date: 05/11/2004
Operable Unit: 02
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA4570024527
Site ID: 0902761
Name: MARCH AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: 22 CSG/CC
RIVERSIDE, CA 92518
EPA Region: 09
County: RIVERSIDE
Event Code: Not reported
Inst. Control: Covenant
Actual Date: 06/15/2004
Complet. Date: 05/11/2004

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number / EPA ID Number

MARCH AIR FORCE BASE (Continued) **1000169261**

Operable Unit: 02
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA4570024527
Site ID: 0902761
Name: MARCH AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: 22 CSG/CC
RIVERSIDE, CA 92518
EPA Region: 09
County: RIVERSIDE
Event Code: Not reported
Inst. Control: Base use plan change
Actual Date: 09/30/2005
Complet. Date: 09/30/2005
Operable Unit: 02
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

EPA ID: CA4570024527
Site ID: 0902761
Name: MARCH AIR FORCE BASE
Action Name: RECORD OF DECISION
Address: 22 CSG/CC
RIVERSIDE, CA 92518
EPA Region: 09
County: RIVERSIDE
Event Code: Not reported
Inst. Control: Building, demolition, or excavation regulation
Actual Date: 09/30/2005
Complet. Date: 09/30/2005
Operable Unit: 02
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext : Not reported
Event Code Description: Not reported

ROD:
Full-text of USEPA Record of Decision(s) is available from EDR.

PRP:
PRP name: STATE OF CALIFORNIA/DEPT. OF HEALTH SERVICES
STATE OF CALIFORNIA/DEPT. OF WATER QUALITY
U.S. AIR FORCE
U.S. AIR FORCE

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number

A1
NE
< 1/8
0.036 mi.
191 ft.

23932 ALESSANDRO BLVD
MORENO VALLEY, CA 92553

EDR Hist Auto **1015352625**
N/A

Site 1 of 8 in cluster A

Relative: Higher

Actual: 1572 ft.

EDR Historical Auto Stations:

Name: MAGANA AUTO UPHOLSTERY
Year: 2001
Address: 23932 ALESSANDRO BLVD

Name: MAGANA AUTO UPHOLSTERY
Year: 2002
Address: 23932 ALESSANDRO BLVD

Name: MAGANA AUTO UPHOLSTERY
Year: 2009
Address: 23932 ALESSANDRO BLVD

Name: MAGANA AUTO UPHOLSTERY
Year: 2010
Address: 23932 ALESSANDRO BLVD

Name: MAGANA AUTO UPHOLSTERY
Year: 2011
Address: 23932 ALESSANDRO BLVD

Name: MAGANA AUTO UPHOLSTERY
Year: 2012
Address: 23932 ALESSANDRO BLVD

A2
NE
< 1/8
0.036 mi.
191 ft.

MENOS NO 2 AUTO REPAIR
23952 ALESSANDRO BLVD UNIT B
MORENO VALLEY, CA 92553

RCRA-SQG **1004675782**
FINDS **CAR000077032**

Site 2 of 8 in cluster A

Relative: Higher

Actual: 1572 ft.

RCRA-SQG:
Date form received by agency: 07/03/2000
Facility name: MENOS NO 2 AUTO REPAIR
Facility address: 23952 ALESSANDRO BLVD UNIT B
MORENO VALLEY, CA 92553
EPA ID: CAR000077032
Contact: MIKE RICO
Contact address: 23952 ALESSANDRO BLVD UNIT B
MORENO VALLEY, CA 92553
Contact country: US
Contact telephone: (909) 653-1246
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: MANUEL REAAEL

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site

MAP FINDINGS

Database(s) | EDR ID Number
EPA ID Number

MENOS NO 2 AUTO REPAIR (Continued) **1004675782**

Owner/operator address: 23952 ALESSANDRO BLVD UNIT B
MORENO VALLEY, CA 92553
Owner/operator country: Not reported
Owner/operator telephone: (909) 653-1246
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

Violation Status: No violations found

FINDS:

Registry ID: 110006486837

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

A3 **EDR Hist Auto** **1015352650**
NE **23942 ALESSANDRO BLVD** **N/A**
< 1/8 **MORENO VALLEY, CA 92553**
0.036 mi.
191 ft. **Site 3 of 8 in cluster A**

Relative:
Higher

Actual:
1572 ft.

EDR Historical Auto Stations:
Name: B & F MOBIL AUTO REPAIR
Year: 1999
Address: 23942 ALESSANDRO BLVD

Name: B & F AUTO REPAIR
Year: 2000
Address: 23942 ALESSANDRO BLVD

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A4		**EDR Hist Auto**	**1015352583**
NE	**23920 ALESSANDRO BLVD**		**N/A**
< 1/8	**MORENO VALLEY, CA 92553**		
0.036 mi.			
191 ft.	**Site 4 of 8 in cluster A**		

Relative:
Higher

Actual:
1572 ft.

EDR Historical Auto Stations:

Name:	D & C AUTO REPAIR
Year:	1999
Address:	23920 ALESSANDRO BLVD
Name:	D & C AUTO REPAIR
Year:	2001
Address:	23920 ALESSANDRO BLVD
Name:	LEES AUTO REPAIR
Year:	2002
Address:	23920 ALESSANDRO BLVD
Name:	1ST PLACE AUTOMOTIVE
Year:	2003
Address:	23920 ALESSANDRO BLVD
Name:	1ST PLACE AUTOMOTIVE
Year:	2004
Address:	23920 ALESSANDRO BLVD
Name:	BEST VALLEY SMOG & AUTO REPAIR
Year:	2005
Address:	23920 ALESSANDRO BLVD
Name:	BRADYS AUTOMOTIVE
Year:	2006
Address:	23920 ALESSANDRO BLVD
Name:	BRADYS AUTOMOTIVE
Year:	2007
Address:	23920 ALESSANDRO BLVD
Name:	BRADYS AUTOMOTIVE
Year:	2008
Address:	23920 ALESSANDRO BLVD
Name:	D & C AUTO REPAIR
Year:	2009
Address:	23920 ALESSANDRO BLVD
Name:	D & C AUTO REPAIR
Year:	2010
Address:	23920 ALESSANDRO BLVD
Name:	CERTIFIED TIRE & SERVICE CENTERS
Year:	2011
Address:	23920 ALESSANDRO BLVD
Name:	BRADYS AUTOMOTIVE
Year:	2012
Address:	23920 ALESSANDRO BLVD

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A5	**MARK C BLOOME CO**	**RCRA-SQG**	**1000266025**
NE	**23920 ALESSANDRO BLVD**	**FINDS**	**CAD981163082**
< 1/8	**MORENO VALLEY, CA 92553**	**ECHO**	
0.036 mi.			
191 ft.	**Site 5 of 8 in cluster A**		

Relative:
Higher

Actual:
1572 ft.

RCRA-SQG:

Date form received by agency:	09/01/1996
Facility name:	MARK C BLOOME CO
Facility address:	23920 ALESSANDRO BLVD MORENO VALLEY, CA 92553
EPA ID:	CAD981163082
Mailing address:	1600 E HILL ST LONG BEACH, CA 90802
Contact:	Not reported
Contact address:	Not reported Not reported
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	MARK C BLOOME CO
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MARK C BLOOME CO (Continued) **1000266025**

Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 11/15/1985
Site name: MARK C BLOOME CO
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110006469142

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:
Envid: 1000266025
Registry ID: 110006469142
DFR URL: http://echo.epa.gov/detailed_facility_report?fid=110006469142

A6 **MORENO VALLEY TRANS** **RCRA-SQG** **1001967625**
NE **23920 ALESSANDRO UNIT F** **FINDS** **CAR000071282**
< 1/8 **MORENO VALLEY, CA 92553** **ECHO**
0.036 mi.
191 ft. **Site 6 of 8 in cluster A**

Relative: Higher

Actual: 1572 ft.

RCRA-SQG:
Date form received by agency: 04/20/2000
Facility name: MORENO VALLEY TRANS
Facility address: 23920 ALESSANDRO UNIT F
MORENO VALLEY, CA 92553
EPA ID: CAR000071282
Contact: KER BANKS
Contact address: 23920 ALESSANDRO UNIT F
MORENO CALLEY, CA 92388
Contact country: US
Contact telephone: (909) 653-4041
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MORENO VALLEY TRANS (Continued) **1001967625**

hazardous waste at any time

Owner/Operator Summary:
- Owner/operator name: MORENO VALLEY TRANS
- Owner/operator address: 23920 ALESSANDRO UNIT F
  MORENO CALLEY, CA 92388
- Owner/operator country: Not reported
- Owner/operator telephone: (909) 653-4041
- Legal status: Private
- Owner/Operator Type: Owner
- Owner/Op start date: Not reported
- Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

. Waste code: D000
. Waste name: Not Defined

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

Violation Status: No violations found

FINDS:

Registry ID: 110008288539

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
	MORENO VALLEY TRANS (Continued)		**1001967625**

ECHO:
Envid: 1001967625
Registry ID: 110008288539
DFR URL: http://echo.epa.gov/detailed_facility_report?fid=110008288539

A7 **EDR Hist Auto** **1015352714**
NE **23952 ALESSANDRO BLVD** **N/A**
< 1/8 **MORENO VALLEY, CA 92553**
0.036 mi.
191 ft. **Site 7 of 8 in cluster A**

Relative: Higher

Actual: 1572 ft.

EDR Historical Auto Stations:

Name: AUTO SERVICE CLUB
Year: 1999
Address: 23952 ALESSANDRO BLVD

Name: B & F AUTO REPAIR
Year: 2004
Address: 23952 ALESSANDRO BLVD

Name: FRONT PAGE AUTO
Year: 2006
Address: 23952 ALESSANDRO BLVD

Name: BEST VALLEY SMOG & AUTO REPAIR
Year: 2008
Address: 23952 ALESSANDRO BLVD

Name: B & F AUTO REPAIR
Year: 2009
Address: 23952 ALESSANDRO BLVD

Name: BEST VALLEY SMOG & AUTO
Year: 2010
Address: 23952 ALESSANDRO BLVD

Name: BEST VALLEY SMOG & REPAIR
Year: 2011
Address: 23952 ALESSANDRO BLVD

Name: BEST VALLEY SMOG & AUTO
Year: 2012
Address: 23952 ALESSANDRO BLVD

A8 **STAR BRIGHT CLEANERS** **RCRA-SQG** **1000350923**
NE **23962 ALESSANDRO** **FINDS** **CAD981631096**
< 1/8 **MORENO VALLEY, CA 92553** **ECHO**
0.036 mi.
191 ft. **Site 8 of 8 in cluster A**

Relative: Higher

Actual: 1572 ft.

RCRA-SQG:
Date form received by agency: 09/01/1996
Facility name: STAR BRIGHT CLEANERS
Facility address: 23962 ALESSANDRO
MORENO VALLEY, CA 92553
EPA ID: CAD981631096

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

STAR BRIGHT CLEANERS (Continued) **1000350923**

Contact:	Not reported
Contact address:	Not reported
	Not reported
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	09
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	KEN JONES
Owner/operator address:	NOT REQUIRED
	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED
	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	02/09/1987
Site name:	STAR BRIGHT CLEANERS

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number

STAR BRIGHT CLEANERS (Continued) **1000350923**

Classification: Large Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 07/28/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State Contractor/Grantee

FINDS:

Registry ID: 110006472450

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:
Envid: 1000350923
Registry ID: 110006472450
DFR URL: http://echo.epa.gov/detailed_facility_report?fid=110006472450

B9 **99 CLEANERS** **RCRA-SQG** **1000819660**
NW **23750 ALESSANDRO BLVD** **FINDS** **CAD983656554**
< 1/8 **MORENO VALLEY, CA 92553** **DRYCLEANERS**
0.066 mi. **HAZNET**
348 ft. **Site 1 of 3 in cluster B** **ECHO**

Relative: Higher

Actual: 1572 ft.

RCRA-SQG:
Date form received by agency: 01/06/1993
Facility name: 99 CLEANERS
Facility address: 23750 ALESSANDRO BLVD
MORENO VALLEY, CA 92553
EPA ID: CAD983656554
Mailing address: ALESSANDRO BLVD
MORENO VALLEY, CA 92553
Contact: BE PHAM
Contact address: 23750 ALESSANDRO BLVD
MORENO VALLEY, CA 92553
Contact country: US
Contact telephone: (714) 653-2729
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

99 CLEANERS (Continued) **1000819660**

Owner/Operator Summary:
- Owner/operator name: BE PHAM
- Owner/operator address: 23750 ALESSANDRO BLVD NO L1060 MORENO VALLEY, CA 92553
- Owner/operator country: Not reported
- Owner/operator telephone: (714) 653-2729
- Legal status: Private
- Owner/Operator Type: Owner
- Owner/Op start date: Not reported
- Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110002890471

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

DRYCLEANERS:
- EPA Id: CAD983656554
- NAICS Code: 81232
- NAICS Description: Drycleaning and Laundry Services (except Coin-Operated)
- SIC Code: 7211
- SIC Description: Power Laundries, Family and Commercial
- Create Date: 01/06/1993
- Facility Active: No
- Inactive Date: 06/30/2001
- Facility Addr2: Not reported
- Owner Name: PHUONG NGUYEN
- Owner Address: 23750 ALESSANDRO BLVD NO L1060
- Owner Address 2: Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

99 CLEANERS (Continued) **1000819660**

Owner Telephone:	7146532729
Contact Name:	PHONG NGUYEN/OWNER
Contact Address:	23750 ALESSANDRO BLVD
Contact Address 2:	Not reported
Contact Telephone:	7146532729
Mailing Name:	Not reported
Mailing Address 1:	23750 ALESSANDRO BLVD
Mailing Address 2:	Not reported
Mailing City:	MORENO VALLEY
Mailing State:	CA
Mailing Zip:	925538811
Owner Fax:	Not reported
Region Code:	9

EPA Id:	CAL000319087
NAICS Code:	81232
NAICS Description:	Drycleaning and Laundry Services (except Coin-Operated)
SIC Code:	7211
SIC Description:	Power Laundries, Family and Commercial
Create Date:	04/27/2007
Facility Active:	No
Inactive Date:	06/30/2007
Facility Addr2:	Not reported
Owner Name:	JUANA MARTINEZ
Owner Address:	23750 ALESSANDRO BLVD STE L106
Owner Address 2:	Not reported
Owner Telephone:	9516537007
Contact Name:	JUANA MARTINEZ
Contact Address:	23750 ALESSANDRO BLVD STE L106
Contact Address 2:	Not reported
Contact Telephone:	9516537007
Mailing Name:	Not reported
Mailing Address 1:	23750 ALESSANDRO BLVD STE L106
Mailing Address 2:	Not reported
Mailing City:	MORENO VALLEY
Mailing State:	CA
Mailing Zip:	92553
Owner Fax:	Not reported
Region Code:	4

EPA Id:	CAL000265973
NAICS Code:	81232
NAICS Description:	Drycleaning and Laundry Services (except Coin-Operated)
SIC Code:	7211
SIC Description:	Power Laundries, Family and Commercial
Create Date:	02/05/2003
Facility Active:	No
Inactive Date:	06/30/2003
Facility Addr2:	Not reported
Owner Name:	JUAN SALDANA
Owner Address:	23750 ALESSANDRO BLVD STE L106
Owner Address 2:	Not reported
Owner Telephone:	9096564734
Contact Name:	JUAN SALDANA
Contact Address:	23750 ALESSANDRO BLVD STE L106
Contact Address 2:	Not reported
Contact Telephone:	9096564734

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

99 CLEANERS (Continued) **1000819660**

Mailing Name: Not reported
Mailing Address 1: 23750 ALESSANDRO BLVD STE L106
Mailing Address 2: Not reported
Mailing City: MORENO VALLEY
Mailing State: CA
Mailing Zip: 92553
Owner Fax: Not reported
Region Code: 4

HAZNET:
envid: 1000819660
Year: 1998
GEPAID: CAD983656554
Contact: PHUONG NGUYEN
Telephone: 7146532729
Mailing Name: Not reported
Mailing Address: 23750 ALESSANDRO BLVD
Mailing City,St,Zip: MORENO VALLEY, CA 925538811
Gen County: Not reported
TSD EPA ID: CAD981397417
TSD County: Not reported
Waste Category: Halogenated solvents (chloroforms, methyl chloride, perchloroethylene, etc)
Disposal Method: Recycler
Tons: .7549
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Riverside

envid: 1000819660
Year: 1998
GEPAID: CAD983656554
Contact: PHUONG NGUYEN
Telephone: 7146532729
Mailing Name: Not reported
Mailing Address: 23750 ALESSANDRO BLVD
Mailing City,St,Zip: MORENO VALLEY, CA 925538811
Gen County: Not reported
TSD EPA ID: CAD981397417
TSD County: Not reported
Waste Category: Not reported
Disposal Method: Recycler
Tons: .0000
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Riverside

envid: 1000819660
Year: 1997
GEPAID: CAD983656554
Contact: PHUONG NGUYEN
Telephone: 7146532729
Mailing Name: Not reported
Mailing Address: 23750 ALESSANDRO BLVD
Mailing City,St,Zip: MORENO VALLEY, CA 925538811
Gen County: Not reported
TSD EPA ID: CAD981397417

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

99 CLEANERS (Continued) **1000819660**

TSD County: Not reported
Waste Category: Not reported
Disposal Method: Recycler
Tons: .0000
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Riverside

envid: 1000819660
Year: 1997
GEPAID: CAD983656554
Contact: PHUONG NGUYEN
Telephone: 7146532729
Mailing Name: Not reported
Mailing Address: 23750 ALESSANDRO BLVD
Mailing City,St,Zip: MORENO VALLEY, CA 925538811
Gen County: Not reported
TSD EPA ID: CAD981397417
TSD County: Not reported
Waste Category: Halogenated solvents (chloroforms, methyl chloride, perchloroethylene, etc)
Disposal Method: Recycler
Tons: 21.7851
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Riverside

envid: 1000819660
Year: 1996
GEPAID: CAD983656554
Contact: PHUONG NGUYEN
Telephone: 7146532729
Mailing Name: Not reported
Mailing Address: 23750 ALESSANDRO BLVD
Mailing City,St,Zip: MORENO VALLEY, CA 925538811
Gen County: Not reported
TSD EPA ID: CAD981397417
TSD County: Not reported
Waste Category: Halogenated solvents (chloroforms, methyl chloride, perchloroethylene, etc)
Disposal Method: Recycler
Tons: 1.5470
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Riverside

Click this hyperlink while viewing on your computer to access
2 additional CA_HAZNET: record(s) in the EDR Site Report.

ECHO:
Envid: 1000819660
Registry ID: 110002890471
DFR URL: http://echo.epa.gov/detailed_facility_report?fid=110002890471

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
B10		**EDR Hist Cleaner**	**1015024947**
NW	**23750 ALESSANDRO BLVD**		**N/A**
< 1/8	**MORENO VALLEY, CA 92553**		
0.066 mi.			
348 ft.	**Site 2 of 3 in cluster B**		

Relative: Higher

Actual: 1572 ft.

EDR Historical Cleaners:

Name:	99 CLEANERS
Year:	2001
Address:	23750 ALESSANDRO BLVD
Name:	99 CLEANERS
Year:	2002
Address:	23750 ALESSANDRO BLVD
Name:	BAY CLEANERS
Year:	2006
Address:	23750 ALESSANDRO BLVD
Name:	RUNNING CLEANERS
Year:	2007
Address:	23750 ALESSANDRO BLVD
Name:	BAY CLEANERS
Year:	2008
Address:	23750 ALESSANDRO BLVD
Name:	RUNNING CLEANERS
Year:	2008
Address:	23750 ALESSANDRO BLVD
Name:	SOPHIES DRY CLEANERS
Year:	2010
Address:	23750 ALESSANDRO BLVD

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
B11	**99 CLEANERS**	**DRYCLEANERS**	**S103948114**
NW	**23750 ALESSANDRO LVD**		**N/A**
< 1/8	**MORENO VALLEY, CA 92553**		
0.066 mi.			
348 ft.	**Site 3 of 3 in cluster B**		

Relative: Higher

Actual: 1572 ft.

DRYCLEANERS:

EPA Id:	CAL000116087
NAICS Code:	81232
NAICS Description:	Drycleaning and Laundry Services (except Coin-Operated)
SIC Code:	7211
SIC Description:	Power Laundries, Family and Commercial
Create Date:	04/23/1994
Facility Active:	No
Inactive Date:	06/30/2001
Facility Addr2:	Not reported
Owner Name:	SINH TRAN
Owner Address:	23750 ALESSANDRO BLVD
Owner Address 2:	Not reported
Owner Telephone:	0000000000
Contact Name:	PHUONG NGUYEN
Contact Address:	23750 ALESSANDRO LVD
Contact Address 2:	Not reported
Contact Telephone:	--
Mailing Name:	Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number

99 CLEANERS (Continued) **S103948114**

Mailing Address 1:	23750 ALESSANDRO BLVD L-106
Mailing Address 2:	Not reported
Mailing City:	MORENO VALLEY
Mailing State:	CA
Mailing Zip:	925530000
Owner Fax:	Not reported
Region Code:	4

12
WNW
1/8-1/4
0.175 mi.
924 ft.

Relative:
Higher

Actual:
1573 ft.

U S POST OFFICE-MORENO VALLEY **SWEEPS UST** **S101590248**
23580 ALESSANDRO BLVD **CA FID UST** **N/A**
MORENO VALLEY, CA 92388

SWEEPS UST:

Status:	Active
Comp Number:	11115
Number:	7
Board Of Equalization:	Not reported
Referral Date:	04-30-90
Action Date:	04-30-90
Created Date:	01-26-89
Owner Tank Id:	058971
SWRCB Tank Id:	33-000-011115-000001
Tank Status:	A
Capacity:	10000
Active Date:	04-30-90
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	1

CA FID UST:

Facility ID:	33006873
Regulated By:	UTNKA
Regulated ID:	Not reported
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	7146562590
Mail To:	Not reported
Mailing Address:	2535 MIDWAY DR
Mailing Address 2:	Not reported
Mailing City,St,Zip:	MORENO VALLEY 92388
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
C13	**ARCO #82311**	**LUST**	**U002244640**
WNW	**23501 ALESSANDRO BLVD**	**UST**	**N/A**
1/8-1/4	**MORENO VALLEY, CA 92553**		
0.208 mi.			
1097 ft.	**Site 1 of 4 in cluster C**		

Relative:
Higher

Actual:
1572 ft.

LUST:

Region:	STATE
Global Id:	T0606500632
Latitude:	33.916901618079
Longitude:	-117.251977458826
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	07/11/2001
Lead Agency:	RIVERSIDE COUNTY LOP
Case Worker:	RIV
Local Agency:	RIVERSIDE COUNTY LOP
RB Case Number:	083303648T
LOC Case Number:	200016218
File Location:	Local Agency Warehouse
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0606500632
Contact Type:	Regional Board Caseworker
Contact Name:	VALERIE JAHN-BULL
Organization Name:	SANTA ANA RWQCB (REGION 8)
Address:	3737 MAIN STREET, SUITE 500
City:	RIVERSIDE
Email:	vjahn-bull@waterboards.ca.gov
Phone Number:	9517824903

Status History:

Global Id:	T0606500632
Status:	Open - Case Begin Date
Status Date:	09/25/1998
Global Id:	T0606500632
Status:	Open - Site Assessment
Status Date:	09/25/1998
Global Id:	T0606500632
Status:	Completed - Case Closed
Status Date:	07/11/2001

Regulatory Activities:

Global Id:	T0606500632
Action Type:	Other
Date:	09/26/1998
Action:	Leak Stopped
Global Id:	T0606500632
Action Type:	ENFORCEMENT
Date:	04/02/2009
Action:	Closure/No Further Action Letter - #Site Closure

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site

MAP FINDINGS

Database(s) | EDR ID Number
EPA ID Number

ARCO #82311 (Continued) **U002244640**

Global Id: T0606500632
Action Type: Other
Date: 04/12/2000
Action: Leak Reported

Global Id: T0606500632
Action Type: ENFORCEMENT
Date: 04/01/2009
Action: File review - #RCDEH upload site file 5/29/2015

Global Id: T0606500632
Action Type: Other
Date: 09/25/1998
Action: Leak Discovery

LUST REG 8:

Region:	8
County:	Riverside
Regional Board:	Santa Ana Region
Facility Status:	Case Closed
Case Number:	083303648T
Local Case Num:	Not reported
Case Type:	Soil only
Substance:	Gasoline
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	GRAHAM
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	OM
How Stopped:	Not reported
Leak Cause:	UNK
Leak Source:	UNK
Global ID:	T0606500632
How Stopped Date:	9/26/1998
Enter Date:	3/9/2000
Date Confirmation of Leak Began:	Not reported
Date Preliminary Assessment Began:	9/25/1998
Discover Date:	9/25/1998
Enforcement Date:	Not reported
Close Date:	7/11/2001
Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	3/9/2000
GW Qualifies:	Not reported
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	33.916963
Longitude:	-117.252416
MTBE Date:	Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation | Site | Database(s) | EDR ID Number / EPA ID Number

ARCO #82311 (Continued) **U002244640**

Max MTBE GW:	Not reported
MTBE Concentration:	0
Max MTBE Soil:	Not reported
MTBE Fuel:	1
MTBE Tested:	Site NOT Tested for MTBE.Includes Unknown and Not Analyzed.
MTBE Class:	*
Staff:	VJJ
Staff Initials:	BER
Lead Agency:	Local Agency
Local Agency:	33000L
Hydr Basin #:	SAN JACINTO (8-5)
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	No
Summary:	Not reported

RIVERSIDE CO. LUST:

Region:	RIVERSIDE
Facility ID:	200016218
Employee:	Boltinghous-LOP
Site Closed:	Yes
Case Type:	Soil only
Facility Status:	closed/action completed
Casetype Decode:	Soil only is impacted
Fstatus Decode:	Closed/Action completed

RIVERSIDE CO. UST:

Region:	RIVERSIDE
Total Tanks:	3

C14 **ARCO #5344** **UST** **U003937714**
WNW **23501ALESSANDRO BL;VD.** **N/A**
1/8-1/4 **MORENO VALLEY, CA 92553**
0.208 mi.
1097 ft. **Site 2 of 4 in cluster C**

Relative: Higher

Actual: 1572 ft.

UST:

Facility ID:	80059
Permitting Agency:	RIVERSIDE COUNTY
Latitude:	33.92155
Longitude:	-117.24439

C15 **ARCO AM/PM MINI MARKET #5128** **SWEEPS UST** **S101590125**
WNW **23501 ALESSANDRO BLVD** **CA FID UST** **N/A**
1/8-1/4 **MORENO VALLEY, CA 92388** **HIST CORTESE**
0.208 mi.
1097 ft. **Site 3 of 4 in cluster C**

Relative: Higher

Actual: 1572 ft.

SWEEPS UST:

Status:	Active
Comp Number:	17
Number:	1
Board Of Equalization:	44-000506
Referral Date:	10-21-92

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

ARCO AM/PM MINI MARKET #5128 (Continued) **S101590125**

Action Date: 10-21-92
Created Date: 09-14-88
Owner Tank Id: 000077
SWRCB Tank Id: 33-000-000017-000001
Tank Status: A
Capacity: 12000
Active Date: 10-21-92
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: 3

Status: Active
Comp Number: 17
Number: 1
Board Of Equalization: 44-000506
Referral Date: 10-21-92
Action Date: 10-21-92
Created Date: 09-14-88
Owner Tank Id: 000077
SWRCB Tank Id: 33-000-000017-000002
Tank Status: A
Capacity: 12000
Active Date: 10-21-92
Tank Use: M.V. FUEL
STG: P
Content: LEADED
Number Of Tanks: Not reported

Status: Active
Comp Number: 17
Number: 1
Board Of Equalization: 44-000506
Referral Date: 10-21-92
Action Date: 10-21-92
Created Date: 09-14-88
Owner Tank Id: 000077
SWRCB Tank Id: 33-000-000017-000003
Tank Status: A
Capacity: 12000
Active Date: 10-21-92
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

CA FID UST:
Facility ID: 33004554
Regulated By: UTNKA
Regulated ID: Not reported
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: Not reported
Mail To: Not reported
Mailing Address: 17315 STUDEBAKER RD
Mailing Address 2: Not reported
Mailing City,St,Zip: MORENO VALLEY 92388

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation | Site | Database(s) | EDR ID Number / EPA ID Number

ARCO AM/PM MINI MARKET #5128 (Continued) **S101590125**

Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

HIST CORTESE:
Region: CORTESE
Facility County Code: 33
Reg By: LTNKA
Reg Id: 083303648T

C16 **PRESTIGE STATIONS INC NO 5128** **RCRA NonGen / NLR** **1004677813**
WNW **23501 ALESSANDRO BLVD** **FINDS** **CAR000101832**
1/8-1/4 **MORENO VALLEY, CA 92553** **ECHO**
0.208 mi.
1097 ft. **Site 4 of 4 in cluster C**

Relative: Higher

Actual: 1572 ft.

RCRA NonGen / NLR:
Date form received by agency: 07/19/2002
Facility name: PRESTIGE STATIONS INC NO 5128
Facility address: 23501 ALESSANDRO BLVD
MORENO VALLEY, CA 92553
EPA ID: CAR000101832
Mailing address: P O BOX 6038
ARTESIA, CA 907026038
Contact: SHARON ZUNIGA
Contact address: 25422 TRABUCO RD NO 105
LAKE FOREST, CA 926302797
Contact country: US
Contact telephone: (949) 450-1010
Contact email: Not reported
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: ARCO PRODUCTS COMPANY
Owner/operator address: P O BOX 6038
ARTESIA, CA 90702
Owner/operator country: Not reported
Owner/operator telephone: (714) 670-5402
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site

MAP FINDINGS

Database(s) | EDR ID Number | EPA ID Number

PRESTIGE STATIONS INC NO 5128 (Continued) **1004677813**

On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D000
. Waste name: Not Defined

. Waste code: D018
. Waste name: BENZENE

Violation Status: No violations found

FINDS:

Registry ID: 110012189657

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:
Envid: 1004677813
Registry ID: 110012189657
DFR URL: http://echo.epa.gov/detailed_facility_report?fid=110012189657

17
East
1/2-1
0.626 mi.
3307 ft.

Relative:
Higher

Actual:
1573 ft.

RANCHO VERDE HIGH ADDITION **ENVIROSTOR** **S118756751**
17750 LA SALLE STREET **SCH** **N/A**
MORENO VALLEY, CA 92553

ENVIROSTOR:
Facility ID: 33820009
Status: No Action Required
Status Date: 12/14/2000
Site Code: 404134
Site Type: School Investigation
Site Type Detailed: School
Acres: Not reported
NPL: NO
Regulatory Agencies: DTSC
Lead Agency: DTSC
Program Manager: Not reported
Supervisor: Javier Hinojosa
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 61
Senate: 31

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

RANCHO VERDE HIGH ADDITION (Continued) **S118756751**

Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.91571
Longitude: -117.2350
APN: NONE SPECIFIED
Past Use: * EDUCATIONAL SERVICES
Potential COC: NONE SPECIFIED No Contaminants found
Confirmed COC: NONE SPECIFIED
Potential Description: NMA
Alias Name: RANCHO VERDE HIGH SCHOOL ADDITION
Alias Type: Alternate Name
Alias Name: VAL VERDE UNIFIED SCHOOL DISTRICT
Alias Type: Alternate Name
Alias Name: VAL VERDE USD-RANCHO VERDE HI SCH
Alias Type: Alternate Name
Alias Name: 404134
Alias Type: Project Code (Site Code)
Alias Name: 33820009
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 11/22/2000
Comments: CRU Memo completed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 12/14/2000
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Facility ID: 33820009
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: Not reported
National Priorities List: NO
Cleanup Oversight Agencies: DTSC
Lead Agency: DTSC
Lead Agency Description: * DTSC
Project Manager: Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

RANCHO VERDE HIGH ADDITION (Continued) **S118756751**

Supervisor:	Javier Hinojosa
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404134
Assembly:	61
Senate:	31
Special Program Status:	Not reported
Status:	No Action Required
Status Date:	12/14/2000
Restricted Use:	NO
Funding:	School District
Latitude:	33.91571
Longitude:	-117.2350
APN:	NONE SPECIFIED
Past Use:	* EDUCATIONAL SERVICES
Potential COC:	NONE SPECIFIED, No Contaminants found
Confirmed COC:	NONE SPECIFIED
Potential Description:	NMA
Alias Name:	RANCHO VERDE HIGH SCHOOL ADDITION
Alias Type:	Alternate Name
Alias Name:	VAL VERDE UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	VAL VERDE USD-RANCHO VERDE HI SCH
Alias Type:	Alternate Name
Alias Name:	404134
Alias Type:	Project Code (Site Code)
Alias Name:	33820009
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	11/22/2000
Comments:	CRU Memo completed.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	12/14/2000
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
18 ESE 1/2-1 0.734 mi. 3874 ft.	**PROPOSED ALTERNATIVE SCHOOL SITE SEC CACTUS AVENUE AND INDIAN STREET MORENO VALLEY, CA 92553**	**ENVIROSTOR SCH**	**S108407566 N/A**

Relative: Lower

Actual: 1553 ft.

ENVIROSTOR:

Facility ID:	60000563
Status:	No Further Action
Status Date:	12/04/2007
Site Code:	404735
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	8.19
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Aslam Shareef
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	61
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.9094
Longitude:	-117.2342
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS, ENGINE TESTING/REPAIR, EQUIPMENT/INSTRUMENT REPAIR, MACHINE SHOP
Potential COC:	Arsenic Benzene Chlordane DDD DDE DDT Lead TPH-diesel TPH-gas TPH-JET FUEL TPH-MOTOR OIL Cobalt Nickel Toluene Xylenes
Confirmed COC:	30550-NO 30024-NO 30025-NO 30154-NO 30407-NO 30001-NO 30003-NO 30004-NO 30006-NO 30007-NO 30008-NO 30013-NO 3002501-NO 3002502-NO 30593-NO
Potential Description:	SOIL, SV
Alias Name:	404735
Alias Type:	Project Code (Site Code)
Alias Name:	60000563
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	03/15/2007
Comments:	Signed Agreement sent (FedEx) to District.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	12/04/2007
Comments:	Project close out Cost Recovery Unit Memorandum .
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	06/21/2007
Comments:	PEA Workplan approval sent to the district on June 21, 2007

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

PROPOSED ALTERNATIVE SCHOOL SITE (Continued) **S108407566**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 03/08/2007
Comments: Received Phase I report as background information for upcoming PEA.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 12/04/2007
Comments: PEA approval sent to the RP

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Facility ID: 60000563
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 8.19
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Aslam Shareef
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 404735
Assembly: 61
Senate: 31
Special Program Status: Not reported
Status: No Further Action
Status Date: 12/04/2007
Restricted Use: NO
Funding: School District
Latitude: 33.9094
Longitude: -117.2342
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - ROW CROPS, ENGINE TESTING/REPAIR, EQUIPMENT/INSTRUMENT REPAIR, MACHINE SHOP
Potential COC: Arsenic, Benzene, Chlordane, DDD, DDE, DDT, Lead, TPH-diesel, TPH-gas, TPH-JET FUEL, TPH-MOTOR OIL, Cobalt, Nickel, Toluene, Xylenes
Not reported
Confirmed COC: 30550-NO, 30024-NO, 30025-NO, 30154-NO, 30407-NO, 30001-NO, 30003-NO, 30004-NO, 30006-NO, 30007-NO, 30008-NO, 30013-NO, 3002501-NO, 3002502-NO, 30593-NO
Potential Description: SOIL, SV
Alias Name: 404735

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

PROPOSED ALTERNATIVE SCHOOL SITE (Continued) **S108407566**

Alias Type: Project Code (Site Code)
Alias Name: 60000563
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 03/15/2007
Comments: Signed Agreement sent (FedEx) to District.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 12/04/2007
Comments: Project close out Cost Recovery Unit Memorandum .

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 06/21/2007
Comments: PEA Workplan approval sent to the district on June 21, 2007

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 03/08/2007
Comments: Received Phase I report as background information for upcoming PEA.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 12/04/2007
Comments: PEA approval sent to the RP

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

19
West
1/2-1
0.748 mi.
3948 ft.

MARCH FIELD **ENVIROSTOR** **S109348567**
14310 FREDERICK STREET **HWT** **N/A**
MORENO VALLEY, CA 92533

Relative:
Higher

Actual:
1564 ft.

ENVIROSTOR:
Facility ID: 80000870
Status: Inactive - Action Required
Status Date: 11/30/2010
Site Code: 401438
Site Type: Military Evaluation
Site Type Detailed: FUDS

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

MARCH FIELD (Continued) **S109348567**

Acres:	53.3
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Daniel Cordero
Supervisor:	Manny Alonzo
Division Branch:	Cleanup Cypress
Assembly:	61
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	DERA
Latitude:	33.89166
Longitude:	-117.2597
APN:	NONE SPECIFIED
Past Use:	FIRING RANGE - SMALL ARMS ETC...
Potential COC:	Explosives (UXO, MEC Munitions Debris (MD
Confirmed COC:	30011-NO 32000-NO
Potential Description:	SOIL
Alias Name:	CA99799F999100
Alias Type:	Federal Facility ID
Alias Name:	J09CA7168
Alias Type:	INPR
Alias Name:	401438
Alias Type:	Project Code (Site Code)
Alias Name:	80000870
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Correspondence
Completed Date:	09/14/1998
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Tech Memo
Completed Date:	03/02/2009
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	07/02/2009
Comments:	Final site specific work plan received.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Assessment/Site Inspection Report (PA/SI)
Completed Date:	07/22/2009
Comments:	Comments included the SI phase of this project is done.
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

MAP FINDINGS

Map ID
Direction
Distance
Elevation | Site | Database(s) | EDR ID Number
EPA ID Number

MARCH FIELD (Continued) **S109348567**

Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

HWT:
Reg Num: 3450
Expiration Date: 05/31/2016

20
West
1/2-1
0.800 mi.
4224 ft.

Relative:
Higher

Actual:
1563 ft.

MARCH FIELD SKEET RANGE **UXO** **1018150389**
N/A

NO CITY, CA

UXO:
DoD Component: FUDS
Sort Order: 5
Installation Name: MARCH FIELD
Facility Address 2: Not reported
Site ID: 01OEW
Site Type: Trap and Skeet Range
Latitude: 33.913799
Longitude: -117.262001

21
NNE
1/2-1
0.839 mi.
4429 ft.

Relative:
Higher

Actual:
1610 ft.

ELEMENTARY SCHOOL NO. 26 **ENVIROSTOR** **S118756833**
HEACOCK STREET/ATWOOD AVENUE **SCH** **N/A**
MORENO VALLEY, CA 92553

ENVIROSTOR:
Facility ID: 36880002
Status: No Action Required
Status Date: 10/08/2004
Site Code: 404568
Site Type: School Investigation
Site Type Detailed: School
Acres: 10.5
NPL: NO
Regulatory Agencies: DTSC
Lead Agency: DTSC
Program Manager: Amit Pathak
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 61
Senate: 31
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.9289
Longitude: -117.2424
APN: NONE SPECIFIED
Past Use: RESIDENTIAL AREA

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation | Site | MAP FINDINGS | Database(s) | EDR ID Number EPA ID Number

ELEMENTARY SCHOOL NO. 26 (Continued) **S118756833**

Potential COC: NONE SPECIFIED No Contaminants found
Confirmed COC: NONE SPECIFIED
Potential Description: NMA
Alias Name: MORENO VALLEY USD-PRPSD ELEM SCHOOL # 26
Alias Type: Alternate Name
Alias Name: 404568
Alias Type: Project Code (Site Code)
Alias Name: 36880002
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 10/08/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 12/10/2004
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Facility ID: 36880002
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 10.5
National Priorities List: NO
Cleanup Oversight Agencies: DTSC
Lead Agency: DTSC
Lead Agency Description: * DTSC
Project Manager: Amit Pathak
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 404568
Assembly: 61
Senate: 31
Special Program Status: Not reported
Status: No Action Required
Status Date: 10/08/2004
Restricted Use: NO
Funding: School District
Latitude: 33.9289
Longitude: -117.2424

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

ELEMENTARY SCHOOL NO. 26 (Continued) **S118756833**

APN:	NONE SPECIFIED
Past Use:	RESIDENTIAL AREA
Potential COC:	NONE SPECIFIED, No Contaminants found
Confirmed COC:	NONE SPECIFIED
Potential Description:	NMA
Alias Name:	MORENO VALLEY USD-PRPSD ELEM SCHOOL # 26
Alias Type:	Alternate Name
Alias Name:	404568
Alias Type:	Project Code (Site Code)
Alias Name:	36880002
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	10/08/2004
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	12/10/2004
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

22
ENE
1/2-1
0.968 mi.
5109 ft.

BAY AVENUE ELEMENTARY SCHOOL
24801 BAY AVENUE
MORENO VALLEY, CA 92553

ENVIROSTOR SCH **S105628794** **N/A**

Relative:
Higher

Actual:
1583 ft.

ENVIROSTOR:

Facility ID:	33820010
Status:	No Further Action
Status Date:	08/19/2003
Site Code:	404308
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	8
NPL:	NO
Regulatory Agencies:	DTSC
Lead Agency:	DTSC
Program Manager:	Not reported
Supervisor:	Javier Hinojosa
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	61
Senate:	31
Special Program:	Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

BAY AVENUE ELEMENTARY SCHOOL (Continued) **S105628794**

Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.91837
Longitude: -117.2151
APN: NONE SPECIFIED
Past Use: * EDUCATIONAL SERVICES, AGRICULTURAL - ROW CROPS
Potential COC: DDD DDE DDT
Confirmed COC: 30006-NO 30007-NO 30008-NO
Potential Description: SOIL
Alias Name: AKA: RAMONA ELEM SCHOOL
Alias Type: Alternate Name
Alias Name: BAY AVENUE ELEMENTARY SCHOOL
Alias Type: Alternate Name
Alias Name: MORENO VALLEY UNIFIED SCHOOL DISTRICT
Alias Type: Alternate Name
Alias Name: MORENO VALLEY USD-BAY AVENUE ELEM SCHOOL
Alias Type: Alternate Name
Alias Name: 404308
Alias Type: Project Code (Site Code)
Alias Name: 33820010
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 09/08/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 03/14/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 01/31/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 08/19/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 05/10/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Workplan
Completed Date: 12/24/2002

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

BAY AVENUE ELEMENTARY SCHOOL (Continued) **S105628794**

Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Facility ID: 33820010
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 8
National Priorities List: NO
Cleanup Oversight Agencies: DTSC
Lead Agency: DTSC
Lead Agency Description: * DTSC
Project Manager: Not reported
Supervisor: Javier Hinojosa
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 404308
Assembly: 61
Senate: 31
Special Program Status: Not reported
Status: No Further Action
Status Date: 08/19/2003
Restricted Use: NO
Funding: School District
Latitude: 33.91837
Longitude: -117.2151
APN: NONE SPECIFIED
Past Use: * EDUCATIONAL SERVICES, AGRICULTURAL - ROW CROPS
Potential COC: DDD, DDE, DDT
Confirmed COC: 30006-NO, 30007-NO, 30008-NO
Potential Description: SOIL
Alias Name: AKA: RAMONA ELEM SCHOOL
Alias Type: Alternate Name
Alias Name: BAY AVENUE ELEMENTARY SCHOOL
Alias Type: Alternate Name
Alias Name: MORENO VALLEY UNIFIED SCHOOL DISTRICT
Alias Type: Alternate Name
Alias Name: MORENO VALLEY USD-BAY AVENUE ELEM SCHOOL
Alias Type: Alternate Name
Alias Name: 404308
Alias Type: Project Code (Site Code)
Alias Name: 33820010
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

BAY AVENUE ELEMENTARY SCHOOL (Continued) **S105628794**

Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	09/08/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	03/14/2002
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	01/31/2002
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	08/19/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Technical Report
Completed Date:	05/10/2002
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	* Workplan
Completed Date:	12/24/2002
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Count: 6 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
MORENO VALLEY	S109149568	PROPOSED ALESSANDRO ADMINISTRATION	ALESSANDRO BOULEVARD/CHARA STR	92553	ENVIROSTOR, SCH
MORENO VALLEY	S108985918	U.S. AIR FORCE - MARCH AFB (FORMER	N/A GRAHAM		SLIC
MORENO VALLEY	S106568096	INDIAN MIDDLE SCHOOL	INDIAN AVENUE / IRIS AVENUE	92551	ENVIROSTOR, SCH
RIVERSIDE	S108985920	RIVERSIDE PLUME	N/A RIVERSIDE II BASIN		SLIC
RIVERSIDE	S104970783	UCR - PARKING LOT 6	UNIVERSITY OF CALIF, RIVERSIDE		LUST
RIVERSIDE	S108985921	UCR (PESTICIDE PITS)	N/A UNIVERSITY AVENUE		SLIC

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 04/07/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 04/07/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 04/07/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/07/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/20/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 78

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/20/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 78

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/28/2016
Date Data Arrived at EDR: 01/04/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 93

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 11/15/2016
Date Data Arrived at EDR: 11/29/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 11/15/2016
Date Data Arrived at EDR: 11/29/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 43

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/29/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/15/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 66

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/15/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 12/11/2015
Date Data Arrived at EDR: 02/19/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 105

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Date of Government Version: 10/09/2015
Date Data Arrived at EDR: 02/12/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 112

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/13/2015
Date Data Arrived at EDR: 10/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 118

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/27/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/17/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC: Statewide SLIC Cases

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 40

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Varies

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/16/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/24/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tr bes).

Date of Government Version: 12/03/2015
Date Data Arrived at EDR: 02/04/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 120

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/05/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 52

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/26/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 119

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 01/03/2017
Date Data Arrived at EDR: 01/04/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 57

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/29/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/02/2017
Date Data Arrived at EDR: 03/02/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 78

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 08/25/2016
Date Data Arrived at EDR: 08/26/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 49

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/31/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 36

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 08/31/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 12/05/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 67

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Quarterly

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/01/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 35

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 02/27/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 45

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/28/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 37

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/29/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 83

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/25/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 02/24/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 10/11/2016
Date Data Arrived at EDR: 11/16/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/15/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/10/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/24/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 133

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/24/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2017
Date Data Arrived at EDR: 02/09/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/10/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016
Date Data Arrived at EDR: 04/28/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 127

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/17/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/17/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/29/2016
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/04/2017
Date Data Arrived at EDR: 01/06/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/06/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/01/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 77

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 09/30/2015
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/22/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 52

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-l ke material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/07/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/08/2017
Date Data Arrived at EDR: 02/28/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 38

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/03/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/03/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/15/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 65

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 04/07/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/03/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 02/24/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 67

Source: Department of Defense
Telephone: 571-373-0407
Last EDR Contact: 01/20/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Date of Government Version: 12/28/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 64

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/29/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/27/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 09/23/2016
Date Made Active in Reports: 10/24/2016
Number of Days to Update: 31

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/21/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/09/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 40

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 04/25/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/21/2016
Number of Days to Update: 53

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 63

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 64

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

ICE: ICE
Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 62

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 02/22/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 62

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/22/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/11/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 03/13/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 86

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/15/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 107

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/15/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 03/03/2017
Number of Days to Update: 87

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 78

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/16/2016
Date Data Arrived at EDR: 12/22/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 70

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 04/03/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/17/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/24/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines
An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/14/2017
Date Data Arrived at EDR: 03/17/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 21

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/13/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 12/11/2016
Date Data Arrived at EDR: 12/20/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 03/21/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 73

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/22/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/14/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 35

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 90

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 11/10/2016
Date Data Arrived at EDR: 12/13/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 9

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 10/21/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 23

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/17/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/26/2017
Number of Days to Update: 65

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 11/01/2016
Date Data Arrived at EDR: 11/03/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 19

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/22/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 55

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

FRESNO COUNTY:

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Resources List

Certified Unified Program Agency. CUPA's are respons ble for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 03/31/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 01/04/2017
Date Data Arrived at EDR: 01/10/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 51

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 01/23/2017
Date Data Arrived at EDR: 01/25/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 36

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 63

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

KINGS COUNTY:

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/14/2016
Date Data Arrived at EDR: 12/16/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 6

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/18/2017
Date Data Arrived at EDR: 01/20/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 41

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/20/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 66

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/17/2016
Date Data Arrived at EDR: 10/18/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 58

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/18/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016
Date Data Arrived at EDR: 01/26/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 56

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016
Date Data Arrived at EDR: 04/06/2016
Date Made Active in Reports: 06/13/2016
Number of Days to Update: 68

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 11/04/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/04/2016
Date Data Arrived at EDR: 10/11/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 93

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 12/09/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 41

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 10/19/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 79

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 03/31/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Semi-Annually

MERCED COUNTY:

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
CUPA facility list.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 42

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/05/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 17

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/24/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/24/2016
Date Data Arrived at EDR: 06/27/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 43

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 44

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/03/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/04/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/03/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 65

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/07/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/19/2017
Date Data Arrived at EDR: 01/25/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 36

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/20/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Quarterly

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/20/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 77

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/20/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 56

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/04/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/08/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 56

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/04/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 12/09/2016
Date Data Arrived at EDR: 12/13/2016
Date Made Active in Reports: 03/03/2017
Number of Days to Update: 80

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 10/05/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 86

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/10/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Quarterly

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 52

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 12/21/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/14/2017
Number of Days to Update: 49

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/20/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/17/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

SAN MATEO COUNTY:

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/07/2016
Date Made Active in Reports: 06/22/2016
Number of Days to Update: 15

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/16/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 76

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/24/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Annually

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/10/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 75

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 12/13/2016
Date Data Arrived at EDR: 12/16/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 76

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/21/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 1

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/22/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 19

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/22/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 65

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/04/2017
Date Data Arrived at EDR: 01/06/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 55

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 35

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/25/2017
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 34

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 82

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/31/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Annually

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 89

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/28/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 29

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/15/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 55

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/31/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 10/28/2016
Date Data Arrived at EDR: 11/03/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 42

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 01/03/2017
Number of Days to Update: 96

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/30/2017
Date Data Arrived at EDR: 02/01/2017
Date Made Active in Reports: 02/13/2017
Number of Days to Update: 12

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/01/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 07/22/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 123

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/12/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 04/14/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 50

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/13/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

6363793-ESAI
APN 297-170-077
MORENO VALLEY, CA 92553

TARGET PROPERTY COORDINATES

Latitude (North):	33.915512 - 33° 54' 55.84''
Longitude (West):	117.246926 - 117° 14' 48.93''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	477173.8
UTM Y (Meters):	3752621.5
Elevation:	1563 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5641326 SUNNYMEAD, CA
Version Date:	2012
West Map:	5641312 RIVERSIDE EAST, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

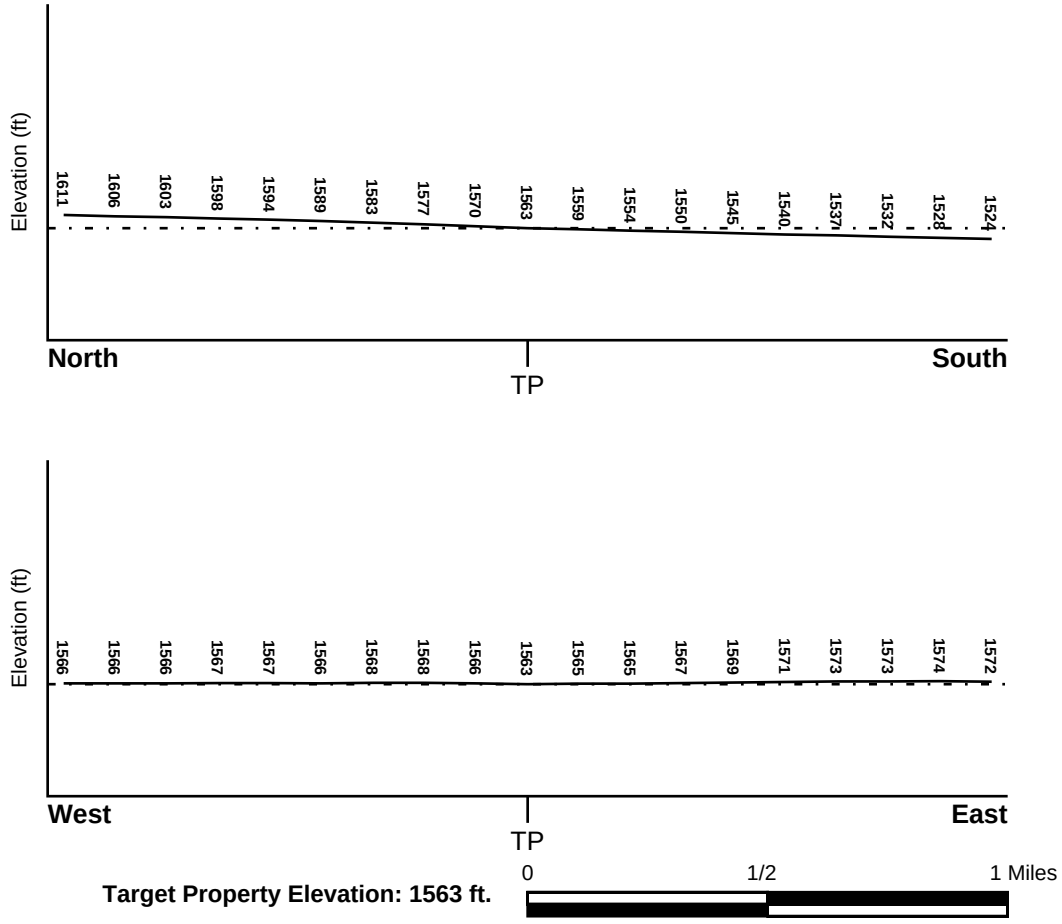
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06065C0761G	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06065C0745G	FEMA FIRM Flood data
06065C0765G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
3	1/2 - 1 Mile West	Not Reported

For additional site information, refer to Physical Setting Source Map Findings.

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Mesozoic
System:	Cretaceous
Series:	Cretaceous granitic rocks
Code:	Kg *(decoded above as Era, System & Series)*

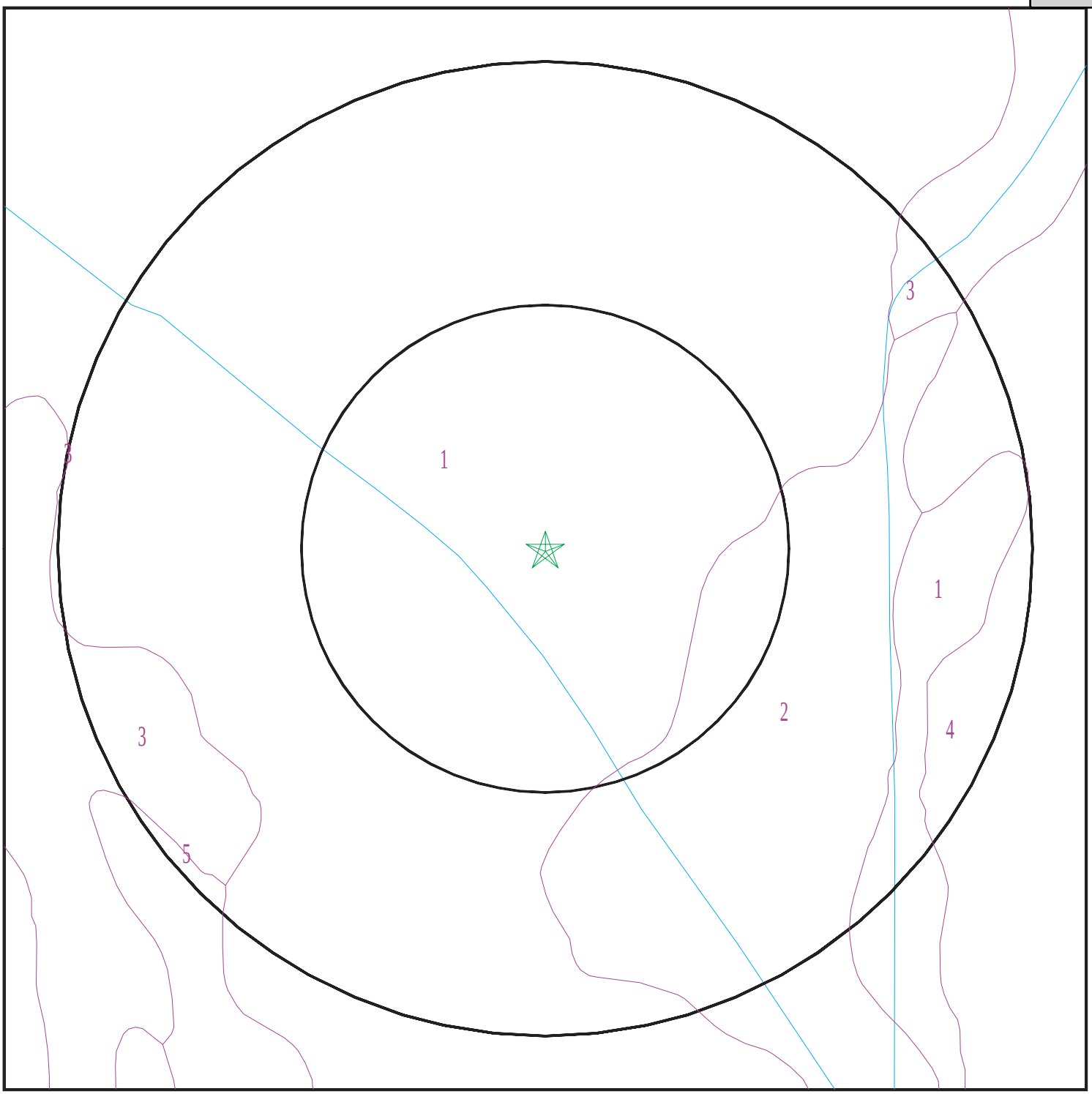
GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

SSURGO SOIL MAP - 4903567.2s



Attachment: Phase I ESA Report (3285 : PAMA Business Center)

SITE NAME:	6363793-ESAI	CLIENT:	ODIC Environmental
ADDRESS:	APN 297-170-077 Moreno Valley CA 92553	CONTACT:	Frank Trinidad
		INQUIRY #:	4903567.2s
LAT/LONG:	33.915512 / 117.246926	DATE:	April 10, 2017 4:55 pm

Copyright © 2017 EDR, Inc. © 2015 TomTom Rel. 2015.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.3 Min: 6.1
2	9 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
3	27 inches	44 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	44 inches	57 inches	cemented	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
5	57 inches	70 inches	loamy coarse sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
2	25 inches	42 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
3	42 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1
4	59 inches	72 inches	stratified loamy sand to sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 3

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.3 Min: 5.6
2	14 inches	22 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.3 Min: 6.1
3	22 inches	68 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
4	68 inches	74 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 4

Soil Component Name: PACHAPPA

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	20 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.8 Min: 6.1
2	20 inches	62 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.8 Min: 6.6

Soil Map ID: 5

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
2	25 inches	42 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
3	42 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1
4	59 inches	72 inches	stratified loamy sand to sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

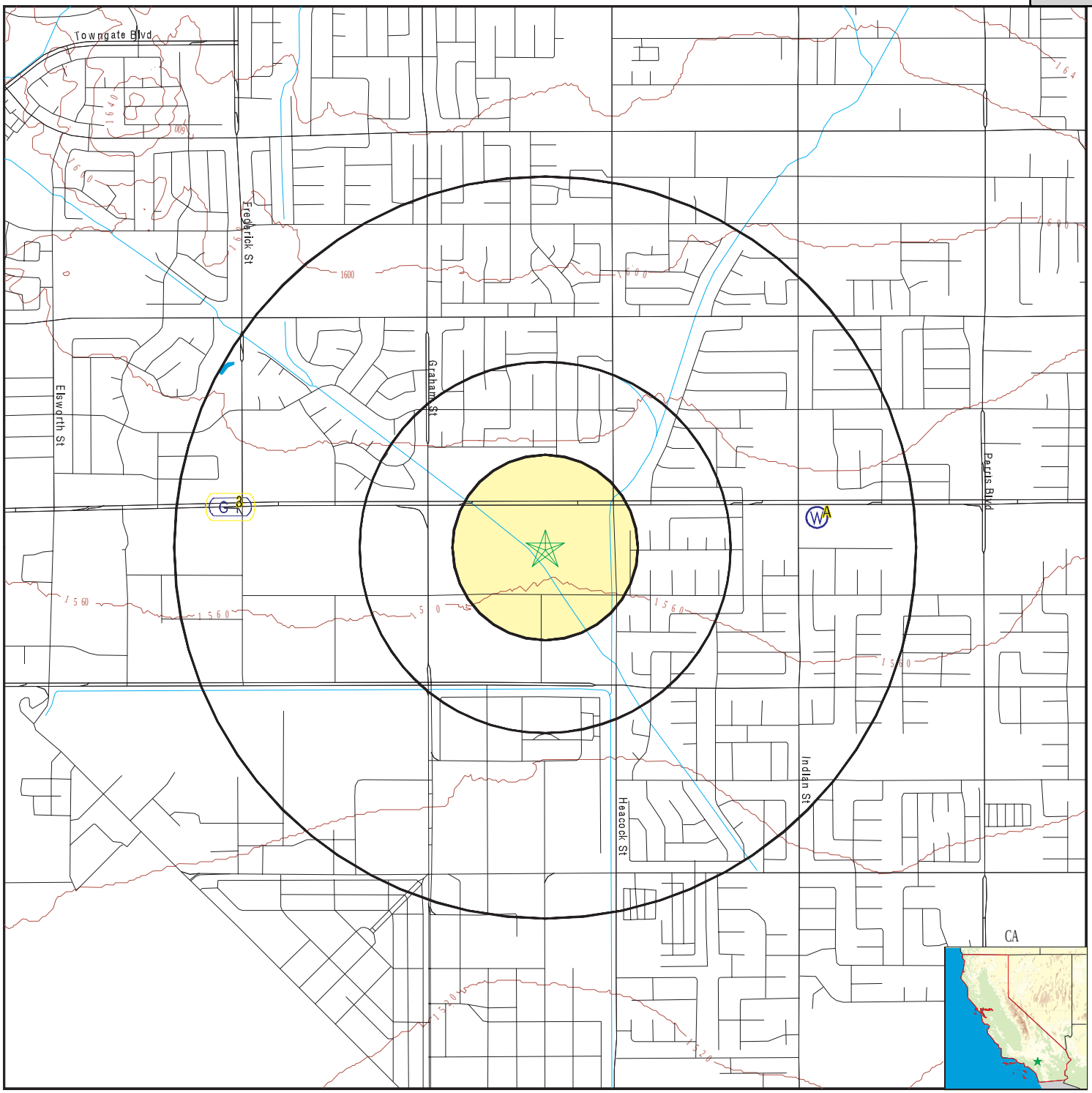
STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	3498	1/2 - 1 Mile East
A2	3497	1/2 - 1 Mile East

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

PHYSICAL SETTING SOURCE MAP - 4903567.2s

2.I



County Boundary
Major Roads
Contour Lines
Earthquake Fault Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Closest Hydrogeological Data
Oil, gas or related wells

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

SITE NAME:	6363793-ESAI	CLIENT:	ODIC Environmental
ADDRESS:	APN 297-170-077 Moreno Valley CA 92553	CONTACT:	Frank Trinidad
		INQUIRY #:	4903567.2s
LAT/LONG:	33.915512 / 117.246926	DATE:	April 10, 2017 4:53 pm

Copyright © 2017 EDR, Inc. © 2015 TomTom Rel. 2015.

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
A1 **East** **1/2 - 1 Mile** **Higher**		**CA WELLS**	**3498**

Water System Information:

Prime Station Code:	03S/03W-06N03 S	User ID:	WAT
FRDS Number:	3310010002	County:	Riverside
District Number:	14	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	335500.0 1171400.0	Precision:	Undefined
Source Name:	WELL 02		
System Number:	3310010		
System Name:	Moreno Valley Mutual WC		
Organization That Operates System:			
	24195 Fir Avenue		
	Moreno Valley, CA 92553		
Pop Served:	3000	Connections:	850
Area Served:	SUNNYMEAD & VICINITY		

A2 **East** **1/2 - 1 Mile** **Higher**		**CA WELLS**	**3497**

Water System Information:

Prime Station Code:	03S/03W-06N02 S	User ID:	WAT
FRDS Number:	3310010001	County:	Riverside
District Number:	14	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Abandoned
Source Lat/Long:	335500.0 1171400.0	Precision:	Undefined
Source Name:	WELL 01 - ABANDONED		
System Number:	3310010		
System Name:	Moreno Valley Mutual WC		
Organization That Operates System:			
	24195 Fir Avenue		
	Moreno Valley, CA 92553		
Pop Served:	3000	Connections:	850
Area Served:	SUNNYMEAD & VICINITY		

---

3 **West** **1/2 - 1 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	083302648T Not Reported 100 Not Reported Not Reported 08/21/1996		**AQUIFLOW**	**50177**

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92553	13	0

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Be kman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

APPENDIX D

HISTORICAL RECORD SEARCH

(HISTORICAL SANBORN FIRE INSURANCE MAPS / AERIAL PHOTOS / TOPO MAPS / HISTORICAL CITY DIRECTORIES / OTHER HISTORICAL RECORDS)

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

6363793-ESAI

APN 297-170-077

Moreno Valley, CA 92553

Inquiry Number: 4903567.3

April 10, 2017

Certified Sanborn® Map Report

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

04/10/17

Site Name:

6363793-ESAI
APN 297-170-077
Moreno Valley, CA 92553
EDR Inquiry # 4903567.3

Client Name:

ODIC Environmental
3255 Wilshire Blvd
Los Angeles, CA 90010
Contact: Frank Trinidad

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by ODIC Environmental were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # B6F8-4F25-A6B9

PO # 041017

Project 6363793-ESAI

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: B6F8-4F25-A6B9

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

ODIC Environmental (the client) is permitted to make up to FIVE photocopies of his Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is au horized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2017 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

6363793-ESAI

APN 297-170-077

Moreno Valley, CA 92553

Inquiry Number: 4903567.9

April 11, 2017

The EDR Aerial Photo Decade Package

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

04/11/17

Site Name:

6363793-ESAI
APN 297-170-077
Moreno Valley, CA 92553
EDR Inquiry # 4903567.9

Client Name:

ODIC Environmental
3255 Wilshire Blvd
Los Angeles, CA 90010
Contact: Frank Trinidad

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1994	1"=500'	Acquisition Date: June 01, 1994	USGS/DOQQ
1989	1"=500'	Flight Date: August 15, 1989	USDA
1985	1"=500'	Flight Date: July 28, 1985	USDA
1978	1"=500'	Flight Date: September 20, 1978	USDA
1967	1"=500'	Flight Date: May 15, 1967	USDA
1953	1"=500'	Flight Date: August 28, 1953	USDA
1949	1"=500'	Flight Date: May 08, 1949	USDA
1938	1"=500'	Flight Date: June 14, 1938	USDA

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2017 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are he property of their respective owners.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

INQUIRY #: 4903567.9
YEAR: 2010
= 500'
N
EDR

INQUIRY #: 4903567.9
YEAR: 2009
= 500'
N
EDR

INQUIRY #: 4903567.9

YEAR: 2006

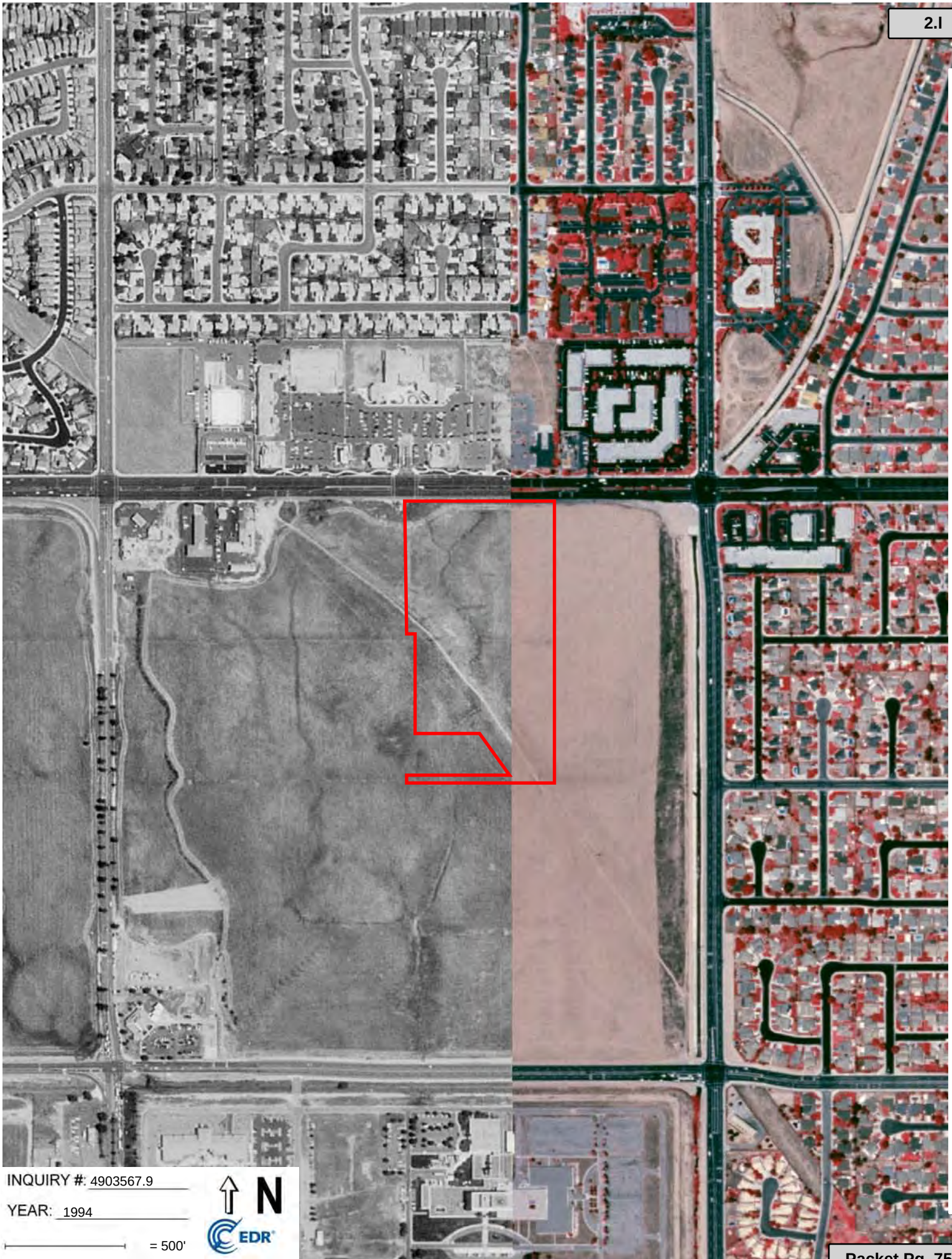
= 500'

N

EDR

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

INQUIRY #: 4903567.9
YEAR: 2005
= 500'
N
EDR


INQUIRY #: 4903567.9
YEAR: 1994
= 500'
N
EDR

INQUIRY #: 4903567.9

YEAR: 1989

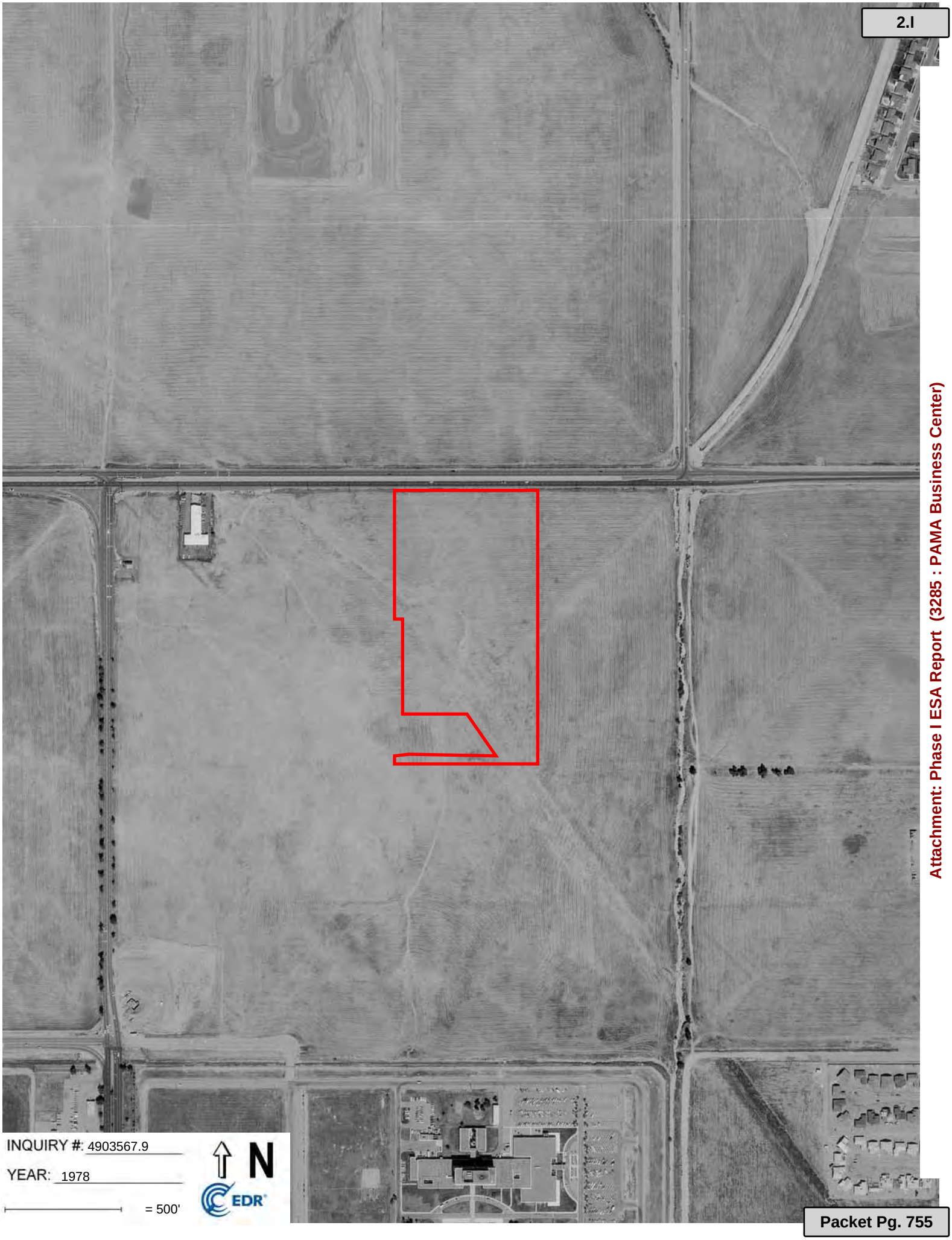
= 500'

N

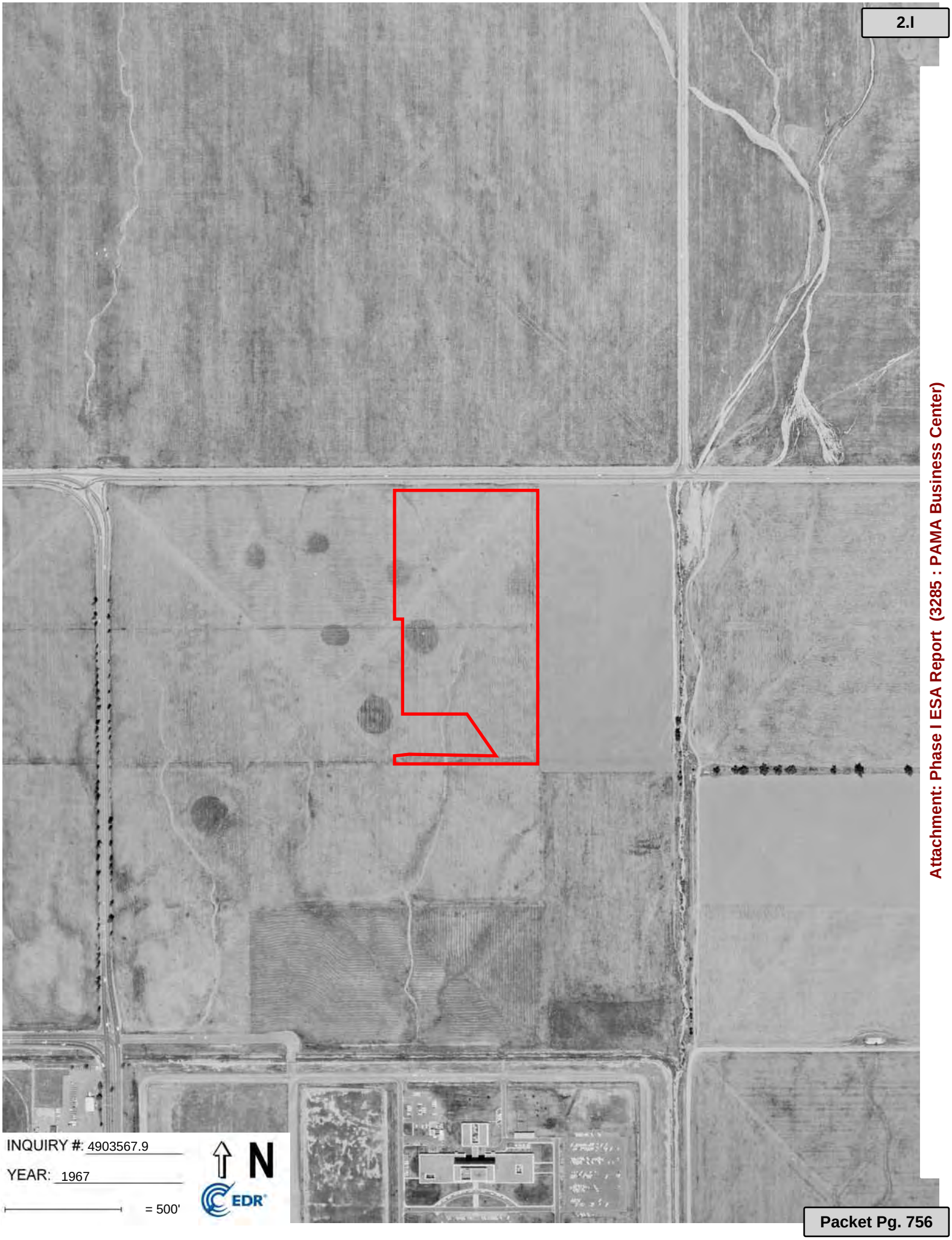
EDR

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Attachment: Phase I ESA Report (3285 : PAMA Business Center)



Attachment: Phase I ESA Report (3285 : PAMA Business Center)



Attachment: Phase I ESA Report (3285 : PAMA Business Center)

INQUIRY #: 4903567.9

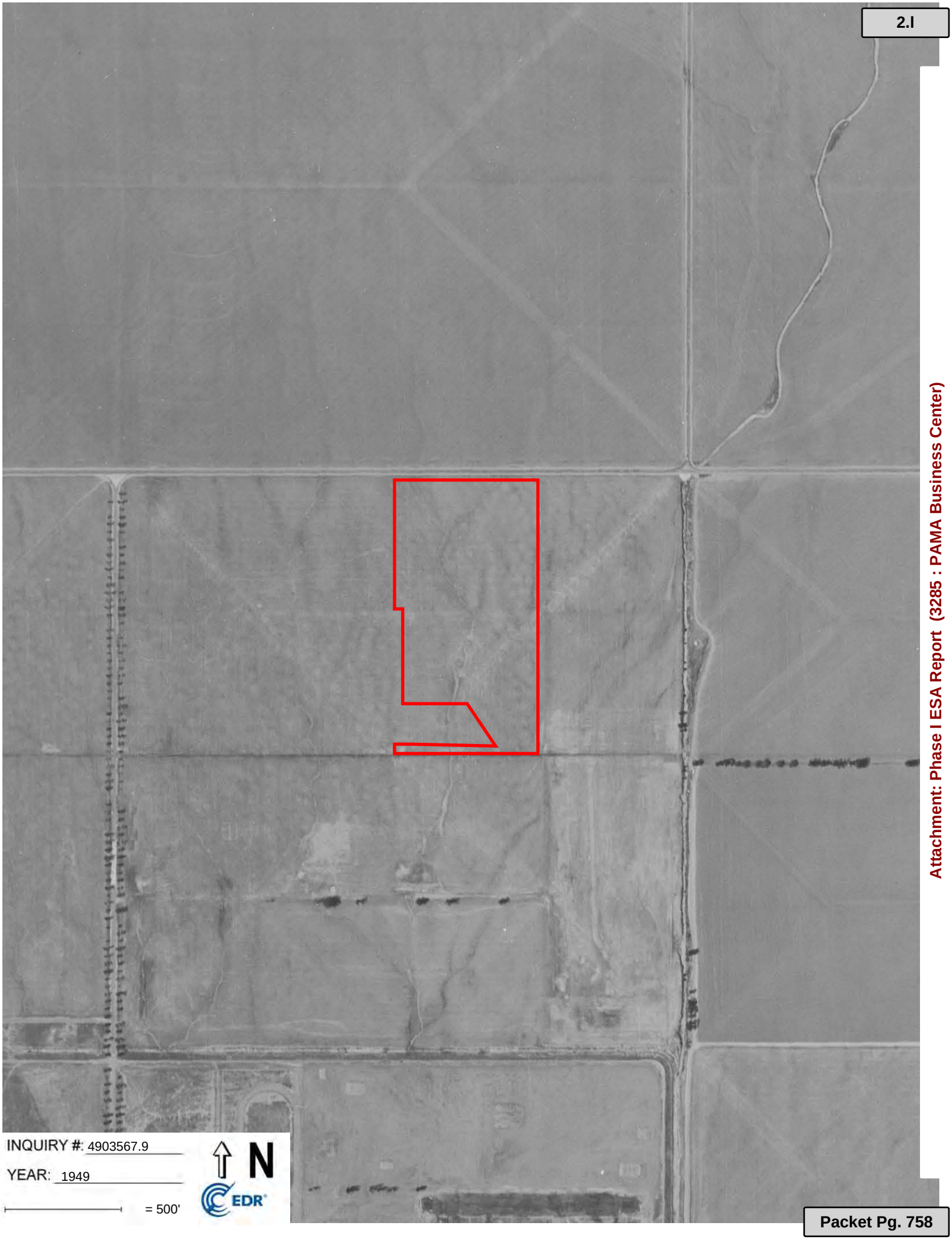
YEAR: 1953

= 500'

N

EDR

Attachment: Phase I ESA Report (3285 : PAMA Business Center)



Attachment: Phase I ESA Report (3285 : PAMA Business Center)

INQUIRY #: 4903567.9

YEAR: 1938

= 500'

N

EDR

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

6363793-ESAI

APN 297-170-077

Moreno Valley, CA 92553

Inquiry Number: 4903567.4

April 10, 2017

EDR Historical Topo Map Repo

with QuadMatch

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

04/10/17

Site Name:

6363793-ESAI
APN 297-170-077
Moreno Valley, CA 92553
EDR Inquiry # 4903567.4

Client Name:

ODIC Environmental
3255 Wilshire Blvd
Los Angeles, CA 90010
Contact: Frank Trinidad

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by ODIC Environmental were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# 041017
Project: 6363793-ESAI

Coordinates:

Latitude:	33.915512 33° 54' 56" North
Longitude:	-117.246926 -117° 14' 49" West
UTM Zone:	Zone 11 North
UTM X Meters:	477174.34
UTM Y Meters:	3752815.62
Elevation:	1562.58' above sea level

Maps Provided:

2012	1901
1980	
1973	
1967	
1953	
1947	
1943	
1942	

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2017 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are he property of their respective owners.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

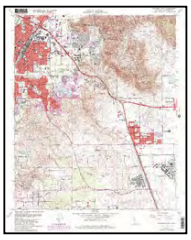
2012 Source Sheets

Riverside East
2012
7.5-minute, 24000

Sunnymead
2012
7.5-minute, 24000

1980 Source Sheets

Sunnymead
1980
7.5-minute, 24000
Aerial Photo Revised 1978



Riverside East
1980
7.5-minute, 24000
Aerial Photo Revised 1978

1973 Source Sheets

Sunnymead
1973
7.5-minute, 24000
Aerial Photo Revised 1973

1967 Source Sheets

Riverside East
1967
7.5-minute, 24000
Aerial Photo Revised 1966

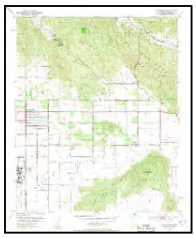
Sunnymead
1967
7.5-minute, 24000
Aerial Photo Revised 1966

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1953 Source Sheets



Sunnymead
1953
7.5-minute, 24000
Aerial Photo Revised 1951

Riverside East
1953
7.5-minute, 24000
Aerial Photo Revised 1951

1947 Source Sheets

RIVERSIDE
1947
15-minute, 50000

1943 Source Sheets

PERRIS
1943
15-minute, 62500

1942 Source Sheets

Perris
1942
15-minute, 62500
Aerial Photo Revised 1939

Riverside
1942
15-minute, 62500
Aerial Photo Revised 1939

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

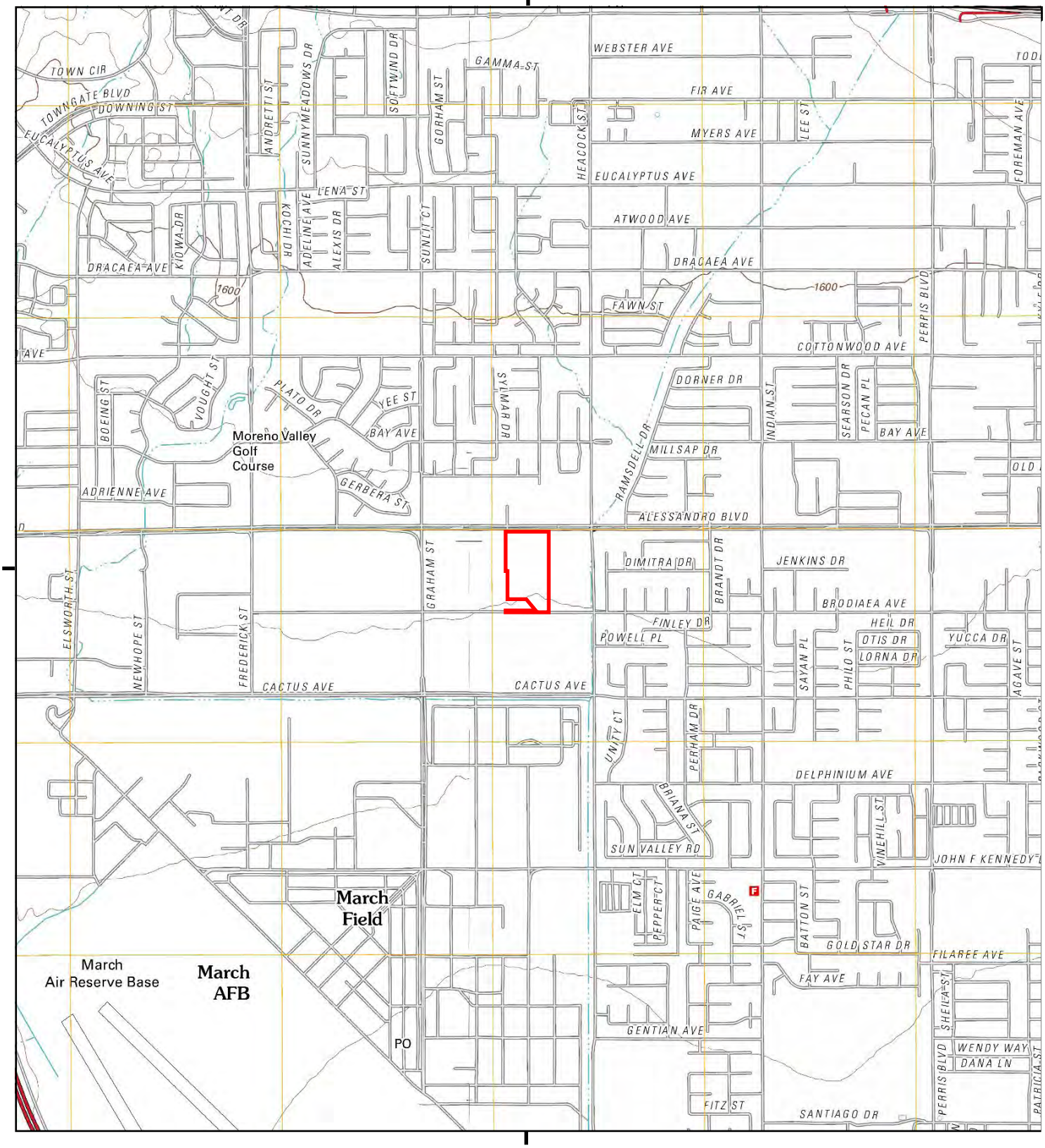
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1901 Source Sheets

Riverside
1901
15-minute, 62500

Attachment: Phase I ESA Report (3285 : PAMA Business Center)



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

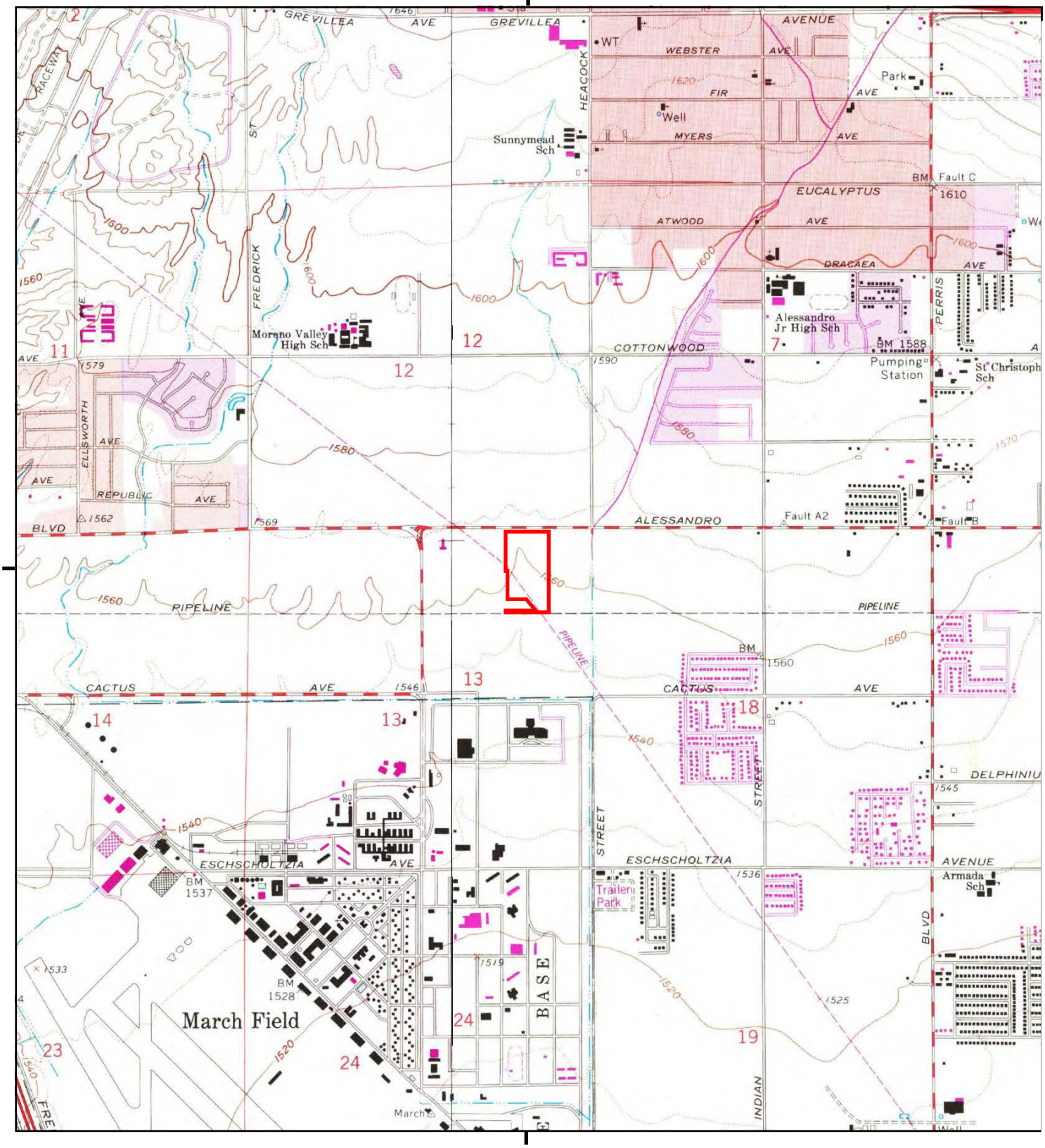
TP, Sunnymead, 2012, 7.5-minute
W, Riverside East, 2012, 7.5-minute

SITE NAME: 6363793-ESAI
ADDRESS: APN 297-170-077
Moreno Valley, CA 92553
CLIENT: ODIC Environmental

N

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Historical Topo Map



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

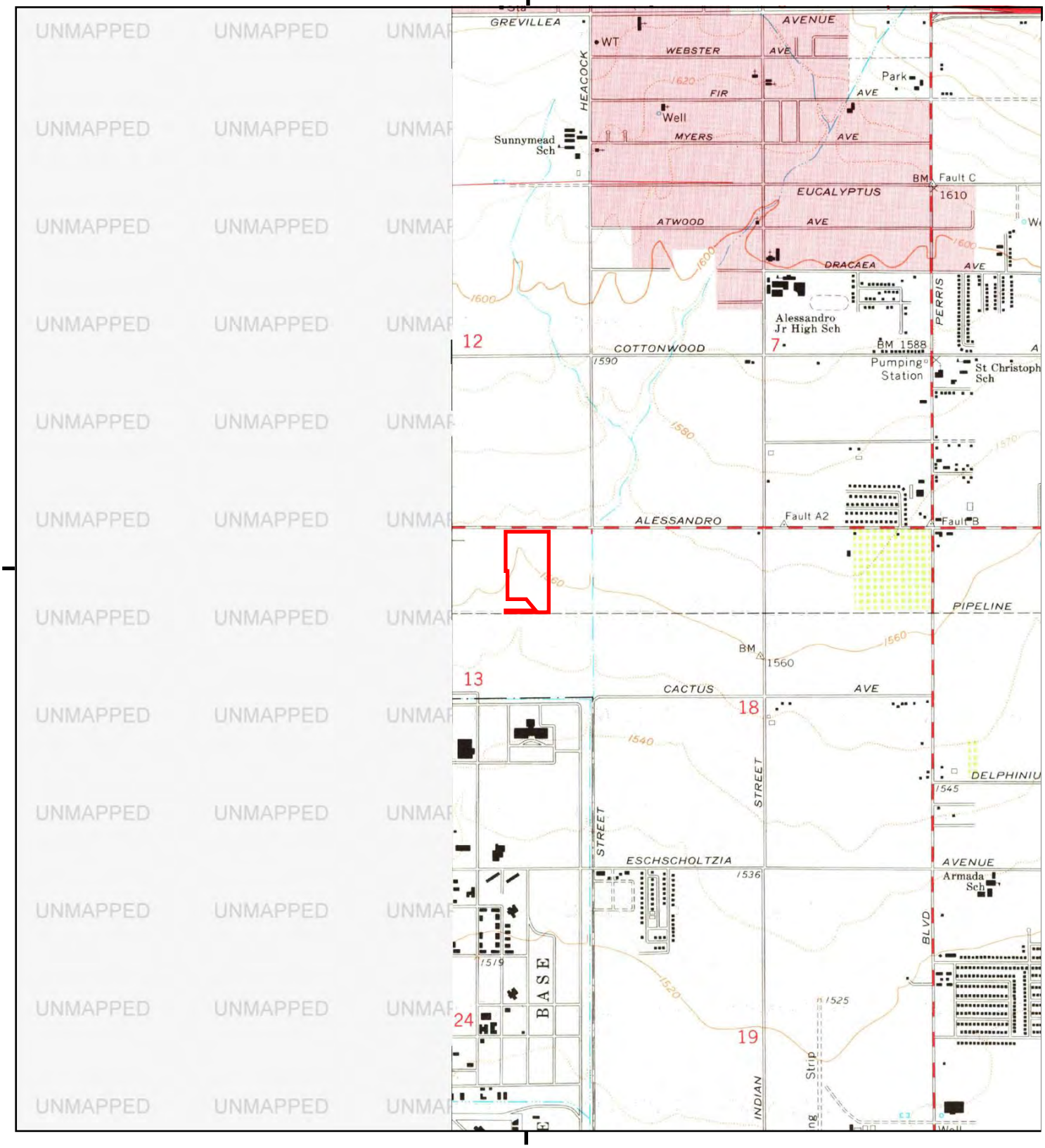
NW N NE
W E
SW S SE

TP, Sunnymead, 1980, 7.5-minute
W, Riverside East, 1980, 7.5-minute

SITE NAME: 6363793-ESAI
ADDRESS: APN 297-170-077
Moreno Valley, CA 92553
CLIENT: ODIC Environmental

N

Attachment: Phase I ESA Report (3285 : PAMA Business Center)



Attachment: Phase I ESA Report (3285 : PAMA Business Center)

This report includes information from the following map sheet(s).

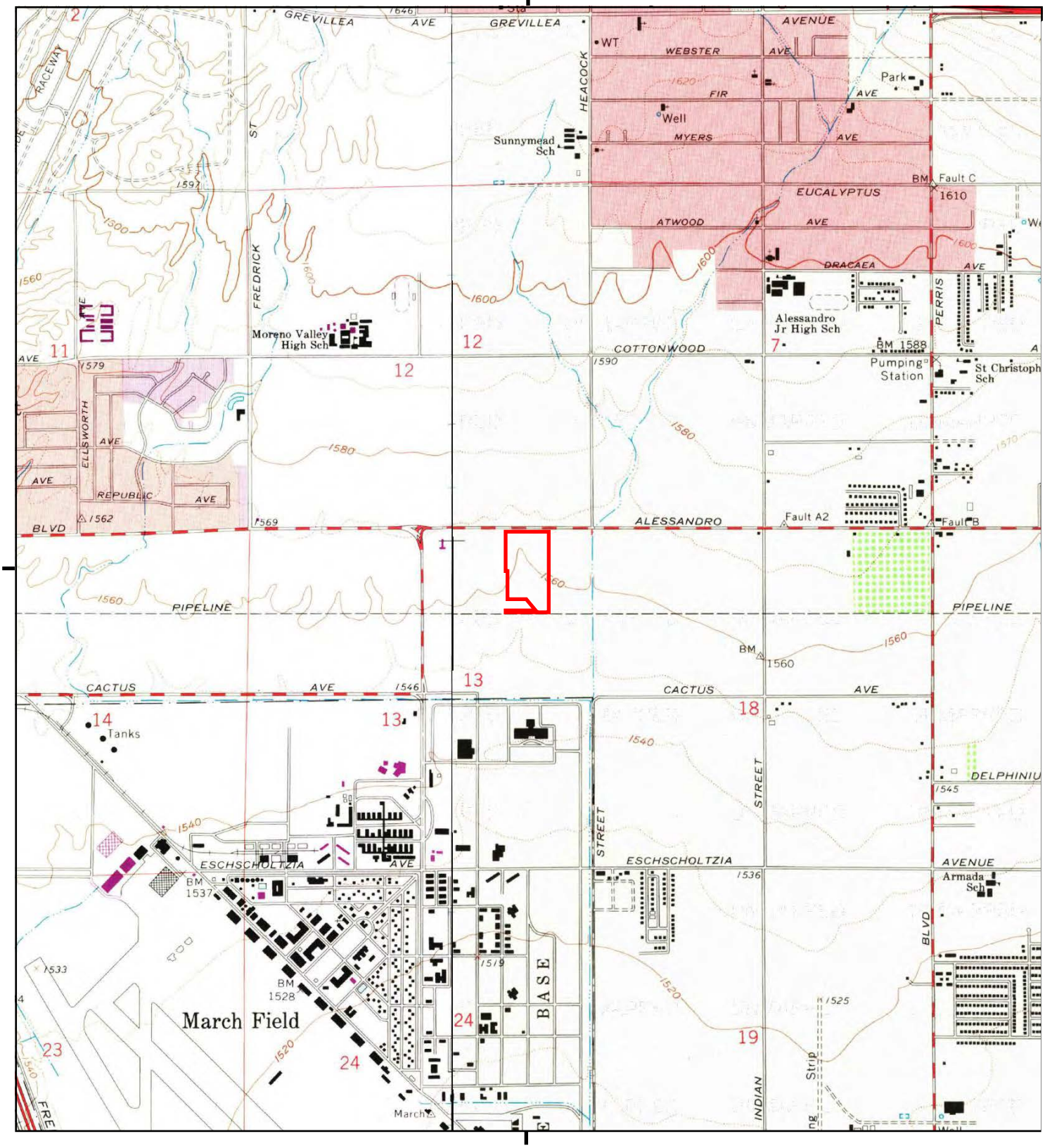
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Sunnymead, 1973, 7.5-minute

SITE NAME: 6363793-ESAI
ADDRESS: APN 297-170-077
Moreno Valley, CA 92553
CLIENT: ODIC Environmental

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

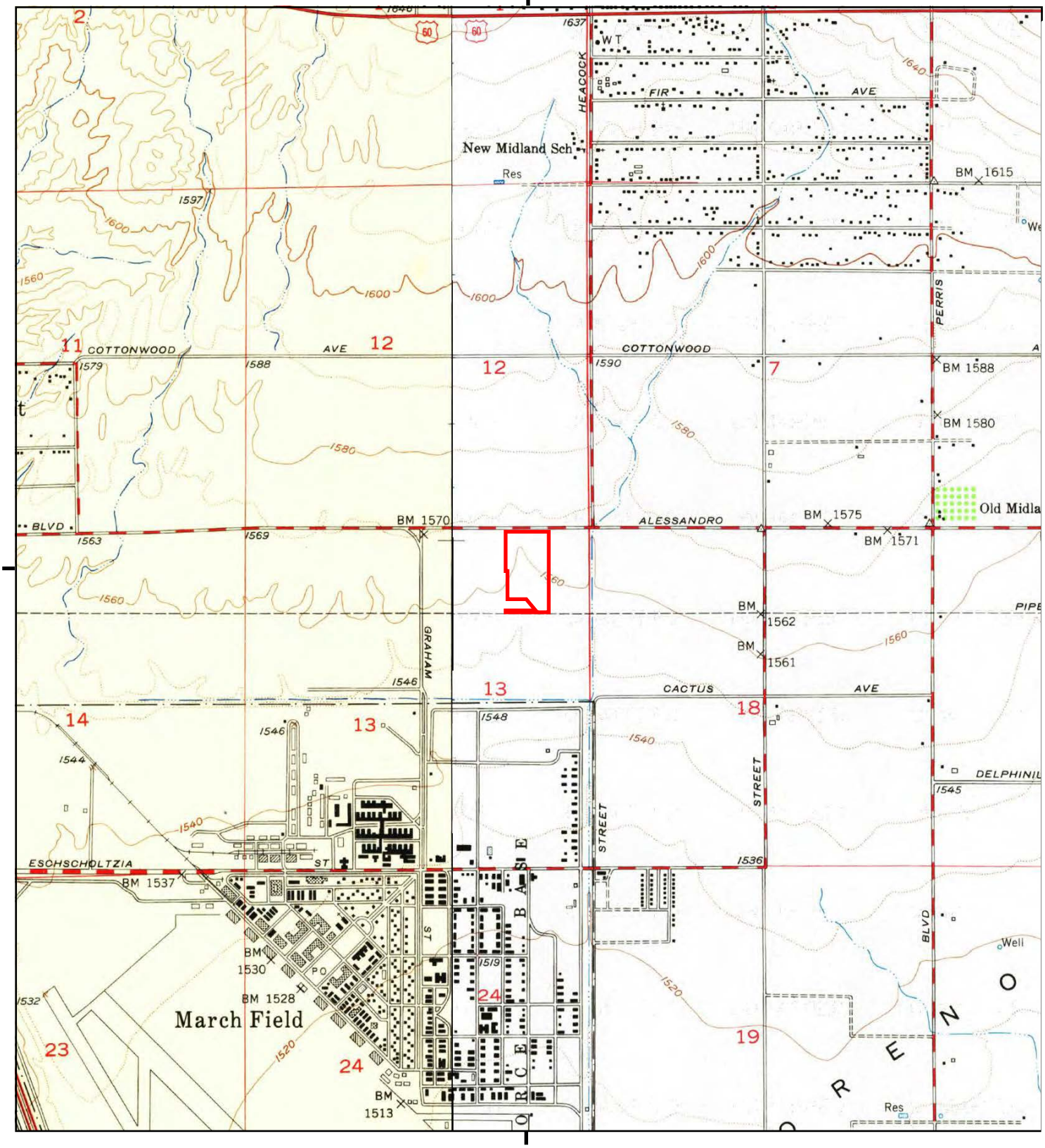
NW N NE
W E
SW S SE

TP, Sunnymead, 1967, 7.5-minute
W, Riverside East, 1967, 7.5-minute

SITE NAME: 6363793-ESAI
ADDRESS: APN 297-170-077
Moreno Valley, CA 92553
CLIENT: ODIC Environmental

N

Attachment: Phase I ESA Report (3285 : PAMA Business Center)



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

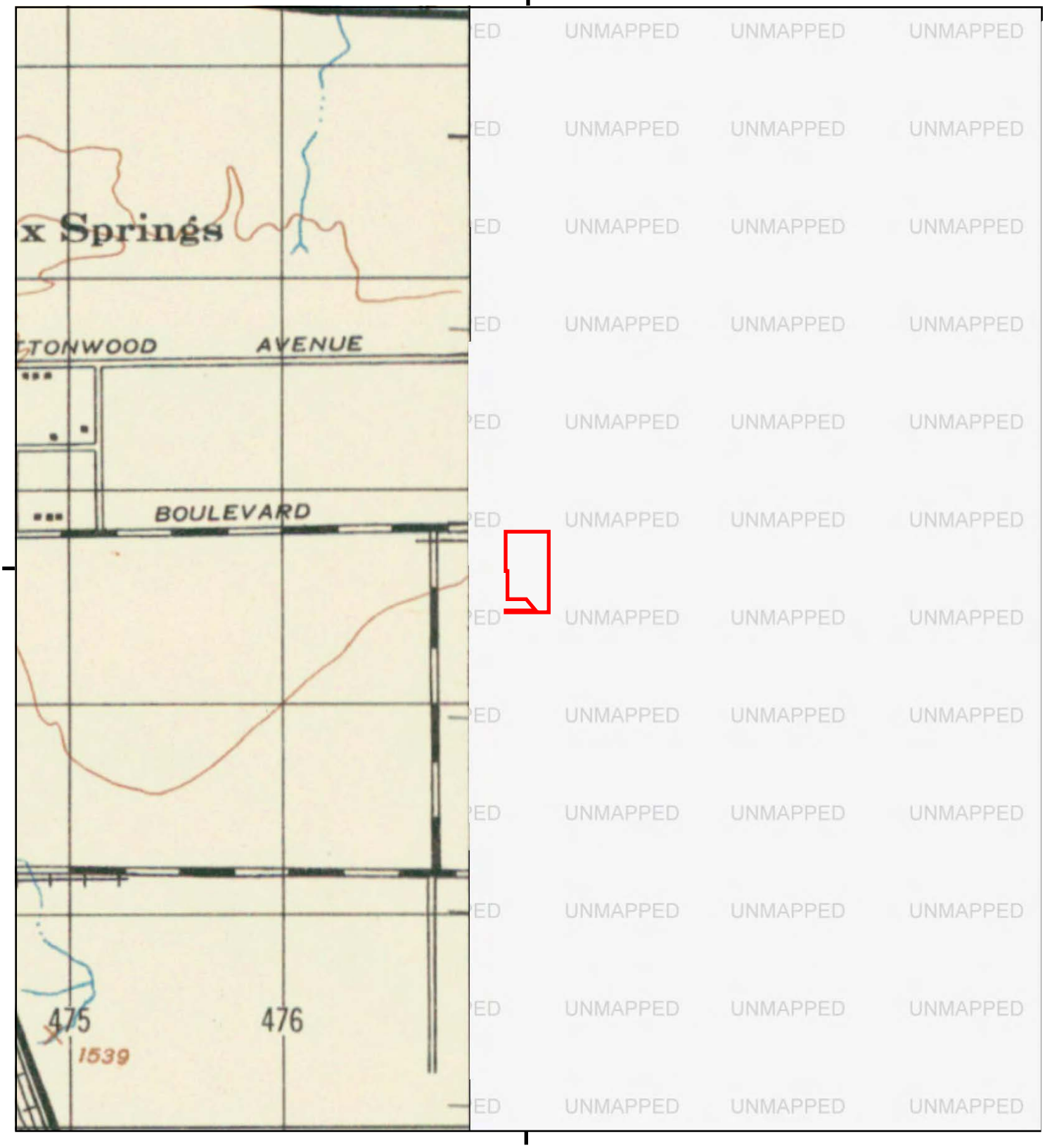
NW N NE
W E
SW S SE

TP, Sunnymead, 1953, 7.5-minute
W, Riverside East, 1953, 7.5-minute

SITE NAME: 6363793-ESAI
ADDRESS: APN 297-170-077
Moreno Valley, CA 92553
CLIENT: ODIC Environmental

N

Attachment: Phase I ESA Report (3285 : PAMA Business Center)



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

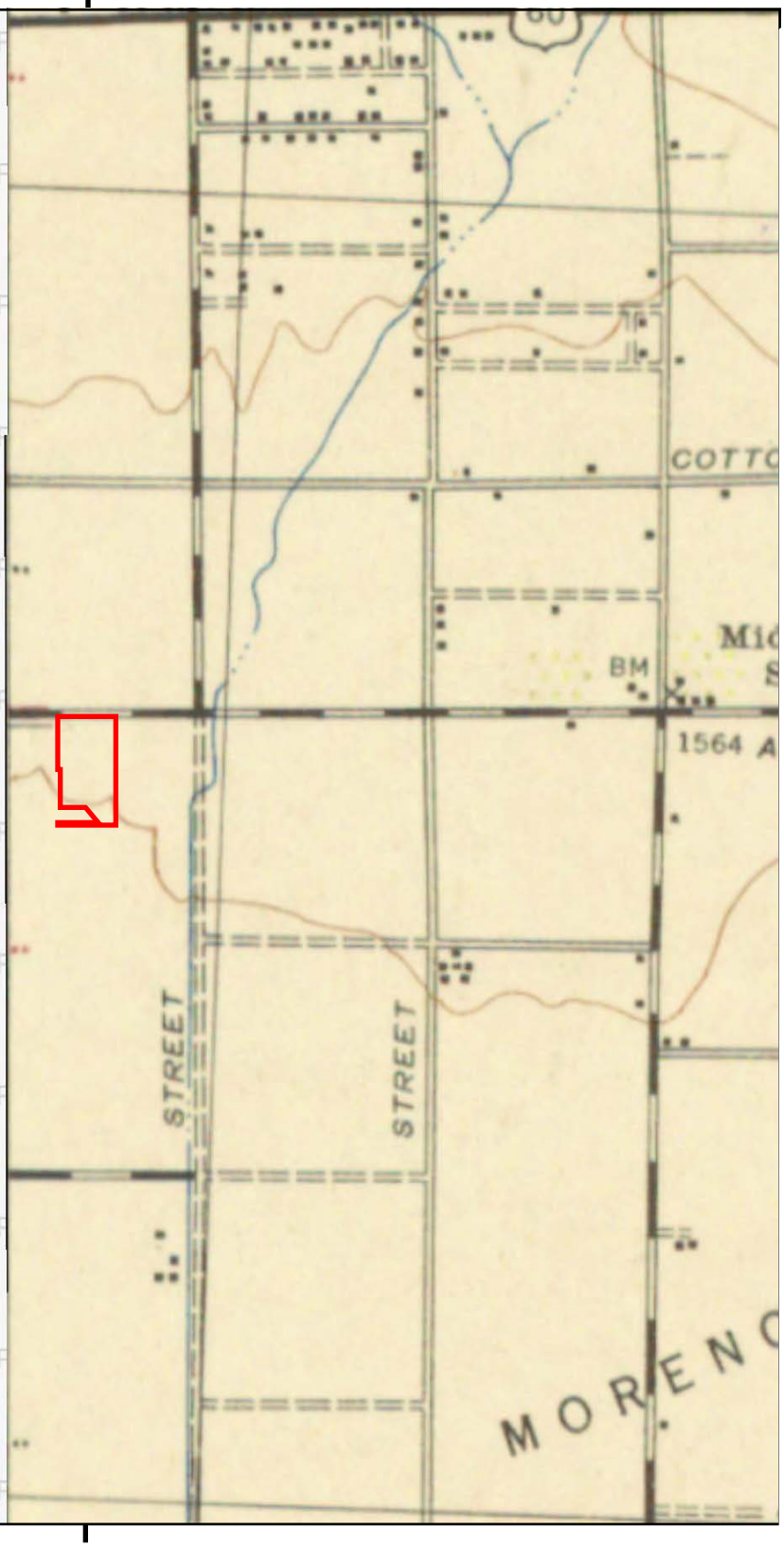
W, RIVERSIDE, 1947, 15-minute

SITE NAME: 6363793-ESAI
ADDRESS: APN 297-170-077
Moreno Valley, CA 92553
CLIENT: ODIC Environmental

N

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

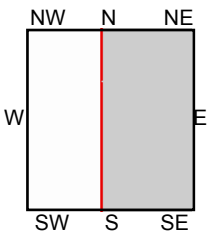
Historical Topo Map



UNMAPPED

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

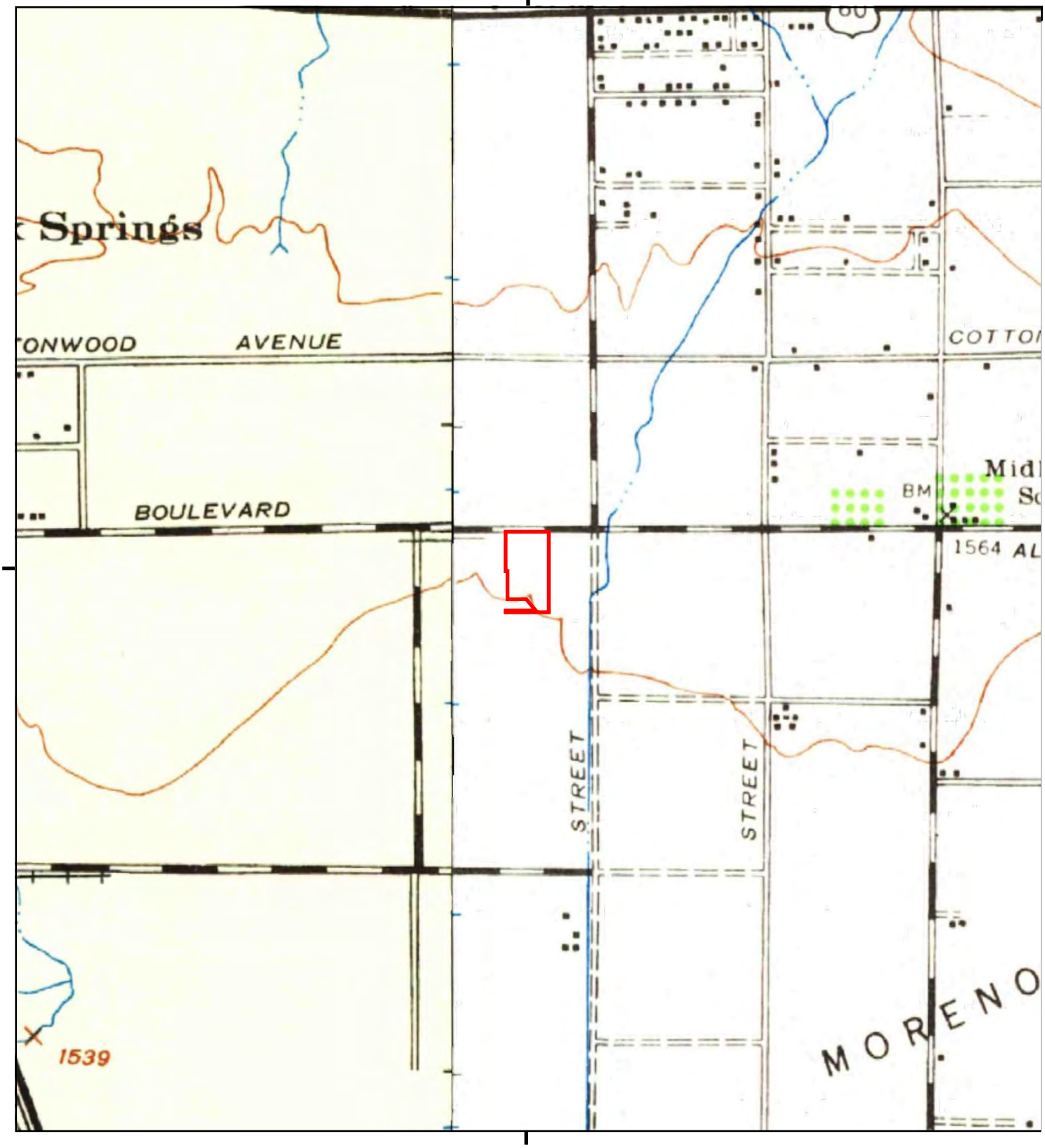


TP, PERRIS, 1943, 15-minute

SITE NAME: 6363793-ESAI
ADDRESS: APN 297-170-077
Moreno Valley, CA 92553
CLIENT: ODIC Environmental

N

Attachment: Phase I ESA Report (3285 : PAMA Business Center)



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

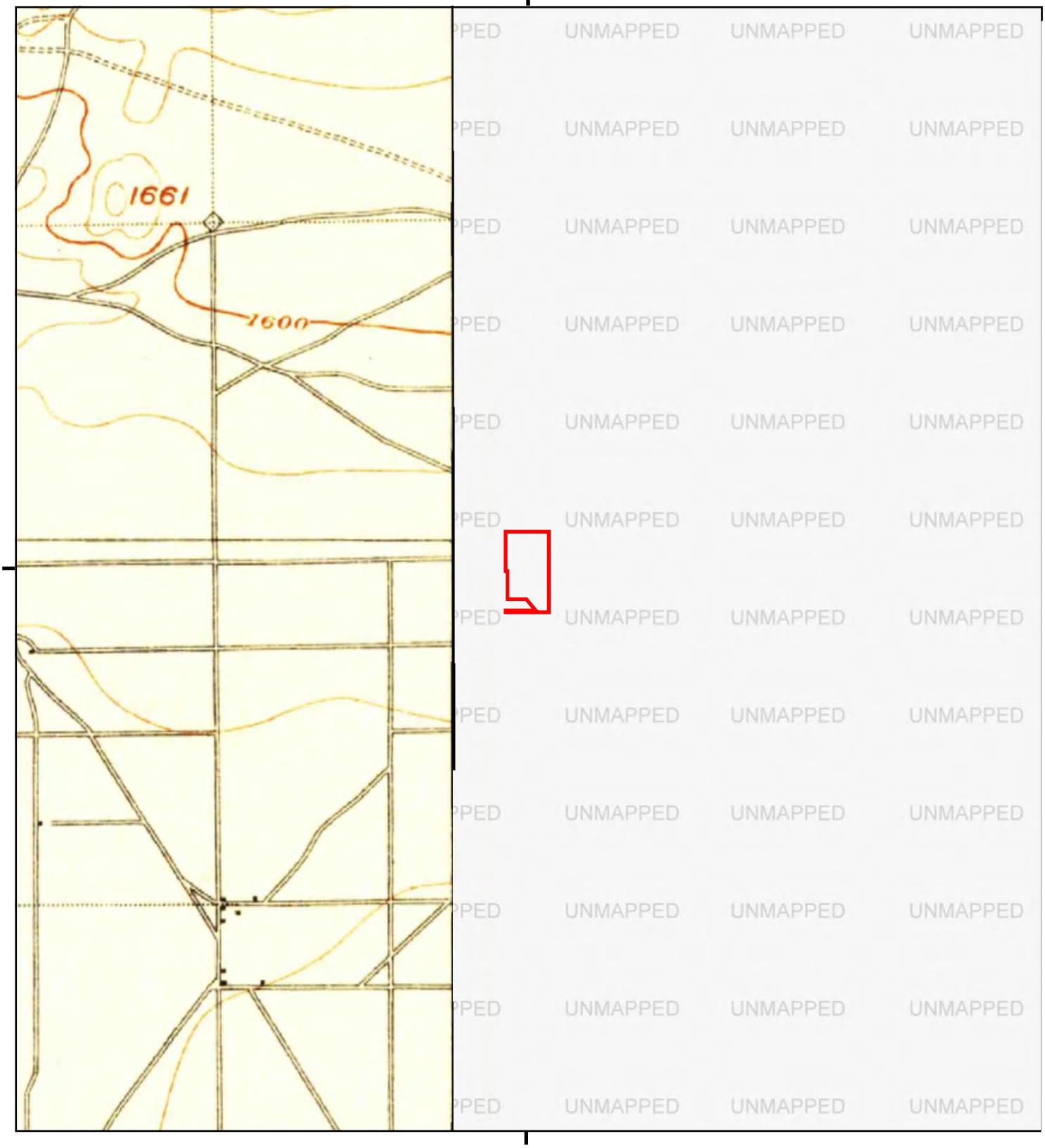
NW N NE
W E
SW S SE

TP, Perris, 1942, 15-minute
W, Riverside, 1942, 15-minute

SITE NAME: 6363793-ESAI
ADDRESS: APN 297-170-077
Moreno Valley, CA 92553
CLIENT: ODIC Environmental

N

Attachment: Phase I ESA Report (3285 : PAMA Business Center)



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

W, Riverside, 1901, 15-minute

SITE NAME: 6363793-ESAI
ADDRESS: APN 297-170-077
Moreno Valley, CA 92553
CLIENT: ODIC Environmental

N

6363793-ESAI
APN 297-170-077
Moreno Valley, CA 92553

Inquiry Number: 4903567.5
April 13, 2017

The EDR-City Directory Image Repor

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction orforecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2017 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc. or its affiliates is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2013	☐	☑	Cole Information Services
2008	☐	☑	Cole Information Services
2003	☐	☑	Cole Information Services
1999	☐	☑	Cole Information Services
1995	☐	☑	Cole Information Services
1992	☐	☑	Cole Information Services
1990	☐	☑	Haines Criss-Cross Directory
1985	☐	☑	Haines Criss-Cross Directory
1980	☐	☑	Haines Criss-Cross Directory
1975	☐	☑	Haines Criss-Cross Directory

RECORD SOURCES

EDR is licensed to reproduce certain City Directory works by the copyright holders of those works. The purchaser of this EDR City Directory Report may include it in report(s) delivered to a customer. Reproduction of City Directories without permission of the publisher or licensed vendor may be a violation of copyright.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

FINDINGS

TARGET PROPERTY STREET

APN 297-170-077
Moreno Valley, CA 92553

No Addresses Found

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

FINDINGS

CROSS STREETS

ALESSANDRO BLVD

Year	*CD Image*	*Source*
2013	pg. A2	Cole Information Services
2008	pg. A5	Cole Information Services
2003	pg. A9	Cole Information Services
1999	pg. A12	Cole Information Services
1995	pg. A15	Cole Information Services
1992	pg. A18	Cole Information Services
1990	pg. A21	Haines Criss-Cross Directory
1990	pg. A22	Haines Criss-Cross Directory
1985	pg. A23	Haines Criss-Cross Directory
1985	pg. A24	Haines Criss-Cross Directory
1980	pg. A25	Haines Criss-Cross Directory
1980	pg. A26	Haines Criss-Cross Directory
1975	pg. A27	Haines Criss-Cross Directory
1975	pg. A28	Haines Criss-Cross Directory

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

City Directory Images

Target Street	Cross Street	Source
-	✓	Cole Information Services

ALESSANDRO BLVD 2013

22810	BOTANICA CHANGO
	GRACE TEMPLE CHURCH
	IMMANUEL HOUSE
22862	COUNTRY LIQUOR
22876	KENKZ TAX SERVICE
	TOO SHARP STYLING SALON
22886	AAMCO TRANSMISSIONS
	AAMCO TRANSMISSIONS & TOTAL CAR CARE
	ADRIAN NERI
22920	ASIAN IMPORTS
	PONCHOS TACO SHOP
	SUPER V BEAUTY SALON
22940	FAMILY DENTAL CENTER
22990	TMSO INC
23020	TOMS NO 1 WORLD FAMOUS CHILIBURGER
23080	99+ FOOD MART
	CLINICA DENTAL FAMILIAR
	DEANZA OB GYN
	DEMOLA ANGEL MD
	HENRY NGUYEN OPTOMETRY
	LVRX
	MORENO VALLEY CLINICS MEDICA FAMILIA
	MORENO VALLEY WASH HOUSE
	UNITED STATES GOVERNMENT
23100	EBONY HAIR
	EXHILARATE FITNESS STUDIO
	GO GO CHINA
	M & M CLEANERS 2
	PLAZA HAND CAR WASH
23501	TABASSI CO LLC
23580	UNITED STATES GOVERNMENT
23581	MOTEL 7
23615	ALESSANDRO AUTO SPA INC
	CHASE AUTO TECH
	SPEEDY MOBILE LUB
23750	24 HOUR FITNESS
	BEVERAGES 4 LESS LIQUOR
	CITRUS BELT TAX SERVICE
	EXCEL PREP CHARTER SCHOOL
	FANCY TAN
	GOLDEN LANES
	GUS JR RESTAURANT
	HAPPY BUFFET
	KIANI DARIUSH LAW OFFICE OF
	LOS CANTARITOS MEXICAN RESTAURANT
	MENDYK CHIROPRACTIC INC
	MUSCLE HOUSE LLC
	OASIS COMMUNITY CHURCH
	RICK T KIM DDS
	RIVER KWAI THAI CUISINE

Target Street	Cross Street	Source
-	✓	Cole Information Services

ALESSANDRO BLVD 2013 (Cont'd)

23750 WHITES BIKES
WIENERSCHNITZEL
23880 ALBERTACOS
23890 ALCOHOLICS ANONYMOUS
APEX AUTO BROKER
ATLAS EXPRESS PADALA INC
CALIF SCHOOL EMPLOYEES
DUTALE
EUGENES DENTAL
FAIR HOUSING COUNCIL OF RIVERSIDE CO
FAMILY HOSPICE CARE
MORENO VALLEY LOCK & SAFE
23900 JESSIES JUMPERS
MARTIN MENDOZA
UNLIMITED QUEST INC
23910 CLEAN AIR SMOG
FANCY STITCHIN
JUST BRAIDS
MOLLY MAID
MORENO VALLEY LIONS CLUB
23920 AMERICAN AUTOMOTIVE
BRADYS AUTOMOTIVE
CERTIFIED TIRE & SERVICE CENTERS
XPERT AUTOMOTIVE
23932 ALESSANDRO ANIMAL HOSPITAL
AMB DRIVING SCHOOL
DIRECT CARPET & FLOORING
MAGANA AUTO UPHOLSTERY
NATIONAL INSTITUTE LEGAL
PLUMMERS ELEVATORS SERVICE
VALDES AUTO GLASS
VALDEZ AUTO GLASS & WINDOW TINT
VICTORY TEMPLE
23942 LUIS ESPINOSA
PARTS PLUS
PULIDOS WHEELS & TIRES
WEST COAST CABLE
23952 BEST VALLEY SMOG & AUTO
23962 ACA GROUP SERVICE CORPORTAION
ALEJANDRA ORTEZ
AMERICAN QUICK PRINTING
AZTEC INSURANCE SERVICES INC
BANIG RESTAURANT FILIPINO & ORIENTAL
BEST IMPRESSION
CALIFORNIA BUDGET FINANCE
DESASI SANDIP J DR DDS
ERNESTO CERVANTES
L B C COURIER CO
MARIA BUENO
PHILAM ENTERPRISES

Target Street	Cross Street	Source
-	✓	Cole Information Services

ALESSANDRO BLVD 2013 (Cont'd)

23962	RED RIBBON BAKE SHOP
	SKYROCKET MOBILE
	SONORA GRILL
	STADIUM FASHION
	SUPER V 2
	SUPER V BEAUTY SALON & GIFT STORE
	THE INK GALLERY
	XCLUSIVE CUTZ
24021	AARONS
	ACADEMIA TAX SERVICES
	AMYS BARBER SHOP
	CHUYITAS MEXICAN RESTAURANT
	CYNTHIAS HAIR CARE
	DESIGNER NAILS
	I DO WEDDINGS
	LOIS LAUER REALTY
	OREILLY AUTO PARTS
	PIZZA HUT
	SUNGADAN STUDIOS
	ZAPANTA DDS CRISTINA
24050	AV NAILS & SPA
	CIGARETTE KING
	DIAZ GROUP INC THE
	ESPINO LA PALMA
	TANMAKERS TANNING SALON
24100	DALIAS PIZZA EXPRESS
	KINGS DONUTS
24150	FLAVA SALON
	INKSMITH TATTOO
	LEADING EDGE LEARNING CENTER
	QWICK PICK
24430	ALLESANDRO COIN LAUNDRY
	AZTEC INSURANCE SERVICES
	BEAUTY SPOT
	OVERHEAD MORENO VALLEY GARAGE DOOR S
	PHYSICIANS FAMILY PRACTICE
	RANCHO DENTAL GROUP
	RED PERSIMMON NAILS & SPA
	TENAS SALON
	WIN WIN FASHION
24440	A1 LOCKSMITHS INC
	CHURCHS CHICKEN
	FOOD 4 LESS
	MCDONALDS
	MONEYTREE
	TONYS MOBIL
24481	APPLIANCE DISOUNTERS
	BEAUTY TRENDZ
24491	A B C FOOD STORE

Target Street	Cross Street	Source
-	✓	Cole Information Services

ALESSANDRO BLVD 2008

22810	LIS HEALTH CENTER
	MEDICAL WAY CONTROL
	SANCHEZ & CURRIER CHIROPRACTIC
22862	COUNTRY LIQUOR CO
22876	ASSISTANCE SERVICES OF MORENO VLY
	EAGLE SALES PRODUCT
	JUST BRAIDS
	KENKZ
	SAM SADIK
	SISTER SISTA BEAUTY SALON
	TOO SHARP STYLING SALON
22886	ADRIAN NERI
	CHASE AUTO REPAIR
	GPI INC
	SOUTHERN AUTO SUPPLY
22920	ASIAN IMPORT MARKET
	HAIR INTERNATIONAL SALON
	RIVER KWAI THAI CUISINE
	SISTER SISTA HOUSE OF
	TONYS PIZZA KITCHEN
	VALLEY ECONO THRIFT
22960	ELKS LODGE OF MORENO VALLEY NO 2697
23020	TOMS WORLD FAMOUS CHILIBRGR
23060	HOLLYWOOD STYLE
	PH WOODS RESTAURANT
	ROSE GARLIC INC
23080	99 FOOD MART
	CLINICA MEDICAL FAMILIAR
	DEMOLA ANGEL MD
	DR DEZAS DENTAL OFFICE
	FRONTIER MORTGAGE SOLUTIONS
	HANANLELAS JAVA HUT & DELI
	HENRY NGUYEN OPTOMETRY
	MORENO VALLEY DRY CLEANERS ZURE GA
	MORENO VALLEY PHYSICIANS ASSOCIATES
	NEXT FRONTIER HOME LOANS INC
	SOUTHERN CA CUSTOM WINDOWS & DOORS
	SUPERIOR GLASS & GLAZING CONTRACTOR
23100	DON JOSE MEXICAN RESTAURANT
	EBONY HAIR
	GO GO CHINA
	HOUSE OF SISTER SISTAH
	M & M CLEANERS
	MAGICAL DAY
	PLAZA HAND CAR WASH
23501	TABASSI INC
23580	MARIE ASCENCIO
23581	MOTEL 7
23615	909 EXTREME MONITORING INC
	OCCUPANT UNKNOWN

Target Street	Cross Street	Source
-	✓	Cole Information Services

ALESSANDRO BLVD 2008 (Cont'd)

23750	24 HOURS FITNESS
	99 CLEANERS
	ABC BOWL
	ARACELY SARMIENTO
	BAY CLEANERS
	CITRUS BELT TAX SERVICE
	CLASSY B LIQUOR DELI
	COLOSSEUM REALTY
	DARIUSH KIANI
	FANCY TAN
	FOR GOOD TATTOO STUDIO
	GOLDEN OX BURGERS
	JUAN SALDANA
	LOS EQUIPALES MEXICAN GRILL
	MORENO DENTAL CARE
	MORENO VALLEY FUN BOWL INC
	OASIS COMMUNITY CHURCH
	POWERHOUSE DANCE CENTER
	PREHISTORIC TIMES REPTILES
	ROBERT RAYNE HEALTH & JUICE
	RUNNING CLEANERS
	SHEAR CUTS
	STEPPING STONES LEARNING ACADEMY
	SUPERIOR NAILS
	WHITES BIKES
	WIENERSCHNITZEL RESTAURANT INC
23890	AP MORENO VALLEY LLC
	APEX AUTO BROKERS
	APFEL FURNITURE SALE
	ATLAS EXPRESS PADALA INC
	CA SCHOOL EMPLOYEES ASSN MORENO VALL
	DYNASTRY GROUP HOME INC
	FAIR HOUSING COUNCIL OF RIVERSIDE CO
	FAIRCHILD CHIROPRACTIC CLINIC
	NEW BEGINNINGS HOME LOANS
	PERFORMANCE TEAM THE
23900	CERTIFIED TIRE & SERVICE CENTERS
	FIRST SOURCE AWARDS INC
	GOLDENS ELECTRONIC REPAIR
	UNLIMITED QUEST INC
	VICKYNO AUTO WINDOW TINT
23910	FANCY STITCHIN
	GBM MACHINE SHOP
	JAVIER JIMENEZ
	MOLLY MAID OF REDLANDS
	MORENO VALLEY COMMUNITY EDUCATION CE
23920	1ST PLACE AUTOMOTIVE
	ACME TUNE & SMOG
	BRADYS AUTOMOTIVE
	CERTIFED TIRE & SERVICE CENTER

ALESSANDRO BLVD 2008 (Cont'd)

23920	D & C AUTO REPAIR
	MORENO VALLEY TRANSMISSIONS
23932	AMMA MEDICAL SUPPLY
	M MD S WEST
	MAGANA AUTO UPHOLSTERY
	MOBILE PROS
	MULTI TELECOM INC
	PLUMMERS ELEVATORS SERVICE
	RANDHAWA H S DVM
	TRUE FOUNDATION CHRISTIAN
	VICTORY TEMPLE
23942	AMB DRIVING SCHOOL
	PARTS PLUS
	PULIDOS WHEELS & TIRES
23952	BEST VALLEY SMOG & AUTO REPAIR
23962	ABBEY
	ACE TV RENTALS
	AMERICAN QUICK PRINTING
	ATLAS SHIPPERS MORENO VALLEY
	BANIG FILIPINO & ORIENTAL RESTAURANT
	BUENO MARIA SALVE A DDS
	DANCEL FLORENDO
	DSOUZA LORRAINE REALTY EXECUTOR
	ERMA FULCHER
	FULCHER ERMA
	FUN 4 ALL PARTYS
	HEISSER INSURANCE AGENCY
	LAW OFFICES OF EDWARD LLOYS & ASSOCI
	MARIA BUENO
	NEW IMPRESSIONS TILE INC
	PARADISE VALLEY HOLDINGS INC
	PHIL AM ENTERPRISES
	PICOZZI & LLOYD
	RED RIBBON BAKE SHOP
	RITA HARB
	SANDIP DESAI DDS
	SUPER V BEAUTY SALON
	SUPER V BEAUTY SALON & GIFT STORE
	T L C NUTRITION CENTER
	VIDEO TIME
	VINCENT DANIEL P LAW OFFICES
24021	AMYS BARBER SHOP
	CENTURY 21
	CHUYITAS
	CSK AUTO INC
	DEL SOL FURNITURE 2
	DESIGNER HAIR & NAILS
	I DO WEDDINGS
	JPMORGAN CHASE BANK NATIONAL ASSOCIA
	LOIS LAUER REALTY

ALESSANDRO BLVD 2008 (Cont'd)

24021	MAMA CHUYS
	NUEVO TORITOS MEAT MARKET
	OUBEIDS SOUTHPOINTE DENTAL PRACTICE
	P N B REMITTANCE CONTRACTORS INC
	PHILIPPINE NATIONAL BANK REMITTANCE
	PIZZA HUT
	SUNGADAN
24050	ALBIERTOS MEXICAN RESTAURANT
	CIGARETTE KING
	DIAZ GROUP INC
	INSTANT CASH
	MARISCOS MELGOZA
	MEGA CELLULAR
	PATTAYA PLACE
24100	DALIAS PIZZA NO 12
24150	AGUA FINA
	APPLE FLORIST
	FADES UNLIMITED
	INK AHOLICS TATTOO STUDIO
	INKAHOLICS
	KARENS GROOMING SHOPPE
	PACIFIC LABOR SOURCE INC
	QWICK PICK
24400	CHECKING CHECK CASHING CENTERS
	SERVICE ANNEX LLC
24430	ASTEC
	AZTEC INSURANCE SERVICES
	COMMUNITY RECRUITMENT STAFFING
	POSTAL EXPRESS
	RANCHO DENTAL GROUP
	RANCHO MEDICAL CLINIC
	VINCENTEOS MEXICAN FOOD
	YOUR WIRELESS RETAILER
24440	CHURCHS CHICKEN
	FOOD 4 LESS
	LA S LOW COST AUTO INSURANCE
	MCDONALDS
	MCMANGA FOODS
	TONYS MOBIL
24481	APPLIANCE DISCOUNTERS SALES & SERVIC

Target Street	Cross Street	Source
-	✓	Cole Information Services

ALESSANDRO BLVD 2003

22810	CITRUS BELT TAX SERVICE
	CURRIER & SANCHEZ CHIROPRACTIC
	INTERNATIONAL AUTO CRAFTERS
	ROBERT SANCHEZ
	ROBERT SANCHEZ
22862	OCCUPANT UNKNOWN
22876	8 HOUR TAX SERVICE
	EAGLES CHECK CASHIG
	SAMIR SADIK
	TOO SHARP STYLING SALON
22886	CARQUEST
	HEACOCK AUTO SUPPLY
	OCCUPANT UNKNOWN
	SOUTHERN AUTO SUPPLY
22920	ASIAN IMPORT MARKET
	KAYS HAIRSTYLING
	MAGDA BANDEK
	RIVER KWAI THAI CUISINE
	UP N SMOKE
	WATERMILL EXPRESS INC
22940	OCCUPANT UNKNOWN
	TRINH & HO DENTAL
	TRINH & HO PROFESSIONAL DENTAL
22960	ELKS LODGE OF MORENO VALLEY NO
23060	PH WOODS RESTAURANT & BREWERY
23080	DEMOLA ANGEL MD
	DR DEZAS DENTAL OFFICE
	FRIENDSHIP CHRISTIAN BOOKS
	FRIENDSHIP CHRSTN FLWSHP CHRCH
	PLAZA MARKET & DELI
23100	A 1 CLEANERS
	CHINA GOGO
	DON JOSE MEXICAN RESTAURANT
	EBONY HAIR
	GOGO CHINA
23501	TABASSI CO
23580	LEIGH HICKS
23581	JIN KOO
23615	ALESSANDRO ENTERPRISES INC
	ALESSANDRO HAND CAR WASH
	MAGIC LUBE
	PEDROS FOOD
23750	BENS BEAUTY SALON
	CADILLAC BOWL
	CLASSY BS LIQUOR
	DEAN & ASSOCS
	FANCYTAN INC
	GINGER TAYLOR
	GINGER TAYLOR
	GOLDEN OX

ALESSANDRO BLVD 2003 (Cont'd)

23750 HAIRCUTS PLUS
HEAR EASY HEARING AIDS
INSPIRATIONS PRFRMNG ART CTR
MAX MUSCLE
MORENO VALLEY FUN BOWL INC
MORENO VALLEY HEARING AIDS
OASIS COMMUNITY CHURCH
RAY CHAKMAKCHI
ROBERT RYNNG HLTH & JUICE BAR
RUSTIC
SHEAR CUTS
STEPPING STONES LEARNING ACDMY
TAN FANCY
THE RITE PLACE
TWENTYFOUR HOUR FITNESS
WED OF CANDLES
23880 TACO BELL NO
23890 CLINICAL MASSAGE THERAPY GROUP
FAIR HOUSING COUNCIL OF RVRSD
FAIRCHILD CHIROPRACTIC CLINIC
LUIS DENTAL LAB
MIRCH MASALA CORNER
23900 CERTIFIED TIRE & SERVICE
23910 ANGEL GARCIA
COLE FINANCIAL INC
FANCY STITCHIN
GBM MACHINE SHOP
LJR ROOFING
SSS ALARM CO
23920 1ST PLACE AUTOMOTIVE
D & C AUTO REPAIR
23932 H RANDHAWA
MAGANA AUTO UPHOLSTERY
MELVIN MARTE
PLUMMERS ELEVATORS SERVICE
TRUE FOUNDATION CHRISTIAN
23942 ABBEY CO
ANGELINE TANCREDI
AP MORENO VALLEY LLC
CLAUDIAS FASHION
DYNO DUDES
RANDY DARGITZ
23962 A PLUS COMPUTER SERVICES
ACE TV RENTALS
ATLAS BUILDERS
BANIG RESTAURANT FLPN & ORNTL
DEBORAH HEISSER
DEBORAH HEISSER
ERMA FULCHER
FULCHER ERMA INSURANCE

ALESSANDRO BLVD 2003 (Cont'd)

23962	FUN 4 ALL PARTYS
	GROUND ZERO AUTO SALON
	LAW OFFICES OF MARC VINCENT
	MARC VINCENT
	MARC VINCENT & ASSOCS
	SUNBRIGHT TILE MARBLE
	SUPER V 2
	VINCENT DANIEL P LAW OFFICES
24021	CHELIS BEAUTY SALON
	DAIRY QUEEN
	DEL SOL FURNITURE
	EMYS BARBER SHOP
	KRAGEN AUTO PARTS MORENO VLY
	LUNA SUPER STORE
	MAMA CHUYS
	NUEVO TORITOS MEAT MARKET
	PIZZA HUT
	Q TEAZ FASHION
	SOUTH POINTE CTR LTD
24050	ALBERTOS MEXICAN FOOD
	FLASH PHOTO STUDIO
	INSTANT CASH
	KING CIGARETTE
	MEGA CELLULAR
	PERFECT TOUCH BEAUTY SALON
	RAMADA FLOORING
	S STYLIST
	STYLIST VI SMITH
24100	DALIAS PIZZA NO
	KINGS DONUTS
24150	APPLE FLORIST
	CHRISTINE CRENSHAW
	CHRISTINE CRENSHAW
	GABBYS LIQUOR
	KARENS GROOMING SHOPPE
	NRTHMD PRSCHL & CHILD CARE CTR
	QWICK PICK
	WINGS N THINGS
	WINGS N THINGS II
24400	SERVICE ANNEX LLC
24440	TONYS MOBIL
24481	APPLIANCE DISCOUNTERS
24491	ABC FOOD STORE
	KWANG LEE

Target Street	Cross Street	Source
-	✓	Cole Information Services

ALESSANDRO BLVD 1999

22810	CITRUS BELT TAX SERVICE
	CURRIER & SANCHEZ CHIROPRACTIC
	SANCHEZ ROBERT
22862	COUNTRY LIQUOR COMPANY
22876	8 HOUR TAX SERVICE
	CHECKS CASHED MONEY ORDERS EAGLES
	EAGLES CHECKS CASHED MONEY ORDERS
	EXPRESSIONS INTERNATL
	FAST PAGE
	MORENO VALLEY CHECK CASHING
	TOO SHARP STYLING SALON
22886	ADRIAN NERI
	CARQUEST
	CHASE AUTO REPAIR
	HAS AUTOMOTIVE WAREHOUSE AND MACHINE
	HEACOCK AUTO SUPPLY
22920	ASIAN IMPORTS
	KAYS HAIRSTYLING
	QUINN AFRICAN METHODIST EPISCOPAL CHURCH
	RIVER KWAI THAI CUISINE
22940	MORENO VALLEY PODIATRY GROUP AMBULATORY SURGERY CENTER
22960	ELKS LODGE OF MORENO VALLEY NO 2697
23080	FRIENDSHIP CHRISTIAN FELLOWSHIP CHURCH
	PLAZA MARKET & DELI
23100	A 1 CLEANERS
	BOTTOM GUN CAFE
	DON JOSE MEXICAN RESTAURANT
	EBONY HAIR
	PLAZA DEL SOL HAND CAR WASH
	STUDIO B
23580	POSTAL SERVICE
23581	MOTEL 7
23615	ALESSANDRO HAND CAR WASH
	EZ LUBE
	JAMAL SADIK
	MAGIC LUBE
	MAGIC TUNE
23750	24 HOUR FITNESS
	99 CLEANERS
	B KING
	BEN TURPIN HEARING AIDS
	CADILLAC BOWL
	CLUB CADILLAC
	COST CUTTERS
	FANCY TAN
	GOLDEN OX BURGERS
	HOT SPRINGS PORTABLE SPAS
	IN & OUT MARKET & LIQUOR
	INLAND EMPIRE HOT SPRING SPAS
	INSPIRATIONS PERFORMING ARTS CENTER

ALESSANDRO BLVD 1999 (Cont'd)

23750 L & M BOWLING EQUIPMENT
MENDYK CHIROPRACTIC
MORENO VALLEY HEARING AIDS
NUTRI SYSTEM WEIGHT LOSS CENTER
RIVER KWAI THAI CUISINE
SHEAR CUTS
SISLO ROSE MARIE
SIZZLER RESTAURANTS
SUN VALLEY REAL ESTATE
SUPERIOR NAILS BY KIM
SURF CITY SQUEEZE
TUTOR TIME CHILD CARE LEARNING CENTER
VALLEY CHIROPRACTIC
WIENERSCHNITZEL NO 561
23880 TACO BELL NO 2858
23890 DIZZY DANIS CLEANING SERVICE
EXPERT TIRE AND SERVICE CENTERS INCORPORATED
FAIRCHILD CHIROPRACTIC CLINIC
HOLY SPIRIT DURABLE MEDICAL EQUIPMENT
MORENO VALLEY COMMERCE CENTER
THE KOLL COMPANY
TOTAL SECURITY SYSTEMS
23900 UNLIMITED QUEST INCORPORATED
23910 C & W TV
FANCY STITCHIN
JAVIER JIMENEZ
LEONARDS CARPET
23920 D & C AUTO REPAIR
EXPERT TIRE AND SERVICE CENTERS INCORPORATED
GOODYEAR TIRE DLRS EXPERT TIRE AND SERVICE CENTERS INCORPORA
JAPANESE CARS UNLIMITED
LEES AUTO REPAIR
MORENO VALLEY TRANSMISSIONS
SUPERSTORES
TIRE WHEEL & BRAKE SUPERSTORES
23932 ALESSANDRO ANIMAL HOSPITAL
MAGANA AUTO UPHOLSTERY
MULTI TELECOM INCORPORATED
23942 B & F AUTO REPAIR
B & F MOBIL AUTO REPAIR
PRAISE CHAPEL CHRISTIAN FELLOWSHIP
23952 AUTO SERVICE CLUB
CLUB AUTO SALES
23962 AMERICAN QUICK PRINTING
BANIG RESTAURANT FILIPINO & ORIENTAL
CLASSY BS LIQUOR DELI
ERMA FULCHER
FUN 4 ALL PARTYS
MARIA BUENO
PHIL AM ENTERPRISES

ALESSANDRO BLVD 1999 (Cont'd)

23962	PIZZA ITALIA & SUBS
	SUPER V 2
	VIDEO TIME
24021	BRIAN HOMES
	DESIGNER NAILS
	G & M BEAUTY SUPPLY & SALON
	HIGH 9
	HOT SHOTS BILLIARDS & SPORTS BAR
	I DO WEDDINGS
	KRAGEN AUTO PARTS
	MR ANTHONYS
	MR ANTHONYS BEAUTY SALON
	OLD WEST MERCANTILE COMPANY
	PIZZA HUT
	SOUTH POINTE CENTER LIMITED
	US TROPHY
24050	GAME SPOT
	INSTANT CASH
	KHALED NOOR
	PATTAYA PALACE
	PERFECT TOUCH BEAUTY SALON
	STYLIST VI SMITH
	TANMAKERS TANNING SALON
24100	LITTLE CAESARS PIZZA NO 5
	MUFFIN & DOUGHNUT
24150	A & S MARKET
	APPLE FLORIST
	EL CHALAN PERUVIAN RESTAURANT
	INK AHOLICS TATTOO STUDIO
	KARENS GROOMING SHOPPE
	PRECISION TAX & ACCOUNTING SERVICES
	T S SINFUL PRODUCTIONS
24440	MCDONALDS RESTAURANTS
	MOBIL OIL
	RALPHS GROCERY COMPANY
	TONYS MOBIL
24481	CHIEF AUTO PARTS
24491	A B C FOOD STORE

Target Street	Cross Street	Source
-	✓	Cole Information Services

ALESSANDRO BLVD 1995

22810	CASSANDRA PERKINS MD
	CASSANDRA, PERKINS
	CITRUS BELT TAX SVC
	CURRIER & SANCHEZ CHIROPRACTIC
	HAROLD, B L
	ROBERT SANCHEZ DC
22862	COUNTRY LIQUOR CO
	OCCUPANT UNKNOWNN
22876	CHECKS CASHED MONEY ORDERS
	SECURITY PROFESSIONAL SVC
	YELLOWS CAB CO
22886	DEARTH, MACHINE
22920	KOO, KOK L
	RIVER KWAI THAI CUISINE
	TRINITY BAPTIST CHURCH
	VIS KEY TO BEAUTY
22940	BISSOT, STEVEN G
	MORENO VALLEY PODIATRY GROUP
	NEIGHBORHOOD PODIATRY CTR
22960	MORENO VALLEY ELKS LODGE 2697
23040	DON JOSE MEXICAN RESTAURANT
23080	ANTONIO A TAN MD
	MORENO VALLEY OBSTETRICS & GYN
	PLAZA MARKET & DELI
	TAN, ANTONIO A
23100	A 1 CLEANERS
	BOTTOM GUN CAFE
	GOGO CHINA
	PLAZA HAND CAR WASH
23580	US POST OFFICE
23615	ALESSANDRO HAND CAR WASH
	EZ LUBE
23750	ALESSANDRO PLAZA
	ANDERSON, LORI J
	CADILLAC BAR & RESTAURANT
	CANYON PRESS
	COST CUTTERS FAMILY HAIR CARE
	FAMILY FITNESS CTR
	FANCY TAN
	HAPPYS WHOLESALE AUTO ACCES
	IN & OUT MARKET & LIQUOR
	INSPIRATIONS PERFORMING ARTS
	KRIS CRONAUER
	LACEY & ASSOC INSURANCE
	MAHARAJAH INDIA CUISINE
	NUTRI SYSTEM WEIGHT LOSS CTR
	OSCAR
	PINKYS BOWL WEST
	SIZZLER
	WIENERSCHNITZEL

ALESSANDRO BLVD 1995 (Cont'd)

23888 TACO BELL
23890 FAIRCHILD CHIROPRACTIC CLINIC
STATE FARM INSURANCE
STEWART, CHARLES L
SUNNYMEAD ANSWERING SVC
23910 AUTO FINE TRIM
C & W TV
FANCY STITCHIN
MORENO VLY HOUSE SPORTS
OCCUPANT UNKNOWNN
23920 ACME TUNE & SMOG
ALEXANDERS TOWING
MORENO VALLEY TRANSMISSIONS
23932 ALESSANDRI ANIMAL HOSPITAL
ALESSANDRO ANIMAL HOSPITAL
GENE BRIGHAMS MARTIAL ARTS
MAGANAS UPHOLSTERY
RANDHAWA, H S
STRAIGHTEDGE INC
23942 CHARLES ESTEY DELIVERY AGENT
RONS RADIATOR REPAIR
23952 AUTO SERVICE CLUB
23962 AMERICAN SPEEDY PRINTING CTR
ARJAY COMMUNICATION
BANIG RESTAURANT FILIPINO
BUENO, MARIA S
CLASSY BS LIQUOR DELI
FUN IN THE SUN QUAD RENTAL INC
KIM, JANG
MARIA S BUENO DDS
MAXWELL STREET PIZZA
PHIL AM ENTERPRISES
PRIMELAND CORP
STAR BRITE CLEANERS
SUPER V2
SUPER, V II
VIDEO TIME
WEIGHT CONTROL
YESTERYEAR COMICS
24021 DESIGNER NAILS
MR ANTHONYS BEAUTY SALON
PIZZA HUT
SHAGNASTYS BILLIARDS & BAR
VIDEO SYNDROME
24050 KAYS HAIRSTYLING
PATTAYA PLACE
PERFECT TOUCH BEAUTY SALON
TANMAKERS TANNING SALON
24100 MUFFIN & DOUGHNUT
24150 BUFORDS BARBEQUE

Target Street	Cross Street	Source
-	✓	Cole Information Services

ALESSANDRO BLVD 1995 (Cont'd)

24150	GORDYS MARKET
	KIN FOLK BARBEQUE
	SINGH, H
24375	FLOWERS & MORE
24400	GOLDEN SWIRL FORZEN YOGURT
24440	MC DONALDS
	MOBIL OIL CORP
	SMITHS FOOD & DRUG CTR
24481	CHIEF AUTO PARTS

Target Street	Cross Street	Source
-	✓	Cole Information Services

ALESSANDRO BLVD 1992

22810	CITRUS BELT TAX SRV
	JOY CHRISTIAN BOOKS
	PERKINS C MD
	SANCHEZ ROBERT
22862	COUNTRY LIQUOR CO
22876	CAB CO BY EAGLES
	CHECKS CASHED EAGLS
	SECURITY PRFSNL SRV
	TAX COM
22886	DEARTH MACH&MARINE
	PERFRMNC PLZ AUTO
22920	ASIAN IMPORTS
	KAYS HAIRSTYLING
	RIVER KWAI THAI
	TRINITY BAPTIST CH
	VIS KEY TO BEAUTY
22940	CARRASCO, P
	N C O A SERVICE CTR
	PARKER ROBERT E DPM
22960	MORENO VLY ELK 2697
22990	THRIFTY OIL CO
23100	DON JOSE MEXCN REST
	GARLIC ROSE RSTRNT
	PLAZA HAND CAR WASH
	Y E S YOUR EMP SLTN
23580	US POSTAL SERV
23581	MOTEL 6
23615	ALESSANDRO 100 WASH
	EZ LUBE
23750	ABSOLUTELY NAILS
	BLUEPORT ENTPRS
	BOX OFFICE MEMORY
	CADILLAC SPORT BAR
	CANYON PRESS
	COST CUTTERS
	FAMILY FITNESS CNTR
	FANCY TAN
	HAPPYS WHLSL AUTO
	KEYBOARD MASTERS
	LACEY&ASC INS AGCY
	MEAT N EAT DELI
	SPORT MED CONNECTN
	T SHIRTS PLUS
23880	TACO BELL
23890	CARNES BUSNS&TAX
	D F C TRANSPRTN
	FAIRCHILD CHIRO
	STEWART CHAS L
	STEWART, CHARLES L
	STRAIGHTEDGE INC

ALESSANDRO BLVD 1992 (Cont'd)

23890 WESTRN UNTD FNCL
23900 FLOWER BOX MOR VLY
SC STOP EDUC SPLY
23910 C&W T V
FANCY STITCHIN
GREAT AMER WINDOW
HOUSE OF SPORTS
LEONARDS CARPET
23920 ACME TUNE&SMOG
ALEXANDERS TOWING
BRAKE TECH
GOODYEAR TIRE&SV CT
MORENO VLY TRNSMSNS
MY MECHANIC
23932 EDWARDS GLASS
HUBER BARTON C DVM
MAGANA AUTO UPHOL
MERRY MAIDS
PAPILLON
SHORIN KUNG FU
23942 ESTEY C DLVRY AGENT
NEW DIRECTIONS INC
RONS RADIATOR RPR
23952 FIVE STAR AUTOMTV
23962 2 DAY SIGNS
A A T HM MED EQUIP
AMER SPEEDY PRNTG
ARJAY COMMUNICATION
BANIG REST FILIPINO
CLASSY BS LQR DELI
FUN SUN QUAD RENTAL
MAXWELL ST PIZZA
PHIL AM ENTERPRISES
STAR BRITE CLNRS
SUPER V 2
TARBELL REALTORS
VIDEO TIME
WEIGHT CONTROL
YESTERYEAR COMICS
24021 A&W RESTAURANTS
DESIGNER NAILS
HEACOCK MARKET
MR ANTHONYS
PIZZA HUT
ROCKETS&POCKETS
VIDEO SYNDROME
24050 BARRETO ILIANA
KUTTS AUTO PARTS
PATTAYA PALACE
PERFECT TOUCH BTY

Target Street	Cross Street	Source
-	✓	Cole Information Services

ALESSANDRO BLVD 1992 (Cont'd)

24050 STONE CHIROPRACTIC
TANMAKERS TANNG SLN
24100 LITTLE CAESARS PZA
MUFFINS DUFFINS
24150 GORDYS MARKET
KIN FOLK BARBEQUE
24400 SMITHS FOOD&DRUG CT
24440 MCDONALDS RSTRNTS
MOBIL OIL
24481 CHIEF AUTO PARTS
24491 SEVEN 11 FOOD 20402

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

ALESSANDRO BLVD 1990

22810	*CITRUS BELT TAX SRV	653-5082	6
	*JOY CHRISTIAN BOOKS	653-1040	7
	*MORENO VLY PAINTING	653-3149	+0
	*PANDEY B K MD	653-2195	9
	*SUBBIAH S MD	653-2195	
	*SUBBIAH&PANDEY MED	653-2195	
22862	*COUNTRY LIQUOR CO	653-2211	
22876	*CHECKS CASHED EAGLS	653-5826	5
	*EAGLES CHECKS CASHD	653-5826	5
	SADIK Samir S	00	4
	*SECURITY PRFSNL SRV	653-3510	+0
	*TAX COM	656-2872	9
22886	XXXX	00	
22920	*ASIAN IMPORTS	653-7733	5
	*GEICO FNCL SV INS	653-1131	
	*GEICO&AFFILIATES	653-1131	
	*GLEN INS AGCY	653-1130	
	*GOVERNMNT EMPLY CO	653-1130	
	*RIVER KWAI THAI	656-3355	7
	*TRINITY BAPTIST CH	656-4015	9
	*VIS KEY TO BEAUTY	653-3783	
22940	*N C O A SERVICE CTR	653-3135	9
22960	*MORENO VLY ELK 2697	656-8202	7
22990	*THRIFTY OIL CO	653-9919	3
23020	XXXX	00	
23540	XXXX	00	
23580	*US POSTAL SERV	656-2590	+0
23581	JOHNSON Marlin A	00	4
	*MOTEL 6	656-4451	7
23880	*TACO BELL	653-8226	7
23890	*DESIGN DEFINED	653-4535	+0
	*FAIRCHILD CHIRO	656-1413	7
	*GENL BUSINESS SERV	656-8261	7
	*HEALTH PSYCH SERVS	653-0441	9
	*RIVRSD CO SUPT SC	656-2316	9
	*RIVRSD CO SUPT SC	653-6470	9
	STEWART Chas L	653-1133	7

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

ALESSANDRO BLVD 1990

ALESSANDRO BLVD 92388 CONT

23900	★BUDGET ELECTRONICS	653-1663	7
	CAPPETTA Michael S	00	4
	★FLOWER BOX MOR VLY	653-3171	9
	★SC STOP EDCTNL SPLY	653-4446	+0
	★SOUTHLAND CABLEVISN	653-2151	9
23910	★AUTO FINE TRIM	242-8746	7
	CULLEN Noel J	00	4
	★MORENO VLY HS SPRTS	653-2688	9
	★MORENO VLY YLLW CAB	653-3333	9
B	★C&W T V	653-2988	6
23920	★BRAKE TECH	653-1105	7
	★FUN IN SUN QUD RNTL	653-6117	
	★FUN IN SUN WD RNTL	653-6117	9
	★GOODYEAR TIRE&SV CT	656-8204	9
	★MARCH GOODYEAR	656-8204	
	★MARCH TIRE&SERV CTR	656-8204	9
	SIMMS John E	00	4
	★VOLKSWEIMERS VW	656-1776	7
23932	★ACE HI MOVING&STRG	653-3151	9
	★ALESSANDRO ANML HSP	656-4455	9
	★ALESSANDRO GRMNG	656-4455	
	ALEXANDER Anna M	00	4
	★BHULLAR K S DVM	656-4455	9
	★DELGADILLO RIC DVM	656-4455	9
	★DENNIS MC CLELLANS	653-4991	7
	★DIAL ONE WINDW TNTG	656-6655	9
	★GREAT AMER WNDW TNT	656-6655	+0
	★GYM THE	653-4991	9
	HOLSTEIN Curt E	00	+0
	★HUBER BARTON C DVM	656-4455	9
	★JAZZERCISE	653-4991	9
	★KUNG FU SAN	653-4991	7
	★MAGANA AUTO UPHOL	656-7436	9
	MAGANA Francisco	00	5
	★MERRY MAIDS	653-3161	9
	★R&R TOY WAREHOUSE	656-2526	7
	★THE GYM	653-4991	7
	★TYKE TOYS	656-2526	+0
23942	★ESTEY C DLVRY AGENT	656-0136	+0
	FLORIN Mirko B	00	4
	★LUCERNE PACIFIC	653-3181	+0
	★NEW DIRECTIONS INC	656-3669	+0
	★RONS RADIATOR RPR	653-1151	7
	★TECH MOVIL	653-1821	9
23952	★FIVE STAR TOWING	653-8425	7
	★FIVE STAR TOWING	653-0204	9
	★5 STAR AUTOMOTIVE	653-8441	7
23955	★DESERT ROAD ADVNTR	773-3187	+0
23962	BUILDING		
	★AMERICANA POOL&SPA	653-0898	7
	★CLASSY BS LQR DELI	656-7912	7
	★FLASH POINT BICYCLS	653-6022	9
	★KINDER MFG FACTORY	653-2161	9
	★MAGRUM&SCOTT JWLRS	653-3340	9
	★MAXWELL ST PIZZA	656-4481	7
	★RENTAL CITY	656-3444	7
	★STAR BRITE CLNRS	656-1512	7
	★TARBELL REALTORS	653-1550	+0
	★TREASURE MINE BTQ	656-5250	6
	★VIDEO TIME	653-6162	7
	★3 DAY BLINDS	653-9553	9
23962			
24050	★BARRETO ILIANA	242-1601	7
	BRIGHAM Eugene A	00	+0
	★PATTAYA PALACE	242-3189	9
	★PERFECT TOUCH BTY	924-2831	7
	★PERFECT TOUCH PAULA	242-1601	7
	SHORIN Kung Fu	924-8715	+0
	★STONE CHIROPRACTIC	924-8785	9
	★TANMAKERS TANNG SLN	924-2625	9
	★VIDEO SYNDROME	242-1797	7
24100	★LITTLE CAESARS PZA	924-4469	9
	★MUFFINS DUFFINS	924-3559	9

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

ALESSANDRO BLVD 1985

22810	MASCARI ANTHONY D	653-4332	
	PANDEY B K MD	653-2195	4
	SUBBIAH S MD	653-2195	
	SUBBIAH&PANDEY MED	653-2195	1
22862	COUNTRY LIQUOR CO	653-2211	0
	MARKS GRIFFN WTR TR	656-1666	1
22876	B&G CARPET CLEANING	653-0966	+5
	CHECKS CASHED EAGLS	653-5826	+5
	EAGLES CHECKS CASHD	653-5826	+5
	GEORGE ARTHURS	656-5504	+5
	HOBIE RIVERSIDE	656-4793	3
22920	ARMSTRONG SAM RLTY	653-2104	
	ASIAN IMPORTS	653-7733	+5
	CRITERION INS	653-1131	2
	GEICO SALES&SERVICE	653-1131	2
	GLEN INS AGCY	653-1130	3
	GOVERNMNT EMPLY CO	653-1130	
	NEW RIVER KWAE	656-3355	+5
	U GET CREDIT STORES	653-1138	+5
	VIS KEY TO BEAUTY	653-3783	0
22940	ACADEMY LIFE INS	656-1374	1
	N C O A SERVICE CTR	653-3135	9
22960	MORENO VLY SC MEDIA	653-9503	2

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

ALESSANDRO BLVD 1985

ALESSANDRO BLVD 92508 CONT

22990	THRIFTY OIL CO	653-9919	3
23020	VALLEY BANK EDGMNT	653-1101	6
23580	XXXX	00	
23581	MOTEL 6	653-2131	7

ZIP CODE 92388
SUNNYMEAD

24481	CHIEF AUTO PARTS	653-8439	4

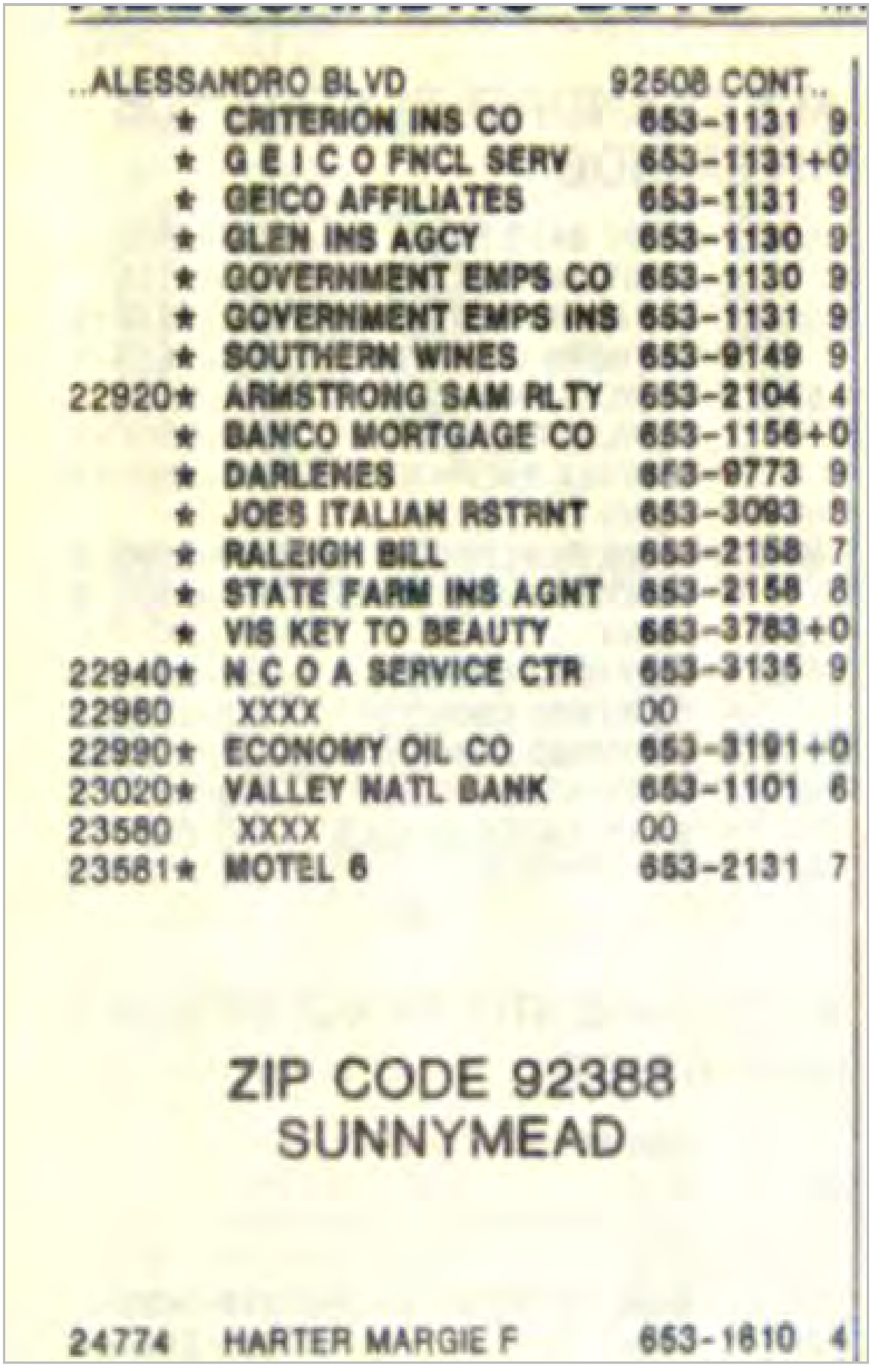
Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

ALESSANDRO BLVD 1980

22750*	CIRCLE K FOOD 306	653-4269	
22810*	ANNS BEAUTY BASKET	653-2010	6
*	GLATCH LEWIS JR MD	653-1404	+0
*	JOHNSON LINARES MD	657-5135	+0
*	JOHNSON LINARES MD	653-2195	+0
*	MASCARI ANTHONY D	653-4332	
*	MORENO VLY NEUROPSY	653-1404	+0
*	THOMAS TRACY A	653-1404	+0
22862*	COUNTRY LIQUOR CO	653-2211	+0
22876*	C&E ENTERPRISES INC	653-1211	7
*	CENTENNIAL REALTY	653-7559	8

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

ALESSANDRO BLVD 1980



..ALESSANDRO BLVD 92508 CONT..

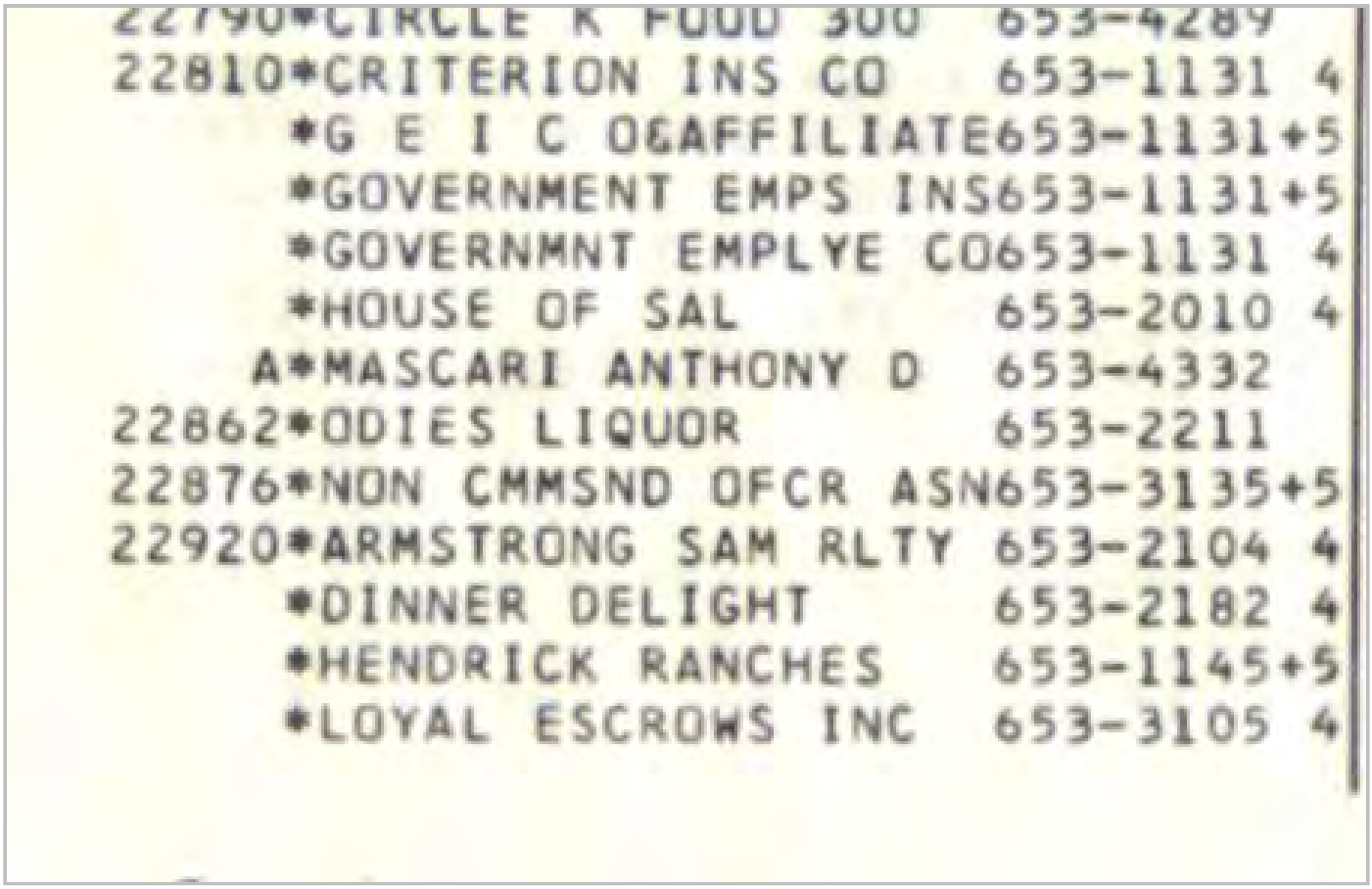
	*	CRITERION INS CO	653-1131 9
	*	G E I C O FNCL SERV	653-1131+0
	*	GEICO AFFILIATES	653-1131 9
	*	GLEN INS AGCY	653-1130 9
	*	GOVERNMENT EMPS CO	653-1130 9
	*	GOVERNMENT EMPS INS	653-1131 9
	*	SOUTHERN WINES	653-9149 9
22920	*	ARMSTRONG SAM RLTY	653-2104 4
	*	BANCO MORTGAGE CO	653-1156+0
	*	DARLENES	653-9773 9
	*	JOES ITALIAN RSTRNT	653-3093 8
	*	RALEIGH BILL	653-2158 7
	*	STATE FARM INS AGNT	653-2158 8
	*	VIS KEY TO BEAUTY	653-3783+0
22940	*	N C O A SERVICE CTR	653-3135 9
22960		XXXX	00
22990	*	ECONOMY OIL CO	653-3191+0
23020	*	VALLEY NATL BANK	653-1101 6
23580		XXXX	00
23581	*	MOTEL 6	653-2131 7

ZIP CODE 92388
SUNNYMEAD

24774 HARTER MARGIE F 653-1610 4

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

ALESSANDRO BLVD 1975



```
22790*CIRCLE K FOOD 300    653-4289
22810*CRITERION INS CO     653-1131 4
     *G E I C O&AFFILIATE  653-1131+5
     *GOVERNMENT EMPS INS  653-1131+5
     *GOVERNMNT EMPLYE CO  653-1131 4
     *HOUSE OF SAL         653-2010 4
    A*MASCARI ANTHONY D    653-4332
22862*ODIES LIQUOR         653-2211
22876*NON CMMSND OFCR ASN  653-3135+5
22920*ARMSTRONG SAM RLTY   653-2104 4
     *DINNER DELIGHT       653-2182 4
     *HENDRICK RANCHES     653-1145+5
     *LOYAL ESCROWS INC    653-3105 4
```

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

ALESSANDRO BLVD 1975

..ALESSANDRO BLVD 92508 CONT..
*SOUTHERN CAL FINCL 653-1145+5
*TOWN&COUNTRY 653-3144 4
*WRIGHTS PLACE BBQUE 653-3315+5
22940 XXXX OO
22960*CAL PIZZA 653-5009+5
HAYES R D 653-8205 4
22990 STOKKE ROBT 653-8200+5
*STOKKES GULF SERV 653-8200+5
23580*MOTEL 6 653-2131

ZIP CODE 92388 SUNNYMEAD

24774 HARTER MARGIE F 653-1610 4

APPENDIX E
PUBLIC AGENCY RECORDS / OTHER DOCUMENTS

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

First American

myFirstAm® Property Profile , , C

Property Information

Owner(s):	Group V San Bernardino	Mailing Address:	4900 Santa Anita Ave #2C, El Monte, CA 91731
Owner Phone:	Unknown	Property Address:	, , CA
Vesting Type:	N/A	Alt. APN:	297170083
County:	Riverside	APN:	297-170-083
Map Coord:		Census Tract:	
Lot#:	2	Block:	
Subdivision:	Bear Valley & Alessandro Dev Co	Tract:	
Legal:			

Property Characteristics

Use:	Commercial Acreage	Year Built / Eff. : /	Sq. Ft. :
Zoning:		Lot Size Ac / Sq Ft: 16.77 / 730501	# of Units:

Sale and Loan Information

Sale / Rec Date:	*$/Sq. Ft.:	2nd Mtg.:
Sale Price:	1st Loan:	Prior Sale Amt:
Doc No.:	Loan Type:	Prior Sale Date:
Doc Type:	Transfer Date:	Prior Doc No.:
Seller:	Lender:	Prior Doc Type:

*$/Sq.Ft. is a calculation of Sale Price divided by Sq.Feet.

Tax Information

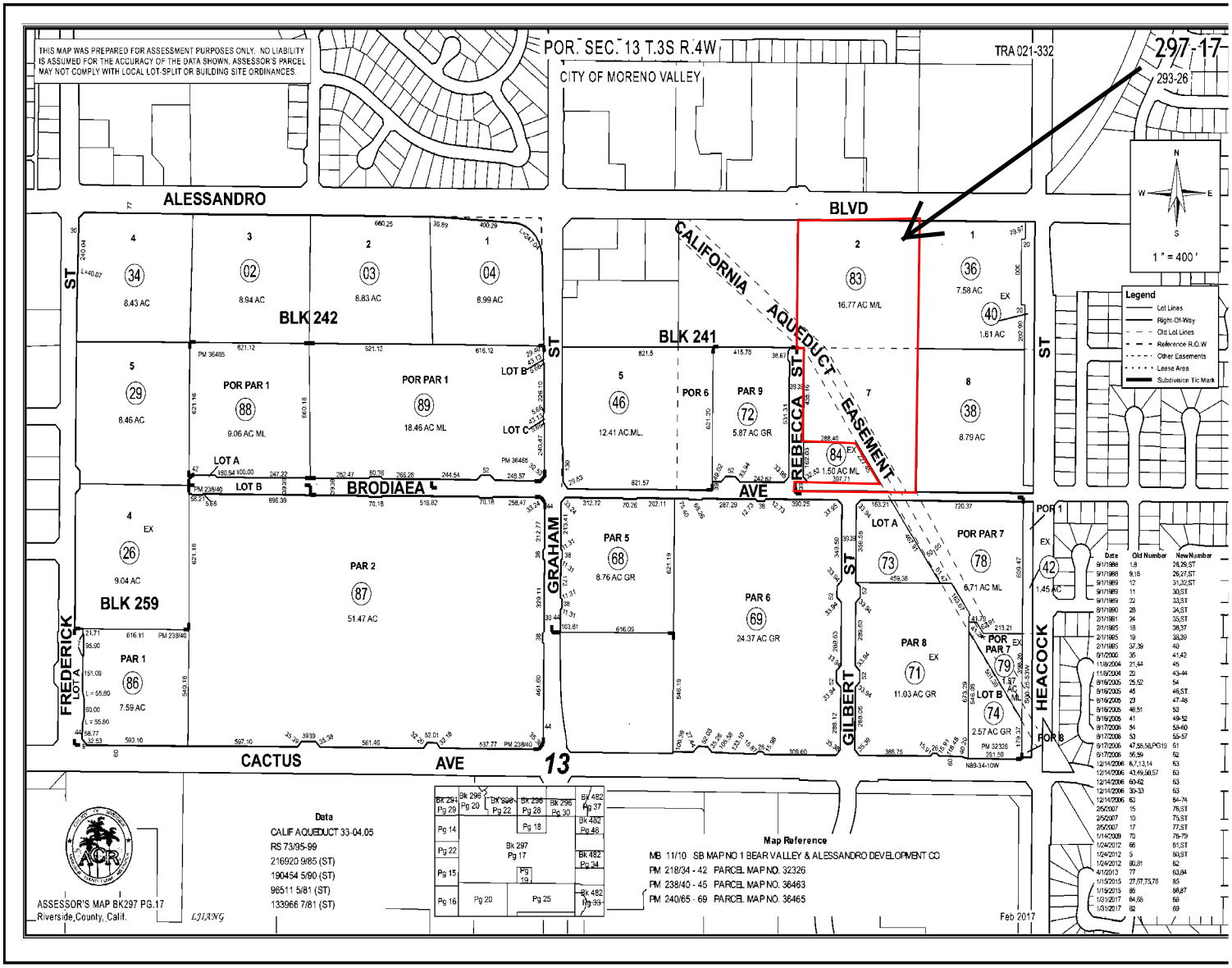
Imp Value:		Exemption Type:	
Land Value:	$2,843,770	Tax Year / Area:	2016 / 021332
Total Value:	$2,843,770	Tax Value:	$2,843,770
Total Tax Amt:	$32,573.06	Improved:	

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

All informa ion contained herein is subject to the Limitation of Liability for Informational Report set forth on the last page hereof. ©2005-2017 First American Fi and/or its affiliates. All rights reserved.

First American

myFirstAm® **Tax Map** , , C



Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Limitation of Liability for Informational Report

IMPORTANT – READ CAREFULLY: THIS REPORT IS NOT AN INSURED PRODUCT OR SERVICE OR A REPRESENTATION OF THE CONDITI OF TITLE TO REAL PROPERTY. IT IS NOT AN ABSTRACT, LEGAL OPINION, OPINION OF TITLE, TITLE INSURANCE COMMITMENT PRELIMINARY REPORT, OR ANY FORM OF TITLE INSURANCE OR GUARANTY. THIS REPORT IS ISSUED EXCLUSIVELY FOR THE BENE OF THE APPLICANT THEREFOR, AND MAY NOT BE USED OR RELIED UPON BY ANY OTHER PERSON. THIS REPORT MAY NOT REPRODUCED IN ANY MANNER WITHOUT FIRST AMERICAN'S PRIOR WRITTEN CONSENT. FIRST AMERICAN DOES NOT REPRESENT WARRANT THAT THE INFORMATION HEREIN IS COMPLETE OR FREE FROM ERROR, AND THE INFORMATION HEREIN IS PROVID WITHOUT ANY WARRANTIES OF ANY KIND, AS-IS, AND WITH ALL FAULTS. AS A MATERIAL PART OF THE CONSIDERATION GIVEN EXCHANGE FOR THE ISSUANCE OF THIS REPORT, RECIPIENT AGREES THAT FIRST AMERICAN'S SOLE LIABILITY FOR ANY LOSS DAMAGE CAUSED BY AN ERROR OR OMISSION DUE TO INACCURATE INFORMATION OR NEGLIGENCE IN PREPARING THIS REPO SHALL BE LIMITED TO THE FEE CHARGED FOR THE REPORT. RECIPIENT ACCEPTS THIS REPORT WITH THIS LIMITATION AND AGRE THAT FIRST AMERICAN WOULD NOT HAVE ISSUED THIS REPORT BUT FOR THE LIMITATION OF LIABILITY DESCRIBED ABOVE. FIR AMERICAN MAKES NO REPRESENTATION OR WARRANTY AS TO THE LEGALITY OR PROPRIETY OF RECIPIENT'S USE OF T INFORMATION HEREIN.

©2005-2017 First American Financial Corporation and/or its affiliates. All rights reserved.

APPENDIX F
QUALIFICATION OF ENVIRONMENTAL PROFESSIONAL

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Odic Environmental
Environmental Consulting & Real Estate Due Diligence
Tel: 888-ODICENV (634-2368)
Fax: 213-380-0505
3255 Wilshire Blvd. Suite 1510
Los Angeles, CA 90010

SUMMARY OF QUALIFICATIONS

HYUNG KIM, PE
PRINCIPAL ENVIRONMENTAL CONSULTANT / MANAGING DIRECTOR

EDUCATION	YEARS EXPERIENCE	
	TOTAL	WITH CURRENT F RM
B.S., Chemical Engineering M.S., Civil/Environmental Engineering	15+	11

CURRENT PROFESSIONAL DESIGNATION/REGISTRATION

Registered Environmental Property Assessor #624247
Professional Civil Engineer #75083
General Engineering Contractor "A" #
Hazardous Substance Removal Contractor "HAZ"
QSD & QSP #20568
LEED-AP, USGBCI
Certified Environmental Manager #2057

OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, Affiliations, etc.)

Member of AICHE (American Institute of Chemical Engineers)
Institute of Hazardous Material Management, CHMM Master Level #012554
Cal OSHA Hazwoper Training Certificate
Uniform Fire Code Training for CUPA Inspectors
CUPA Hazardous Waste Inspector Training 8 Hours
UST Inspector Training, CUPA, 8 Hours
Princeton Groundwater, Groundwater Pollution and Hydrology, Certificate of Completion, 2004
Professional Civil Engineering Service - Certificate of completion, 2007
Vapor Intrusion and Health Risk Assessment – Professional Training, 2009
Storm-water Pollution Prevention Training – Professional Training, 2009

AREAS OF EXPERTISE

- Environmental Site Assessment and Consulting (Phase I ESA and Transaction Screen Assessment)
- Regulatory Agency Compliance and Permitting
- Phase II Subsurface Investigation and Pollution Characterization
- Underground Storage Tank/Clarifier Abandonment & Regulatory Closure
- Asbestos/Lead/IAQ/Mold Assessment & Abatement
- Architectural/Engineering Due Diligence
- Energy Consulting
- Portfolio Management

SUMMARY OF EXPERIENCE

Possessing over 15+ years of industry experience, Mr. Kim manages all aspects of environmental assessment and consulting/engineering operations. With a strong educational and professional background in hazardous waste management, environmental regulatory compliance and engineering/assessment planning, he plays a pivotal role in the overall operations of environmental project management. Mr. Kim has also successfully represented the company to financial and & real estate institutions as a technical marketing Director.

As a Principal Engineer, Mr. Kim is responsible for in-house QA/QC management in remedial action design, contamination assessment, hazardous material management and real estate due diligence assessment. Mr. Kim also oversees and trains most of the in-house technical staff and directs environmental planning, abatement, engineering, assessment, and remediation projects with assistance from E.P., P.E, P.G., P.H.G, I.H., CAC, and other environmental certified professionals.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Odic Environmental
Environmental Consulting & Real Estate Due Diligence
Tel: 888-ODICENV (634-2368)
Fax: 213-380-0505
3255 Wilshire Blvd. Suite 1510
Los Angeles, CA 90010

SUMMARY OF QUALIFICATIONS

MIKE MILLER, EP
SENIOR ENVIRONMENTAL CONSULTANT / PROJECT MANAGER

EDUCATION

B.S., Biology, University of Southern California
M.S., Biology, SUNY Buffalo

YEARS EXPERIENCE	
TOTAL	WITH CURRENT FIRM
28+	11

CURRENT PROFESSIONAL DESIGNATION/REGISTRATION

Environmental Professional §312.10, 40CFR312

OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, Affiliations, etc.)

California Secondary Education Teaching Credential, 1987
Certificate: Environmental Auditing, University of California-Irvine, 1989
Certificate: Toxic & Hazardous Materials Management, UCLA, 1990
Certificate: OSHA 40-Hr Hazardous Waste Operations & Emergency Response, 1991
Certificate: AHERA Asbestos Building Inspector / Management Planner, 1988
Certificate: AHERA Asbestos Contractor Supervisor, 1995
Certificate: Indoor Air Quality Manager, American Indoor Air Quality Council, 2002
Certificate: Microbial Remediation Supervisor, American Indoor Air Quality Council, 2002
Certificate: Construction Stormwater Pollution Prevention, 2009
Certificate: Property Condition Assessment, 2012
Registered Environmental Assessor, REA #02651
Registered Environmental Professional, REP #2797
Member: American Indoor Air Quality Council

AREAS OF EXPERTISE

- Project management
- Environmental Site Assessment and Consulting (Phase I ESA and Transaction Screen Assessment)
- Regulatory Agency Compliance and Permitting
- Phase II Subsurface Investigation
- Environmental Loss Consulting
- Environmental Risk Evaluation
- Liability Risk Management and Risk Reduction
- Mold/Water Intrusion Management Consulting Services

SUMMARY OF EXPERIENCE

Possessing over 28 years of industry experience, Mr. Miller has prepared and reviewed thousands of Transaction Screen Assessments, Phase I Environmental Site Assessments, and Phase II Subsurface Investigation Assessments. With an extensive background in environmental risk assessment, chemistry, biology, physics, and statistical analysis, Mr. Miller has, in the past, provided diverse environmental consulting and risk assessment services to American International Group (AIG), one of the ten largest companies in the U.S. Other relevant experience includes evaluating environmental liability, general liability, product liability, and fleet liability loss exposures. He also oversaw account portfolios comprised of a broad spectrum of manufacturing facilities, HUDMAP, land developers, pharmaceutical firms, property management firms, and contractors. In his current role as a Senior Environmental Professional, Mr. Miller conducts and reviews environmental site assessment reports, conducts QA/QC, generates recommendations regarding liability risk management and risk reduction, provides mold/water intrusion management consulting services, and develops and implements presentations and training programs.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

Odic Environmental
Environmental Consulting & Real Estate Due Diligence
Tel: 888-ODICENV (634-2368)
Fax: 213-380-0505
3255 Wilshire Blvd. Suite 1510
Los Angeles, CA 90010

SUMMARY OF QUALIFICATIONS

MARY OSBORNE, EP
SENIOR ENVIRONMENTAL CONSULTANT / PROJECT MANAGER

EDUCATION	YEARS EXPERIENCE	
	TOTAL	WITH CURRENT FIRM
B.S., Biological Oceanography	25+	11

CURRENT PROFESSIONAL DESIGNATION/REGISTRATION

Environmental Professional §312.10, 40CFR312

OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, Affiliations, etc.)

Nevada Certified Environmental Manager #2185
OSHA 40-Hour Health and Safety Training

AREAS OF EXPERTISE

- Environmental Site Assessment and Consulting (Phase I ESA and Transaction Screen Assessment)
- Regulatory Agency Compliance and Permitting
- Phase II Subsurface Investigation
- RCRA and non-RCRA Treatment, Storage, and Disposal Facility (TSDF) auditing
- Multi-media (hazardous waste, hazardous materials, wastewater, stormwater, etc.) compliance audits and regulatory compliance assessments
- Portfolio Management

SUMMARY OF EXPERIENCE

Possessing over 25+ years of industry experience, Ms. Osborne has prepared and collectively reviewed thousands of Transaction Screen Assessments, Phase I Environmental Site Assessments, and Phase II Subsurface Investigation Assessments. With an extensive background in regulatory compliance, permitting, site assessment, and auditing, Ms. Osborne has completed hundreds of environmental compliance audits for RCRA and non-RCRA generator and TSDF facilities; and assisted with environmental permitting and regulatory requirements for industry, including air quality permits, wastewater discharge permits, and hazardous materials handling and storage. Other relevant project experience pertains to the management and performance of Property Condition Assessments (PCAs), merger and acquisition audits for industrial and commercial facilities, and environmental due diligence portfolio management.

Attachment: Phase I ESA Report (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT ANALYSIS REPORT

PAMA BUSINESS PARK

Moreno Valley, California
August 31, 2018
(Revision of June 7, 2018 Report)

Prepared for:
PAMA Management, Inc.
4900 Santa Anita Avenue, #26
Santa Anita, CA 91731

LLG Ref. 2-18-3972-1

Prepared by:
Justin Tucker
Transportation Engineer I

Under the Supervision of:
Keil D. Maberry, P.E.
Principal

Linscott, Law & Greenspan, Engineers
2 Executive Circle
Suite 250
Irvine, CA 92614
949.825.6175 T
949.825.6173 F
www.llgengineers.com

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE OF CONTENTS

SECTION			PAGE
1.0	**Introduction**		**1**
	1.1	Study Area	2
2.0	**Project Description**		**4**
	2.1	Site Access	4
	2.2	Pedestrian Circulation	4
	2.3	Bicycle Circulation	5
3.0	**Existing Conditions**		**6**
	3.1	Existing Street System	6
	3.2	Public Transit	6
	3.3	Existing Traffic Volumes	7
	3.4	Level Of Service (LOS) Analysis Methodologies	7
		3.4.1 Highway Capacity Manual 6 (HCM 6) Method of Analysis (Signalized Intersections)	7
		3.4.2 Highway Capacity Manual 6 (HCM 6) Method of Analysis (Unsignalized Intersections)	7
		3.4.2.1 Two-Way Stop-Controlled Intersections	8
		3.4.2.2 All-Way Stop-Controlled Intersections	8
	3.5	Volume to Capacity (V/C) Ratio Method of Analysis (Roadway Segments)	8
	3.6	Basic Freeway Segments	8
	3.7	Level of Service Criteria	9
	3.8	Existing Level of Service Results	11
		3.8.1 Intersections	11
		3.8.2 Roadway Segments	11
4.0	**Traffic Forecast Methodology**		**18**
5.0	**Project Traffic Characteristics**		**19**
	5.1	Project Traffic Generation	19
	5.2	Project Traffic Distribution and Assignment	19
	5.3	Existing Plus Project Traffic Conditions	20
6.0	**Future Traffic Conditions**		**22**
	6.1	Ambient Traffic Growth	22
	6.2	Cumulative Projects Traffic Characteristics	22
	6.3	Year 2023 Traffic Volumes	22
7.0	**Traffic Impact Analysis Methodology**		**31**
	7.1	Impact Criteria and Thresholds	31
		7.1.1 City of Moreno Valley	31
		7.1.2 City of Riverside	31
		7.1.3 County of Riverside	31

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE OF CONTENTS (CONTINUED)

SECTION		PAGE
7.1.4	Caltrans	32
7.2	Traffic Impact Analysis Scenarios	33
8.0	**Existing Plus Project Analysis**	**34**
8.1	Intersections	34
8.1.1	Existing Plus Project Traffic Conditions	34
8.2	Roadway Segments	34
8.2.1	Existing Plus Project Traffic Conditions	34
9.0	**Existing Plus Ambient Growth Plus Project (Year 2023) Analysis**	**38**
9.1	Intersections	38
9.1.1	Existing Plus Ambient Growth Traffic Conditions	38
9.1.2	Existing Plus Ambient Growth Plus Project Traffic Conditions	38
9.2	Roadway Segments	38
9.2.1	Existing Plus Ambient Growth Traffic Conditions	39
9.2.2	Existing Plus Ambient Growth Plus Project Traffic Conditions	39
10.0	**Year 2023 Cumulative Plus Project Analysis**	**43**
10.1	Intersections	43
10.1.1	Year 2023 Cumulative Traffic Conditions	43
10.1.2	Year 2023 Cumulative Plus Project Traffic Conditions	43
10.2	Roadway Segments	44
10.2.1	Year 2023 Cumulative Traffic Conditions	44
10.2.2	Year 2023 Cumulative Plus Project Traffic Conditions	44
11.0	**Site Access and Internal Circulation Evaluation**	**50**
11.1	Level of Service Analysis for Project Access Locations	50
11.2	Internal Circulation Evaluation	50
12.0	**Intersection Queuing Analysis**	**52**
12.1	Existing Plus Project Intersection Queuing Evaluation	52
12.2	Existing Plus Ambient Plus Project Intersection Queuing Evaluation	52
12.3	Year 2023 Cumulative Plus Project Intersection Queuing Evaluation	52
13.0	**Caltrans Facilities Analysis**	**61**
13.1	Ramp Intersection Capacity Analysis	61
13.2	Basic Freeway Segment Capacity Analysis	61
13.2.1	Year 2023 Cumulative Traffic Conditions	61
14.0	**Area-Wide Traffic Improvements**	**64**
14.1	Project Specific Improvements	64
14.2	Planned Improvements	64
14.3	Existing Plus Project Recommended Improvements	65

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE OF CONTENTS (CONTINUED)

SECTION	PAGE
14.3.1 Intersections	65
14.3.2 Roadway Segments	65
14.4 Existing Plus Ambient Plus Project Recommended Improvements	65
14.4.1 Intersections	65
14.4.2 Roadway Segments	65
14.5 Year 2023 Cumulative Plus Project Recommended Improvements	65
14.5.1 Intersections	65
14.5.2 Roadway Segments	66
15.0 Project-Related Fair Share Contribution	**67**
15.1 Year 2023 (Cumulative Analysis) Project-Related Fair Share Contribution	67
16.0 Summary of Findings and Conclusions	**69**

APPENDICES

APPENDIX	
A.	Traffic Study Scope of Work
B.	Existing Traffic Count Data
C.	Intersection Level of Service Calculation Worksheets
D.	Project Driveway Level of Service Calculation Worksheets
E.	Existing Traffic Conditions Basic Freeway Segments Level of Service Calculation Worksheets

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LIST OF FIGURES

SECTION-FIGURE#		FOLLOWING PAGE
1-1	Vicinity Map	3
2-1	Existing Site Aerial	5
2-2	Proposed Site Plan	5
3-1	Existing Roadway Conditions and Intersection Controls	6
3-2	Existing AM Peak Hour Traffic Volumes	7
3-3	Existing PM Peak Hour and Daily Traffic Volumes	7
5-1	Project Traffic Distribution Pattern - Employees	21
5-2	Project Traffic Distribution Pattern - Trucks	21
5-3	AM Peak Hour Project Traffic Volumes	21
5-4	PM Peak Hour and Daily Project Traffic Volumes	21
5-5	Existing Plus Project AM Peak Hour Traffic Volumes	21
5-6	Existing Plus Project PM Peak Hour and Daily Traffic Volumes	21
6-1	Location of Cumulative Projects	30
6-2	AM Peak Hour Cumulative Projects Traffic Volumes	30
6-3	PM Peak Hour and Daily Cumulative Projects Traffic Volumes	30
6-4	Existing Plus Ambient Growth AM Peak Hour Traffic Volumes	30
6-5	Existing Plus Ambient Growth PM Peak Hour and Daily Traffic Volumes	30
6-6	Existing Plus Ambient Growth Plus Project AM Peak Hour Traffic Volumes	30
6-7	Existing Plus Ambient Growth Plus Project PM Peak Hour and Daily Traffic Volumes	30
6-8	Year 2023 Cumulative AM Peak Hour Traffic Volumes	30
6-9	Year 2023 Cumulative PM Peak Hour and Daily Traffic Volumes	30
6-10	Year 2023 Cumulative Plus Project AM Peak Hour Traffic Volumes	30
6-11	Year 2023 Cumulative Plus Project PM Peak Hour and Daily Traffic Volumes	30
14-1	Year 2023 Cumulative Planned and Recommended Improvements	66

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LIST OF TABLES

SECTION-TABLE#		PAGE
3-1	Level of Service Criteria For Signalized Intersections (HCM 6 Methodology)	12
3-2	Level of Service Criteria For Unsignalized Intersections (HCM 6 Methodology)	13
3-3	Roadway Link Capacities	14
3-4	Basic Freeway Segments Level of Service Criteria (HCM 6 Methodology)	15
3-5	Existing Peak Hour Level of Service Summary	16
3-6	Existing Roadway Segment Level of Service Summary	17
5-1	Project Traffic Generation Rates and Forecast	21
6-1	Location and Description of Cumulative Projects	24-27
6-2	Cumulative Projects Traffic Generation Forecast	28-30
8-1	Existing Plus Project Peak Hour Intersection Capacity Analysis Summary	35-36
8-2	Existing Plus Project Roadway Segment Level of Service Summary	37
9-1	Existing Plus Ambient Growth (Year 2023) Plus Project Peak Hour Intersection Capacity Analysis Summary	40-41
9-2	Existing Plus Ambient Growth (Year 2023) Plus Project Roadway Segment Level of Service Summary	42
10-1	Year 2023 Cumulative Plus Project Peak Hour Intersection Capacity Analysis Summary	46-47
10-2	Year 2023 Cumulative Plus Project Roadway Segment Level of Service Summary	48
10-3	Year 2023 Cumulative Plus Project Peak Hour Roadway Segment Capacity Analysis Summary	49
11-1	Project Driveway Peak Hour Intersection Capacity Analysis Summary	51
12-1	Existing Plus Project Intersection Queuing Analysis	54-55
12-2	Existing Plus Ambient Growth (Year 2023) Plus Project Intersection Queuing Analysis	56-57
12-3	Year 2023 Cumulative Plus Project Intersection Queuing Analysis	58-60
13-1	Existing Peak Hour Freeway Mainline Capacity Analysis Summary	63
15-1	Year 2023 Project Fair Share Contribution	68

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TRAFFIC IMPACT ANALYSIS REPORT

PAMA BUSINESS PARK

Moreno Valley, California
August 31, 2018
(Revision of June 7, 2018 Report)

1.0 INTRODUCTION

This traffic impact analysis addresses the potential traffic impacts and circulation needs associated with the PAMA Business Park Project (hereinafter referred to as Project), a proposed industrial park with 284,000 square feet (SF) of warehouse/office uses within seven (7) buildings. The Project site is currently vacant and is located east of Rebecca Street, between Alessandro Boulevard and Brodiaea Avenue, in the City of Moreno Valley, California.

This traffic report documents the findings and recommendations of a traffic impact analysis conducted by Linscott, Law & Greenspan Engineers (LLG) to determine the potential impacts associated with the proposed Project. The traffic analysis evaluates the operating conditions at fourteen (14) key study intersections and eight (8) key roadway segments within the Project vicinity, estimates the trip generation potential of the proposed Project, and forecasts future operating conditions without and with the proposed Project. Where necessary, intersection improvements/ mitigation measures are identified.

This traffic report satisfies City of Moreno Valley criteria and is consistent with the requirements and procedures outlined in the most current *City of Moreno Valley Transportation Engineering Division Traffic Impact Analysis Preparation Guide*, dated August 2007. The Scope of Work for this traffic study, which is included in ***Appendix A***, was developed in conjunction with City of Moreno Valley staff.

The Project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing weekday traffic count information has been collected at fourteen (14) key study intersections and eight (8) key roadway segments for use in the preparation of intersection and roadway segment level of service calculations. A "typical" weekday constitutes a Tuesday, Wednesday or Thursday and refers to a non-holiday condition when local schools are in session. Information concerning cumulative projects (planned and/or approved) in the vicinity of the proposed Project has been researched at the City of Moreno Valley, the City of Riverside, the County of Riverside, and the March Joint Powers Authority (March JPA). Based on our research, there are fifty (50) cumulative projects in the City of Moreno Valley and four (4) cumulative projects in the March JPA area located within a three-mile radius of the Project site. These fifty-four (54) cumulative projects were considered in the cumulative traffic analysis for this project.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

This traffic report analyzes existing and future weekday daily, AM peak hour and PM peak hour traffic conditions for a near-term (Year 2023) traffic setting upon completion of the proposed Project. Daily and peak hour traffic forecasts for the Year 2023 horizon year have been projected by increasing existing traffic volumes by an annual growth rate of 2.0% per year and adding traffic volumes generated by fifty-four (54) cumulative projects, which provides a conservative forecast.

1.1 Study Area

The fourteen (14) key study intersections and eight (8) key roadway segments selected for evaluation were determined based on coordination with City of Moreno Valley staff. The 14 intersections and 8 roadway segments listed below provide both regional and local access to the study area and define the extent of the boundaries for this traffic impact investigation. The jurisdiction where each key study intersection/key roadway segment is located is also identified.

Key Study Intersections

1. I-215 SB Ramps at Alessandro Boulevard (Caltrans/City of Riverside)
2. I-215 NB Ramps at Alessandro Boulevard (Caltrans/City of Riverside)
3. Graham Street at Alessandro Boulevard (City of Moreno Valley)
4. Alessandro Plaza at Alessandro Boulevard (City of Moreno Valley)
5. Heacock Street at Alessandro Boulevard (City of Moreno Valley)
6. Graham Street at Brodiaea Avenue (City of Moreno Valley)
7. Rebecca Street at Brodiaea Avenue (City of Moreno Valley)
8. Gilbert Street at Brodiaea Avenue (City of Moreno Valley)
9. Heacock Street at Brodiaea Avenue (City of Moreno Valley)
10. I-215 SB Ramps at Cactus Avenue (Caltrans/Riverside County)
11. Old 215 Frontage Road/I-215 NB Ramps at Cactus Avenue (Caltrans/Riverside County)
12. Graham Street/Riverside Drive at Cactus Avenue (City of Moreno Valley)
13. Gilbert Street at Cactus Avenue (City of Moreno Valley)
14. Heacock Street at Cactus Avenue (City of Moreno Valley)

Key Roadway Segments

A. Alessandro Boulevard, between Elsworth Street and Frederick Street (City of Moreno Valley)
B. Alessandro Boulevard, between Graham Street and Alessandro Plaza (City of Moreno Valley)
C. Alessandro Boulevard, between Alessandro Plaza and Heacock Street (City of Moreno Valley)
D. Heacock Street, between Alessandro Boulevard and Brodiaea Avenue (City of Moreno Valley)
E. Brodiaea Avenue, between Graham Street and Rebecca Street (City of Moreno Valley)
F. Brodiaea Avenue, between Gilbert Street and Heacock Street (City of Moreno Valley)
G. Graham Street, between Brodiaea Avenue and Cactus Avenue (City of Moreno Valley)
H. Cactus Avenue, between Elsworth Street and Frederick Street (City of Moreno Valley)

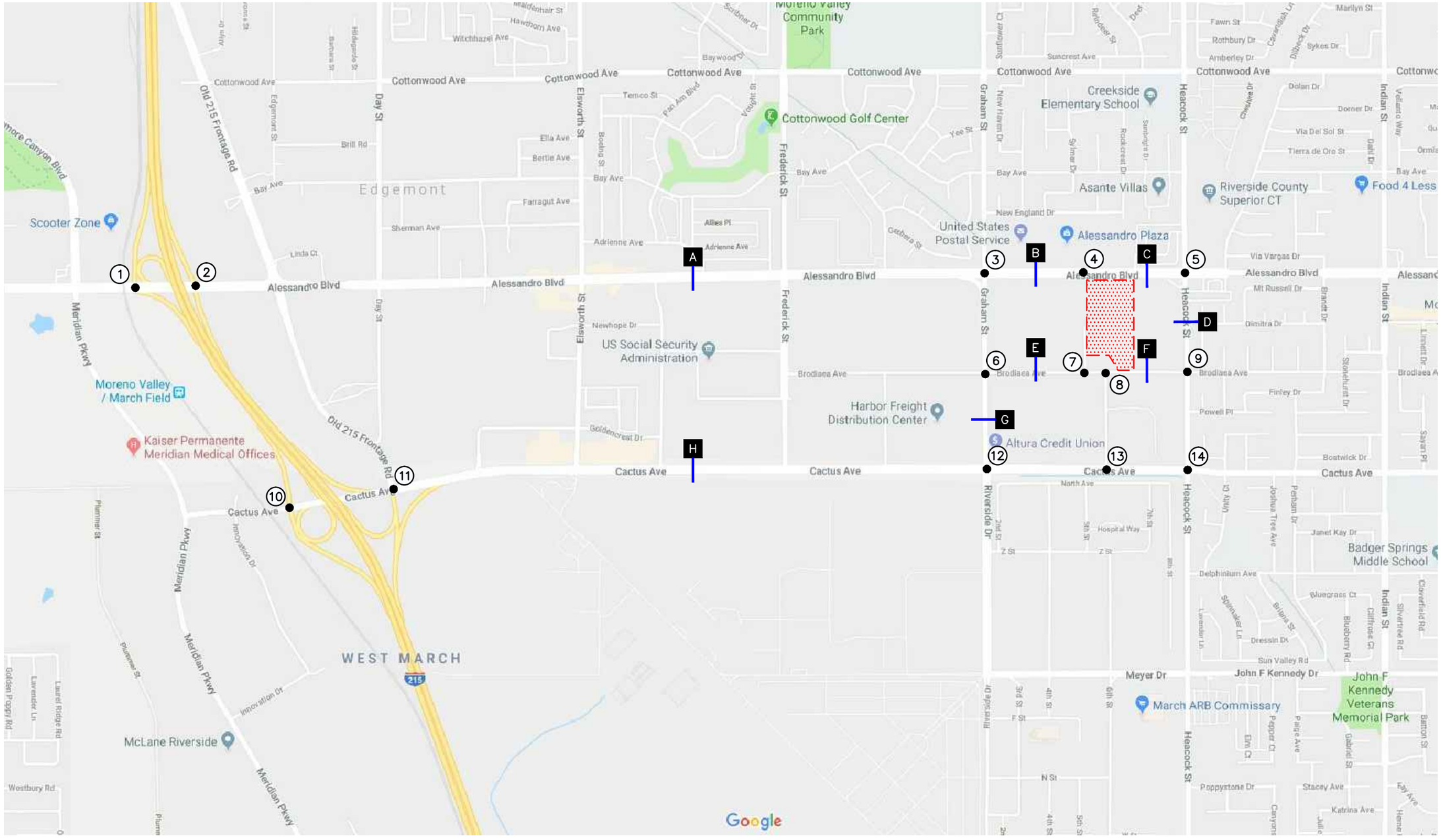
Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

Figure 1-1 presents a Vicinity Map, which illustrates the general location of the project and depicts the study locations and surrounding street system. The Level of Service (LOS) investigations at these key locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects and the proposed Project. When necessary, this report recommends intersection and/or roadway improvements that may be required to accommodate future traffic volumes and restore/maintain an acceptable Level of Service and/or mitigate the impact of the Project.

Included in this Traffic Impact Analysis are:

- Existing traffic counts,
- Estimated project traffic generation/distribution/assignment,
- Estimated cumulative project traffic generation/distribution/assignment,
- Daily, AM and PM peak hour capacity analyses for Existing traffic conditions,
- Daily, AM and PM peak hour capacity analyses for Existing Plus Project traffic conditions,
- Daily, AM and PM peak hour capacity analyses for Existing Plus Ambient Growth to the Year 2023 Plus Project traffic conditions,
- Daily, AM and PM peak hour capacity analyses for Year 2023 Cumulative Plus Project traffic conditions,
- Site Access and Internal Circulation Evaluation,
- Intersection Queuing Analysis,
- Caltrans Facilities Analysis,
- Recommended Improvements, and
- Project-Related Fair-Share Contributions.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

= STUDY ROADWAY SEGMENT

= PROJECT SITE

FIGURE 1–1

VICINITY MAP

PAMA BUSINESS PARK, MORENO VALLEY

n:\3900\2183972 – pama business park, moreno valley\dwg\3972 f1–1.dwg LDP 10:47:23 04–24–2018 besa

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

2.0 PROJECT DESCRIPTION

The Project site is a vacant parcel of land generally located east of Rebecca Street, between Alessandro Boulevard and Brodiaea Avenue, in the City of Moreno Valley, California. ***Figure 2-1*** presents an aerial depiction of the site.

Figure 2-2 presents the proposed site plan for the Project. Review of the proposed site plan indicates that the Project will consist of an industrial park with 284,000 square feet (SF) of warehouse/office uses within seven (7) buildings. The Project will provide 349 parking spaces. The proposed Project is expected to be constructed in one phase. Consistent with City of Moreno Valley guidelines, a five year horizon was assumed, resulting in an opening year of 2023. It should be noted that the proposed Project will provide a 15-foot meandering trail along its Alessandro Boulevard project frontage for the Juan Bautista de Anza Multi-Use Trail, consistent with City of Moreno Valley Master Plan of Trails.

2.1 Site Access

As shown in *Figure 2-2*, vehicular access to the proposed Project will be provided via two (2) right-turn in/right-turn out driveways located along Alessandro Boulevard (herein referred to as Project Driveways No. 1 and 2). Please note that only passenger cars will utilize these driveways and no truck access will be allowed along Alessandro Boulevard. Access will also be provided via two (2) full access driveways located along Rebecca Street (herein referred to as Project Driveways No. 3 and 4) and one (1) right-turn in/right-turn out only driveway located along Brodiaea Avenue (herein referred to as Project Driveway No. 5). It should be noted that the driveway spacing requirements contained within Table 9.11.080-14 of the City of Moreno Valley Municipal Code – Design Guidelines were considered and the driveway locations were ultimately approved by the City Engineer.

It should be noted that in conjunction with the proposed Project, Rebecca Street will be extended northerly from the current Rebecca Street terminus (north of Brodiaea Avenue) to Alessandro Boulevard at the existing intersection of Alessandro Plaza and Alessandro Boulevard, which will allow site access via Rebecca Street in addition to Alessandro Boulevard and Brodiaea Avenue. In addition, the existing traffic signal at the intersection of Alessandro Plaza and Alessandro Boulevard will be modified to accommodate Rebecca Street as the fourth leg of the intersection.

2.2 Pedestrian Circulation

The proposed Project will construct public sidewalks per City of Moreno Valley standards along its Project frontage on Alessandro Boulevard, Rebecca Street and Brodiaea Avenue. The Project's internal sidewalk system will connect with the proposed sidewalk system along the Project frontage thereby providing adequate pedestrian access to and from the Project site. The intersection of Heacock Street at Alessandro Boulevard currently provides crosswalks along the north, south, west and east legs, which will provide pedestrians safe and convenient access from the Project site across Alessandro Boulevard and Heacock Street.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

2.3 Bicycle Circulation

The *City of Moreno Valley Bicycle Master Plan* "specifically recommends programs and policies designed to make Moreno Valley a more bicycle friendly place and to encourage more residents to ride rather than drive." *Figure 2: Existing Bicycle Facilities* on pg. 27 of the *Bicycle Master Plan* illustrates that Alessandro Boulevard, between Graham Street and Heacock Street, is currently considered a Class 2 Bikeway ("Bike Lane"). Per *Figures 14-17* (Recommended Bikeway Projects) on pgs. 55, 59, 67, and 69 of the *Bicycle Master Plan,* Alessandro Boulevard, between Graham Street and Heacock Street, is recommended to remain as a Class 2 Bikeway in the future, while the remainder of Alessandro Boulevard, from Elsworth Street to Theodore Street, is recommended to become a Class 2 Bikeway in the future. Additionally, Heacock Street, between Alessandro Boulevard and Cactus Avenue, is recommended to become a Class 1 Bikeway (Multi-Use Path) in the future. Lastly, Brodiaea Avenue, between Frederick Street and Moreno Beach Drive, is recommended to become a Class 3 Bikeway (Bike Route) in the future. The proposed Project will provide bicyclists direct connectivity to the Project site.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

n:\3900\2183972 – pama business park, moreno valley\dwg\3972 f2–1.dwg LDP 18:03:05 04–23–2018 besa

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

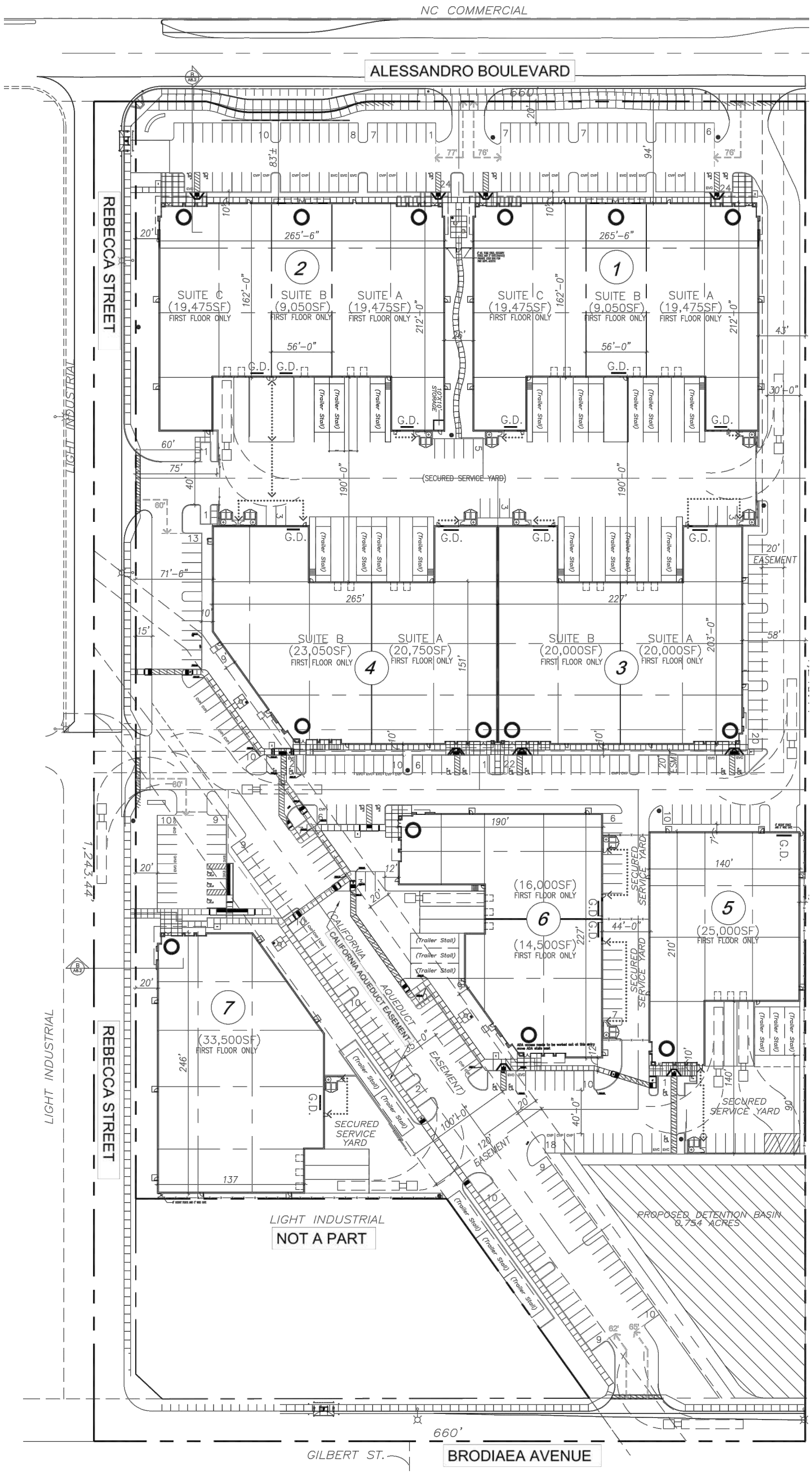
KEY

= PROJECT SITE

FIGURE 2–1

EXISTING SITE AERIAL

PAMA BUSINESS PARK, MORENO VALLEY



SOURCE: MACDAVID AUBORT AND ASSOCIATES INCORPORATED

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

FIGURE 2-2

PROPOSED SITE PLAN

PAMA BUSINESS PARK, MORENO VALLEY

n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f2-2.dwg LDP 10:57:42 09-25-2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

3.0 EXISTING CONDITIONS

3.1 Existing Street System

Regional access to the Project site is provided via the I-215 Freeway and the SR-60 Freeway. The principal local network of streets serving the proposed Project site is Alessandro Boulevard and Heacock Street. The following discussion provides a brief synopsis of these key area streets. The descriptions are based on an inventory of existing roadway conditions.

Alessandro Boulevard is generally a six-lane, divided roadway west of Frederick Street, a five-lane, divided roadway between Frederick Street and Heacock Street and a six-lane, divided roadway east of Heacock Street, oriented in the east-west direction. Alessandro Boulevard borders the Project site to the north and will provide access to the Project via two (2) right-turn in/right-turn out driveways. On-street parking is generally not permitted along Alessandro Boulevard in the vicinity of the Project site. The posted speed limit on Alessandro Boulevard is 45 miles per hour (mph). Traffic signals control the study intersections of Alessandro Boulevard at the I-215 SB Ramps, the I-215 NB Ramps, Graham Street, Alessandro Plaza, and Heacock Street.

Heacock Street is generally a four-lane, divided roadway in the vicinity of the Project site, oriented in the north-south direction. On-street parking is not permitted along Heacock Street in the vicinity of the Project site. The posted speed limit on Heacock Street is 40 mph north of Alessandro Boulevard and 45 mph south of Alessandro Boulevard. Traffic signals control the study intersections of Heacock Street at Alessandro Boulevard, Brodiaea Avenue, and Cactus Avenue.

Figure 3-1 presents an inventory of the existing roadway conditions for the arterials and intersections evaluated in this report. This figure identifies the number of travel lanes for key arterials, as well as intersection configurations and controls for the key area study intersections.

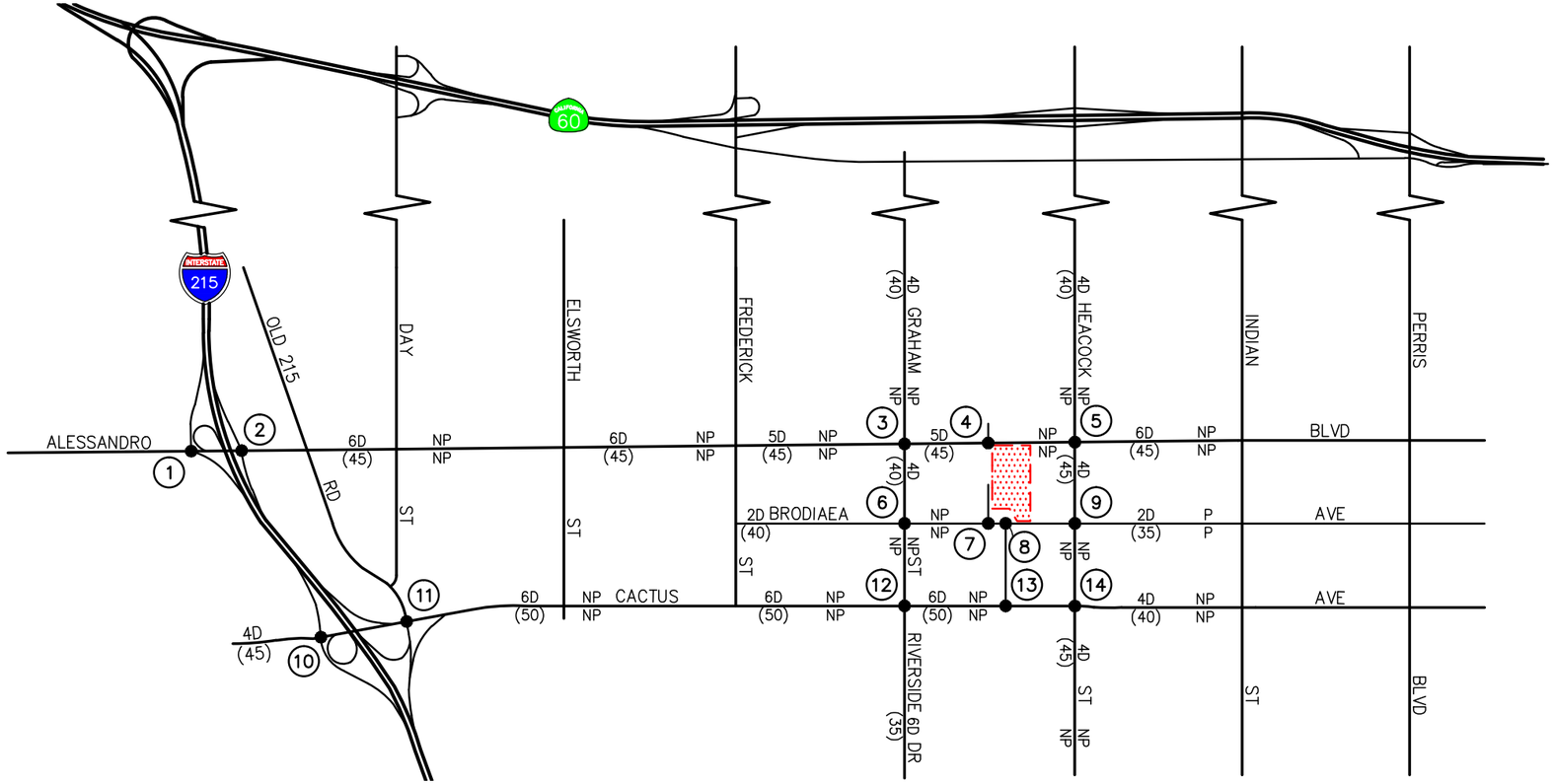
3.2 Public Transit

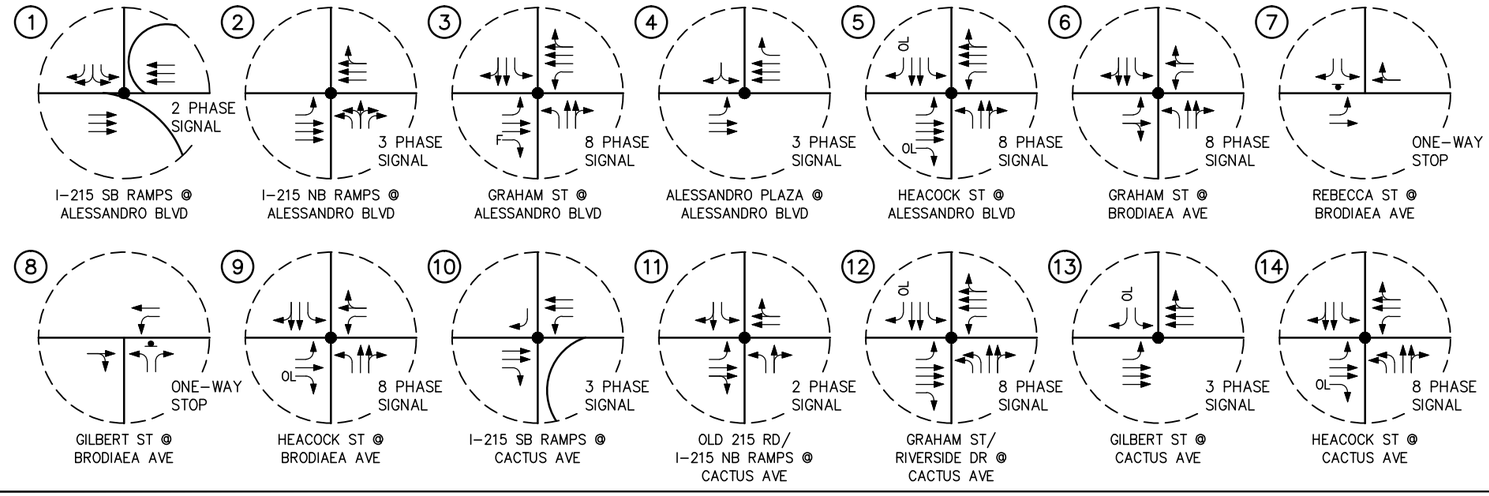
Public transit bus service is provided in the project area by the Riverside Transit Agency (RTA). Two (2) RTA bus routes operate within the immediate vicinity of the Project site on Alessandro Boulevard and Heacock Street.

- RTA Route 11: provides service from Moreno Valley Mall to Frederick & Douglas; via Perris & Hemlock to Alessandro & Heacock to Meyer & 6th.
- RTA Route 20: provides service from Magnolia & Elizabeth to Iris & Lasselle; via Mission Grove at Social Security to Moreno Valley March Field Metrolink Station to Alessandro & Frederick to Perris & Alessandro to Riverside University Medical Center to Iris at Kaiser Permanente Hospital to Moreno Valley College to Iris & Peninsula.

The bus stops nearest to the Project site are located along the north and south sides of Alessandro Boulevard, adjacent to the Project site, and at the intersection of Heacock Street/Alessandro Boulevard. Employees and/or visitors of the proposed Project would be within walking distance of existing bus stops, which currently serve and would continue to serve the Project site.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)





n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f3-1.dwg LDP 16:39:54 08-30-2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY
- ← = APPROACH LANE ASSIGNMENT
- ● = TRAFFIC SIGNAL, ▾ = STOP SIGN
- P = PARKING, NP = NO PARKING
- U = UNDIVIDED, D = DIVIDED
- 2 = NUMBER OF TRAVEL LANES
- (XX)= POSTED SPEED LIMIT (MPH)
- F = FREE-RIGHT, OL = OVERLAP
- ▭ = PROJECT SITE

FIGURE 3-1

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

PAMA BUSINESS PARK, MORENO VALLEY

3.3 Existing Traffic Volumes

Fourteen (14) key study intersections and eight (8) key roadway segments have been identified as the locations at which to evaluate existing and future traffic operating conditions. Some portion of potential Project-related traffic will pass through each of these intersections and their analysis will reveal the expected relative impacts of the Project. These key study intersections were selected for evaluation based on discussions with City of Moreno Valley staff.

Existing daily, AM peak hour and PM peak hour traffic volumes for the 14 key study intersections and 8 key roadway segments evaluated in this report were obtained from daily machine and manual peak hour turning movement counts conducted by Counts Unlimited, Inc. in April 2018. ***Figures 3-2*** and ***3-3*** illustrate the existing AM and PM peak hour traffic volumes at the fourteen (14) key study intersections evaluated in this report, respectively. *Figure 3-3* also presents the existing average daily traffic volumes for the eight (8) key roadway segments in the vicinity of the proposed Project. ***Appendix B*** contains the detailed peak hour and daily traffic count sheets for the key intersections and roadway segments evaluated in this report.

3.4 Level Of Service (LOS) Analysis Methodologies

AM and PM peak hour operating conditions for the key study intersections were evaluated using the methodology outlined in *Chapter 19 of the Highway Capacity Manual 6 (HCM 6)* for signalized intersections, the methodology outlined in *Chapter 20 of the HCM 6* for two-way stop-controlled intersections, and the methodology outlined in *Chapter 21 of the HCM 6* for all-way stop-controlled intersections. Daily operating conditions for the key study roadway segments were analyzed using the *Volume to Capacity (V/C) Ratio*.

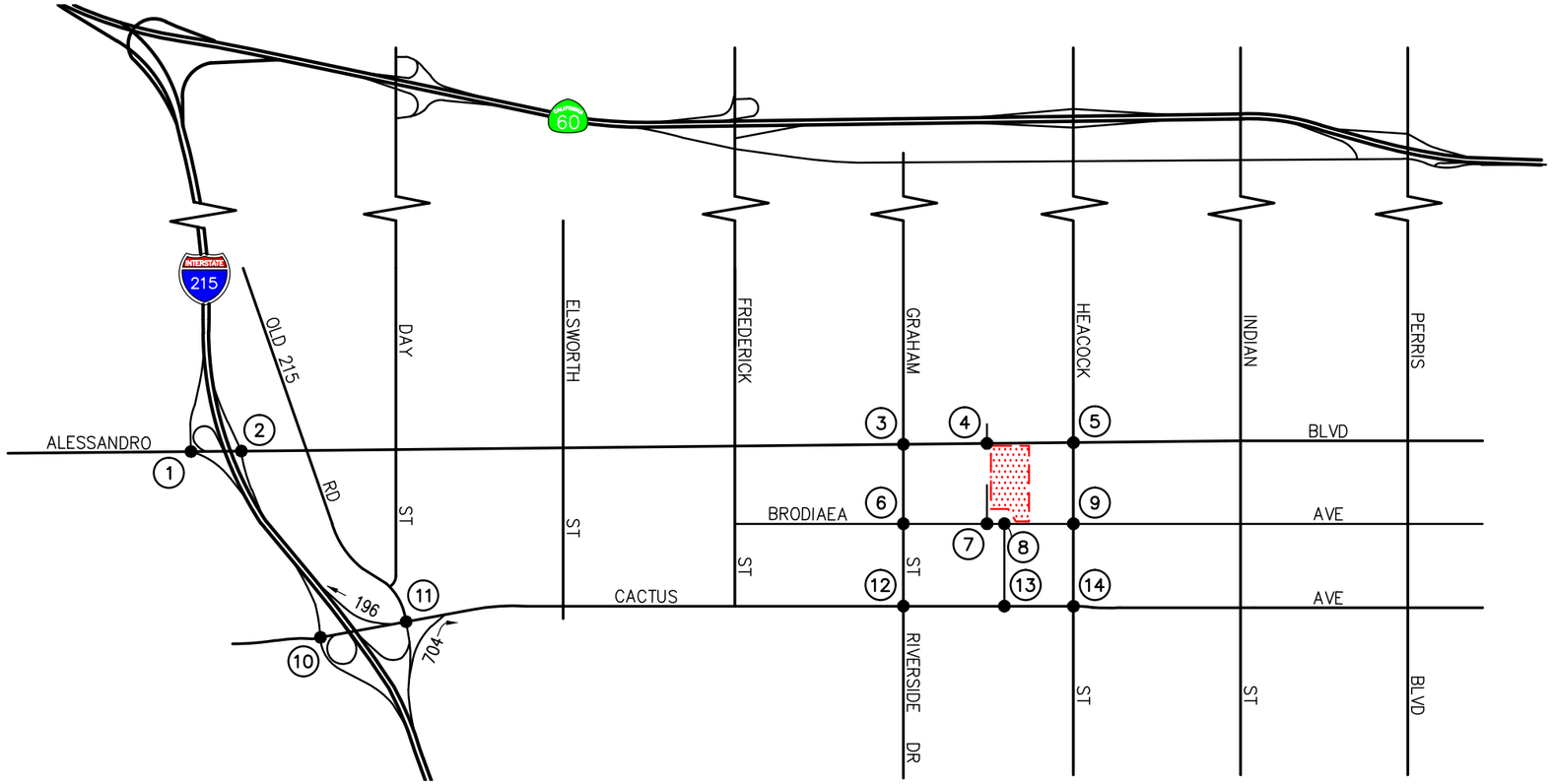
3.4.1 *Highway Capacity Manual 6 (HCM 6) Method of Analysis (Signalized Intersections)*

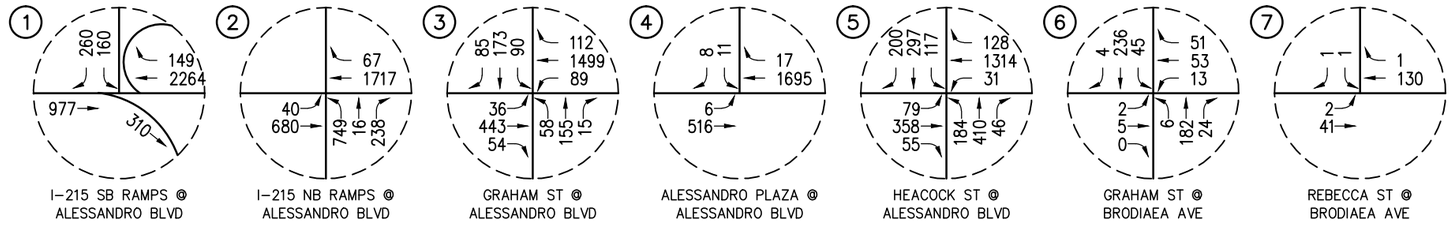
Based on the HCM operations method of analysis, level of service for signalized intersections and approaches is defined in terms of control delay, which is a measure of the increase in travel time due to traffic signal control, driver discomfort, and fuel consumption. Control delay includes the delay associated with vehicles slowing in advance of an intersection, the time spent stopped on an intersection approach, the time spent as vehicles move up in the queue, and the time needed for vehicles to accelerate to their desired speed. LOS criteria for traffic signals are stated in terms of the control delay in seconds per vehicle. The LOS thresholds established for the automobile mode at a signalized intersection are shown in ***Table 3-1***.

3.4.2 *Highway Capacity Manual 6 (HCM 6) Method of Analysis (Unsignalized Intersections)*

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. LOS criteria for unsignalized intersections differ from LOS criteria for signalized intersections as signalized intersections are designed for heavier traffic and therefore a greater delay. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable, which can reduce users' delay tolerance.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)





n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f3-2.dwg LDP 15:04:26 06-04-2018 besa

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN
engineers

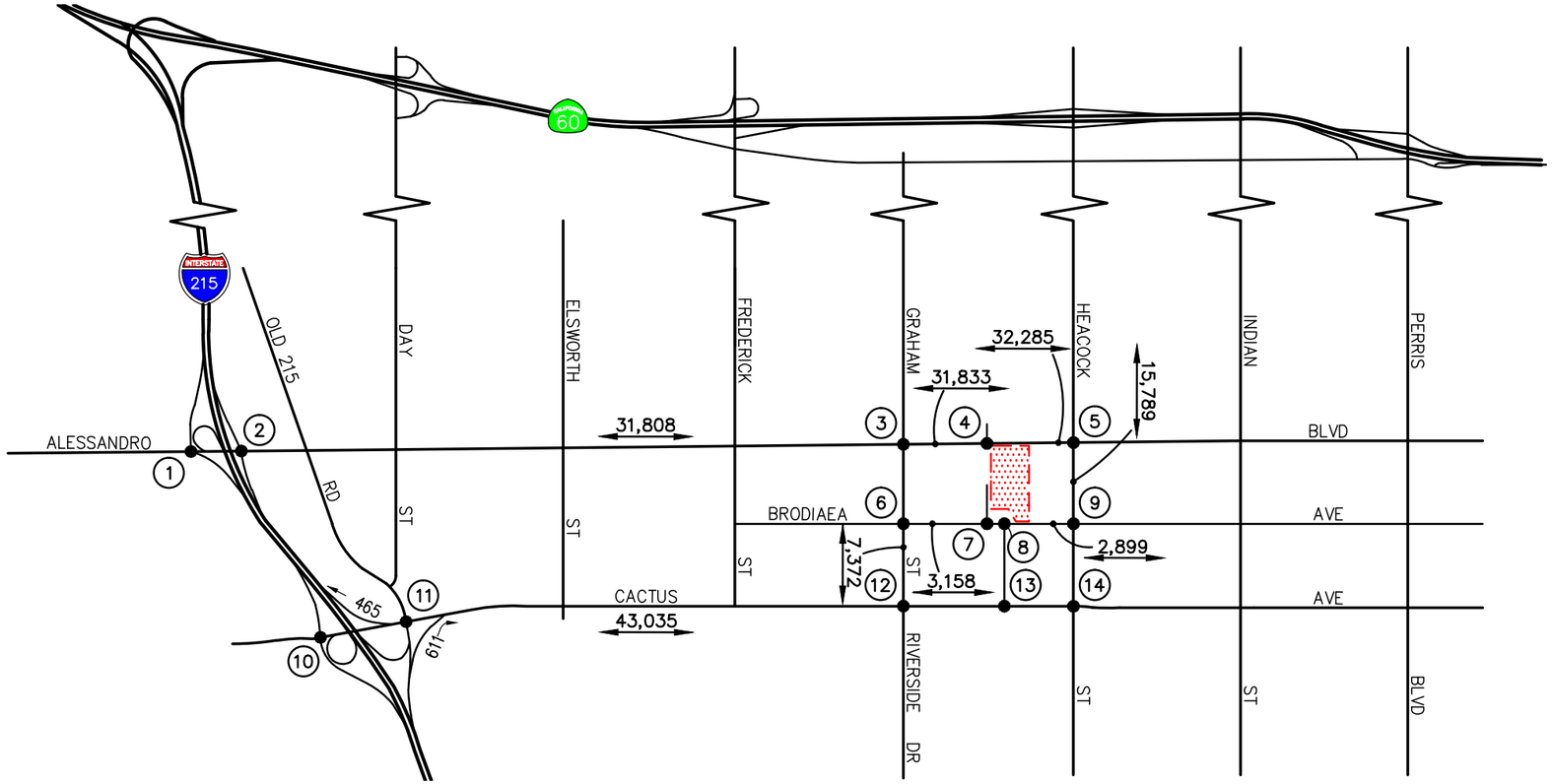
N
NO SCALE

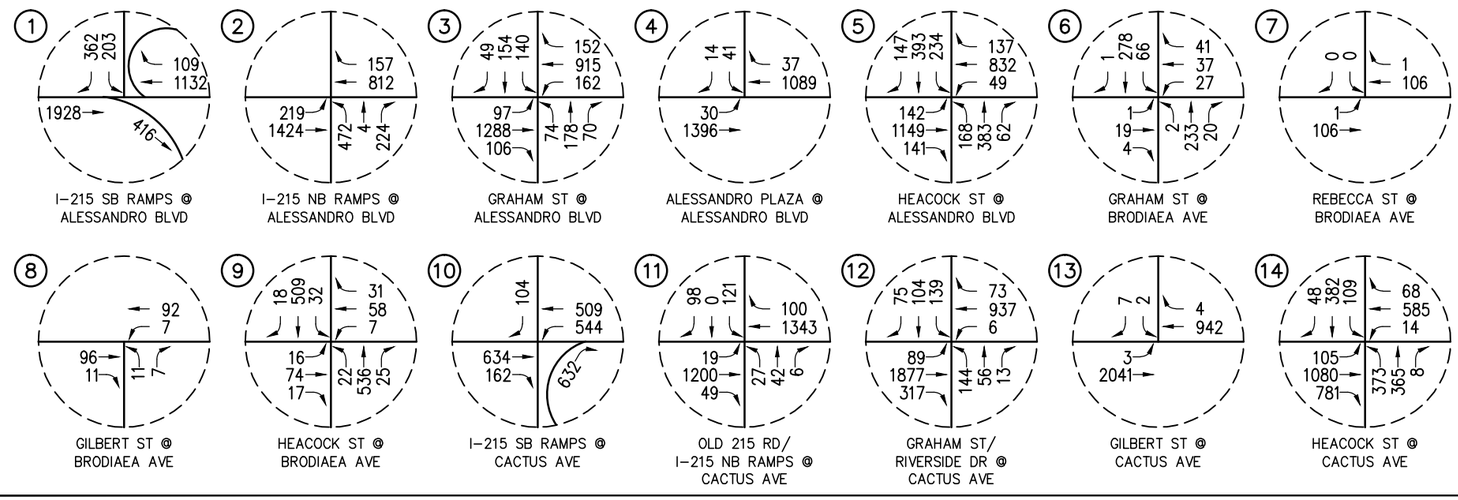
KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 3-2

EXISTING AM PEAK HOUR TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY





LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

XX,XXX = DAILY TRAFFIC VOLUMES

= PROJECT SITE

FIGURE 3-3

EXISTING PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY

n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f3-3.dwg LDP 13:06:52 06-04-2018 besa

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

3.4.2.1 *Two-Way Stop-Controlled Intersections*

Two-way stop-controlled intersections are comprised of a major street, which is uncontrolled, and a minor street, which is controlled by stop signs. Level of service for a two-way stop-controlled intersection is determined by the computed or measured control delay. The control delay by movement, by approach, and for the intersection as a whole is estimated by the computed capacity for each movement. LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. The worst side street approach delay is reported. LOS is not defined for the intersection as a whole or for major-street approaches, as it is assumed that major-street through vehicles experience zero delay. The HCM control delay value ranges for two-way stop-controlled intersections are shown in ***Table 3-2***.

3.4.2.2 *All-Way Stop-Controlled Intersections*

All-way stop-controlled intersections require every vehicle to stop at the intersection before proceeding. Because each driver must stop, the decision to proceed into the intersection is a function of traffic conditions on the other approaches. The time between subsequent vehicle departures depends on the degree of conflict that results between the vehicles and vehicles on the other approaches. This methodology determines the control delay for each lane on the approach, computes a weighted average for the whole approach, and computes a weighted average for the intersection as a whole. Level of service (LOS) at the approach and intersection levels is based solely on control delay. The HCM control delay value ranges for all-way stop-controlled intersections are shown in *Table 3-2*.

3.5 Volume to Capacity (V/C) Ratio Method of Analysis (Roadway Segments)

Existing daily operating conditions for the eight (8) key roadway segments have been investigated according to the daily volume-to-capacity (V/C) ratio of each link. The daily V/C relationship is used to estimate the LOS of the roadway segment with the volume based on the 24-hour traffic count data and the existing daily capacity based on the City's classification of each roadway. The roadway link capacity of each street classification according to the *City of Moreno Valley Transportation Engineering Division Traffic Impact Analysis Preparation Guide*, dated August 2007, is presented in ***Table 3-3***, along with the six corresponding service levels and associated V/C ratios.

Although the arterial segment V/C analysis provides a general assessment of overall system performance, the performance is measured on the ability to serve peak hour traffic demands. To identify deficient arterial segments, the segments that are identified as deficient under daily conditions are evaluated under peak hour conditions to evaluate the capability of serving forecast peak hour throughput. Arterial segments that operate deficiently under peak hour conditions are candidates for mitigation improvements.

3.6 Basic Freeway Segments

The basic freeway segment criteria is based on peak hour *HCM 6* density analysis. The capacities are based on information contained in the *HCM 6*. Existing traffic count data for the analyzed freeway segments was obtained from the Caltrans website.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

Basic freeway segment levels of service are determined from segment density. ***Table 3-4*** presents the correlation between LOS and density in terms of passenger cars per mile per lane (pc/mi/ln) for freeway basic freeway segments.

3.7 Level of Service Criteria

City of Moreno Valley

The City of Moreno Valley Circulation Element recognizes that LOS "C" is optimal. However, it also allows peak hour levels of service in the LOS "D" range at certain locations. These locations include areas of high employment concentration, roads in the vicinity of freeway on/off ramps and/or other locations in already developed areas of the City with geometric constraints that prevent LOS "C" from being achieved. *Figure 5.2-7* from the *City of Moreno Valley General Plan, Final Program EIR, July 2006* depicts the LOS standards that are applicable to all segments of the Circulation Element. According to this figure and confirmed by City of Moreno staff, two (2) of the fourteen (14) key study intersections must maintain a LOS "C" or better. The remaining twelve (12) intersections must maintain a LOS "D" or better. Additionally, two (2) of the eight (8) key roadway segments must maintain a LOS "C" or better. The remaining six (6) key roadway segments must maintain a LOS "D" or better.

City of Riverside

The City of Riverside allows LOS "D" to be used as the maximum acceptable threshold for the study intersections and roadways of Collector or higher classification. However, at some key locations, such as City arterial roadways which are used as a freeway bypass by regional through traffic and at heavily traveled freeway interchanges, LOS "E" may be acceptable as determined on a case-by-case basis. Locations that may warrant the LOS "E" standard include portions of Arlington Avenue/Alessandro Boulevard, Van Buren Boulevard throughout the City, portions of La Sierra Avenue and selected freeway interchanges. The City also recognizes that along key freeway-feeder segments during peak commute hours, LOS F may be expected due to regional travel patterns. A higher standard, such as LOS "C" or better, may be adopted for Local streets in residential areas.

County of Riverside

According to the Riverside County General Plan, *Section C 2.1*, the following countywide target Levels of Service shall be maintained:

- LOS "C" shall apply to all development proposals in any area of the Riverside County not located within the boundaries of an Area Plan, as well those areas located within the following Area Plans: REMAP, Eastern Coachella Valley, Desert Center, Palo Verde Valley, and those non-Community Development areas of the Elsinore, Lake Mathews/ Woodcrest, Mead Valley and Temescal Canyon Area Plans.
- LOS "D" shall apply to all development proposals located within any of the following Area Plans: Eastvale, Jurupa, Highgrove, Reche Canyon/Badlands, Lakeview/Nuevo, Sun City/Menifee Valley, Harvest Valley/Winchester, Southwest Area, The Pass, San Jacinto Valley, Western Coachella Valley and those Community Development Areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

- LOS "E" may be allowed by the Board of Supervisors within designated areas where transit-oriented development and walkable communities are proposed.

Caltrans

Caltrans "endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities"; it does not required that LOS "D" (shall) be maintained. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. For this analysis, LOS D is the target level of service standard and will be utilized to assess the project impacts at the state-controlled study intersections, consistent with City of Moreno Valley requirements.

Based on the above and discussions with City of Moreno Valley staff, the following summarizes the LOS required for each key study intersection and roadway segment:

Intersection Level of Service Criteria	
LOS "C" Requirements	
7. Rebecca St at Brodiaea Ave	8. Gilbert St at Brodiaea Ave
LOS "D" Requirements	
1. I-215 SB Ramps at Alessandro Blvd	9. Heacock St at Brodiaea Ave
2. I-215 SB Ramps at Alessandro Blvd	10. I-215 SB Ramps at Cactus Ave
3. Graham St at Alessandro Blvd	11. Old 215 Frontage Rd/I-215 NB Ramps at Cactus Ave
4. Alessandro Plaza at Alessandro Blvd	12. Graham St/Riverside Dr at Cactus Ave
5. Heacock St at Alessandro Blvd	13. Gilbert St at Cactus Ave
6. Graham St at Brodiaea Ave	14. Heacock St at Cactus Ave
Roadway Segment Level of Service Criteria	
LOS "C" Requirements	
E. Brodiaea Avenue *between* Graham Street and Rebecca Street	
F. Brodiaea Avenue *between* Gilbert Street and Heacock Street	
LOS "D" Requirements	
A. Alessandro Boulevard *between* Elsworth Street and Frederick Street	
B. Alessandro Boulevard *between* Graham Street and Alessandro Plaza	
C. Alessandro Boulevard *between* Alessandro Plaza and Heacock Street	
D. Heacock Street *between* Alessandro Boulevard and Brodiaea Avenue	
G. Graham Street *between* Brodiaea Avenue and Cactus Avenue	
H. Cactus Avenue *between* Elsworth Street and Frederick Street	

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

3.8 Existing Level of Service Results

3.8.1 *Intersections*

Table 3-5 summarizes the existing peak hour service level calculations for the fourteen (14) key study intersections based on existing traffic volumes and current street geometry. Review of *Table 3-5* indicates all fourteen (14) key study intersections currently operate at an acceptable level of service during the AM and PM peak hours.

Appendix C presents the HCM/LOS calculations for the fourteen (14) key study intersections for the AM peak hour and PM peak hour.

3.8.2 *Roadway Segments*

Table 3-6 summarizes the existing service level calculations for the eight (8) key roadway segments based on existing 24-hour traffic volumes and current roadway geometry. The first column (1) shows the number of lanes and the second column (2) shows the existing LOS "E" capacity. The third column (3) shows the daily volume, V/C ratio and resulting level of service. Review of *Table 3-6* shows that the eight (8) key roadway segments currently operate at an acceptable service level on a daily basis.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 3-1

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM 6 METHODOLOGY)[1]

Level of Service (LOS)	Control Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and ≤ 20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	> 20.0 and ≤ 35.0	Average traffic delays. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and ≤ 55.0	Long traffic delays At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and ≤ 80.0	Very long traffic delays This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths and high *v/c* ratios. Individual cycle failures are frequent occurrences.
F	≥ 80.0	Severe congestion This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

[1] Source: *Highway Capacity Manual 6*, Chapter 19: Signalized Intersections.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 3-2

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM 6 METHODOLOGY)[2,3]

Level of Service (LOS)	Highway Capacity Manual (HCM) Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

2 Source: *Highway Capacity Manual 6*, Chapter 20: Two-Way Stop-Controlled Intersections. The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

3 Source: *Highway Capacity Manual 6*, Chapter 21: All-Way Stop-Controlled Intersections. For approaches and intersection-wide assessment, LOS is defined solely by control delay.

TABLE 3-3
ROADWAY LINK CAPACITIES[4]

Type of Roadway	Level of Service Criteria With Associated Roadway Capacity Daily Values (VPD) Level of Service (LOS)					
	A	**B**	**C**	**D**	**E**	**F**
▪ Six Lane Divided Arterial	33,900	39,400	45,000	50,600	56,300	--
▪ Four Lane Divided Arterial	22,500	26,300	30,000	33,800	37,500	--
▪ Four Lane Undivided Arterial	15,000	17,500	20,000	22,500	25,000	--
▪ Two Lane Industrial Collector	7,500	8,800	10,000	11,300	12,500	--
▪ Two Lane Undivided Residential	N/A	N/A	N/A	N/A	2,000	--
V/C Ratio	≤ 0.60	0.61-0.70	0.71-0.80	0.81-0.90	0.91-1.00	≥ 1.00

Notes:
- VPD = vehicles per day

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

[4] Source: *City of Moreno Valley Transportation Engineering Division Traffic Impact Analysis Preparation Guide*, dated August 2007.

TABLE 3-4
BASIC FREEWAY SEGMENTS LEVEL OF SERVICE
CRITERIA (HCM 6 METHODOLOGY)[5]

LOS	Basic Freeway Segment Density (pc/mi/ln)
A	≤ 11.0
B	> 11.0 – 18.0
C	> 18.0 – 26.0
D	> 26.0 – 35.0
E	> 35.0 – 45.0
F	> 45.0

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

[5] Source: *HCM 6, Chapter 12 – Basic Freeway and Multilane Highway Segments, Exhibit 12-15.*

TABLE 3-5

EXISTING PEAK HOUR LEVEL OF SERVICE SUMMARY

Key Intersections		Time Period	Minimum Acceptable LOS	Control Type	HCM	LOS
1.	I-215 Southbound Ramps at Alessandro Boulevard	AM	D	2∅ Traffic Signal	13.2 s/v	B
		PM			11.7 s/v	B
2.	I-215 Northbound Ramps at Alessandro Boulevard	AM	D	3∅ Traffic Signal	28.3 s/v	C
		PM			18.2 s/v	B
3.	Graham Street at Alessandro Boulevard	AM	D	8∅ Traffic Signal	25.4 s/v	C
		PM			33.2 s/v	C
4.	Alessandro Plaza at Alessandro Boulevard	AM	D	3∅ Traffic Signal	6.5 s/v	A
		PM			9.1 s/v	A
5.	Heacock Street at Alessandro Boulevard	AM	D	8∅ Traffic Signal	29.7 s/v	C
		PM			44.4 s/v	D
6.	Graham Street at Brodiaea Avenue	AM	D	8∅ Traffic Signal	32.6 s/v	C
		PM			25.9 s/v	C
7.	Rebecca Street at Brodiaea Avenue	AM	C	One-Way Stop	9.4 s/v	A
		PM			0.0 s/v	A
8.	Gilbert Street at Brodiaea Avenue	AM	C	One-Way Stop	9.2 s/v	A
		PM			9.4 s/v	A
9.	Heacock Street at Brodiaea Avenue	AM	D	8∅ Traffic Signal	16.2 s/v	B
		PM			13.3 s/v	B
10.	I-215 Southbound Ramps at Cactus Avenue	AM	D	3∅ Traffic Signal	8.3 s/v	A
		PM			15.7 s/v	B
11.	Old 215 Frontage Road/I-215 NB Ramps at Cactus Avenue	AM	D	2∅ Traffic Signal	38.0 s/v	D
		PM			11.6 s/v	B
12.	Graham Street/Riverside Drive at Cactus Avenue	AM	D	8∅ Traffic Signal	22.6 s/v	C
		PM			26.5 s/v	C
13.	Gilbert Street at Cactus Avenue	AM	D	3∅ Traffic Signal	5.9 s/v	A
		PM			6.8 s/v	A
14.	Heacock Street at Cactus Avenue	AM	D	8∅ Traffic Signal	41.1 s/v	D
		PM			36.8 s/v	D

Notes:
- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 3-6

EXISTING ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY

Key Roadway Segment	Jurisdiction	Min. Acc. LOS	(1) No. of Existing Lanes	(2) Existing Capacity at LOS "E"	(3) Existing Traffic Conditions		
					Daily Volume	V/C Ratio	LOS
A. Alessandro Boulevard *between* Elsworth Street and Frederick Street	Moreno Valley	D	6D	56,300	31,808	0.565	A
B. Alessandro Boulevard *between* Graham Street and Alessandro Plaza	Moreno Valley	D	5D[6]	46,900	31,833	0.679	B
C. Alessandro Boulevard *between* Alessandro Plaza and Heacock Street	Moreno Valley	D	5D[6]	46,900	32,285	0.688	B
D. Heacock Street *between* Alessandro Boulevard and Brodiaea Avenue	Moreno Valley	D	4D	37,500	15,789	0.421	A
E. Brodiaea Avenue *between* Graham Street and Rebecca Street	Moreno Valley	C	2D	12,500	3,158	0.253	A
F. Brodiaea Avenue *between* Gilbert Street and Heacock Street	Moreno Valley	C	2D	12,500	2,899	0.232	A
G. Graham Street *between* Brodiaea Avenue and Cactus Avenue	Moreno Valley	D	4D	37,500	7,372	0.197	A
H. Cactus Avenue *between* Elsworth Street and Frederick Street	Moreno Valley	D	6D	56,300	43,035	0.764	C

[6] The existing roadway capacity at LOS "E" for a five-lane divided roadway has been interpolated between the six-lane divided and four-lane divided roadway capacities (56,300 and 37,500, respectively) as presented in *Table 3-3* above.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the proposed Project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and project traffic assignments developed, the impact of the proposed project is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast project traffic. If necessary, the need for site-specific and/or cumulative local area traffic improvements can then be evaluated and the significance of the project's impacts identified.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 Project Traffic Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and/or rates used in the traffic forecasting procedure are found in the 10th Edition of Trip Generation, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2017].

Based on the potential land uses for the proposed Project, the average trip rates for ITE Land Use 130: Industrial Park were utilized to forecast the range of the Project's trip generation potential. The top portion of ***Table 5-1*** summarizes the trip generation rates used in forecasting the vehicular trips, both autos and trucks, generated by the Project. The middle portion of *Table 5-1* summarizes the trip generation potential used in forecasting the vehicular trips, both autos and trucks, generated by the Project using recommended factors published in the *Truck Trip Generation Study – City of Fontana, August 2003.* Consistent with standard traffic engineering practice, passenger car equivalent (PCE) factors have been utilized due to the expected heavy truck component of the Project uses. A PCE factor of 2.5 has been applied to large 2-axle, 3-axle, and 4+-axle trucks.

As shown in *Table 5-1*, the proposed Project is expected to generate 1,244 daily trips (one half arriving, one half departing), with 143 trips (116 inbound, 27 outbound) produced in the AM peak hour and 149 trips (32 inbound, 117 outbound) produced in the PM peak hour on a "typical" weekday. Please note that these estimates include the conversion of truck-related trips to passenger car equivalents (PCE).

5.2 Project Traffic Distribution and Assignment

Traffic distribution determines the directional orientation of traffic. It is based upon the location, intensity of use, accessibility of existing and planned residential areas, employment centers, and other commercial activities. Traffic assignment is the determination of specific trip routes, given the previously developed traffic distribution. Primary factors in route selection are the generalized travel direction, minimum time and minimum distance paths.

The general, directional traffic distribution pattern for the passenger cars (employees) and truck components of the Project are graphically presented in ***Figure 5-1*** and ***Figure 5-2,*** respectively. Project traffic volumes, both entering and exiting the site, have been distributed and assigned to the adjacent street system based on the following considerations:

- the site's proximity to major traffic carriers (i.e. Alessandro Boulevard, Heacock Street, SR-60 Freeway, I-215 Freeway, etc.),
- expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals,
- existing intersection traffic volumes, and
- ingress/egress availability at the project site.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

The anticipated AM and PM peak hour traffic volumes associated with the proposed Project are presented in ***Figures 5-3*** and ***5-4***, respectively. *Figure 5-4* also presents the daily Project traffic volumes. The traffic volume assignments presented in *Figures 5-3* and *5-4* reflect the traffic distribution characteristics shown in *Figures 5-1* and *5-2* and the traffic generation forecast presented in *Table 5-1*.

5.3 Existing Plus Project Traffic Conditions

The Existing Plus Project traffic conditions have been generated based upon existing conditions and the estimated project traffic. These forecast traffic conditions have been prepared pursuant to the California Environmental Quality Act (CEQA) guidelines, which require that the potential impacts of a Project be evaluated upon the circulation system as it currently exists. This traffic volume scenario and the related intersection capacity analyses will identify the roadway improvements necessary to mitigate the direct traffic impacts of the Project, if any.

Figures 5-5 and ***5-6*** present projected AM and PM peak hour traffic volumes at the fourteen (14) key study intersections with the addition of the trips generated by the proposed Project to existing traffic volumes, respectively. *Figure 5-6* also presents the Existing Plus Project daily traffic volumes.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 5-1

PROJECT TRAFFIC GENERATION RATES AND FORECAST[7]

Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Trip Generation Rates:							
▪ 130: Industrial Park (TE/TSF)	3.37	81%	19%	0.40	21%	79%	0.40
Proposed Project Trip Generation:							
▪ Industrial Park (284,000 SF)							
o Passenger Cars	766	76	19	95	19	72	91
o Trucks[8]	478	40	8	48	13	45	58
Total Proposed Project Trip Generation	**1,244**	**116**	**27**	**143**	**32**	**117**	**149**

Notes:

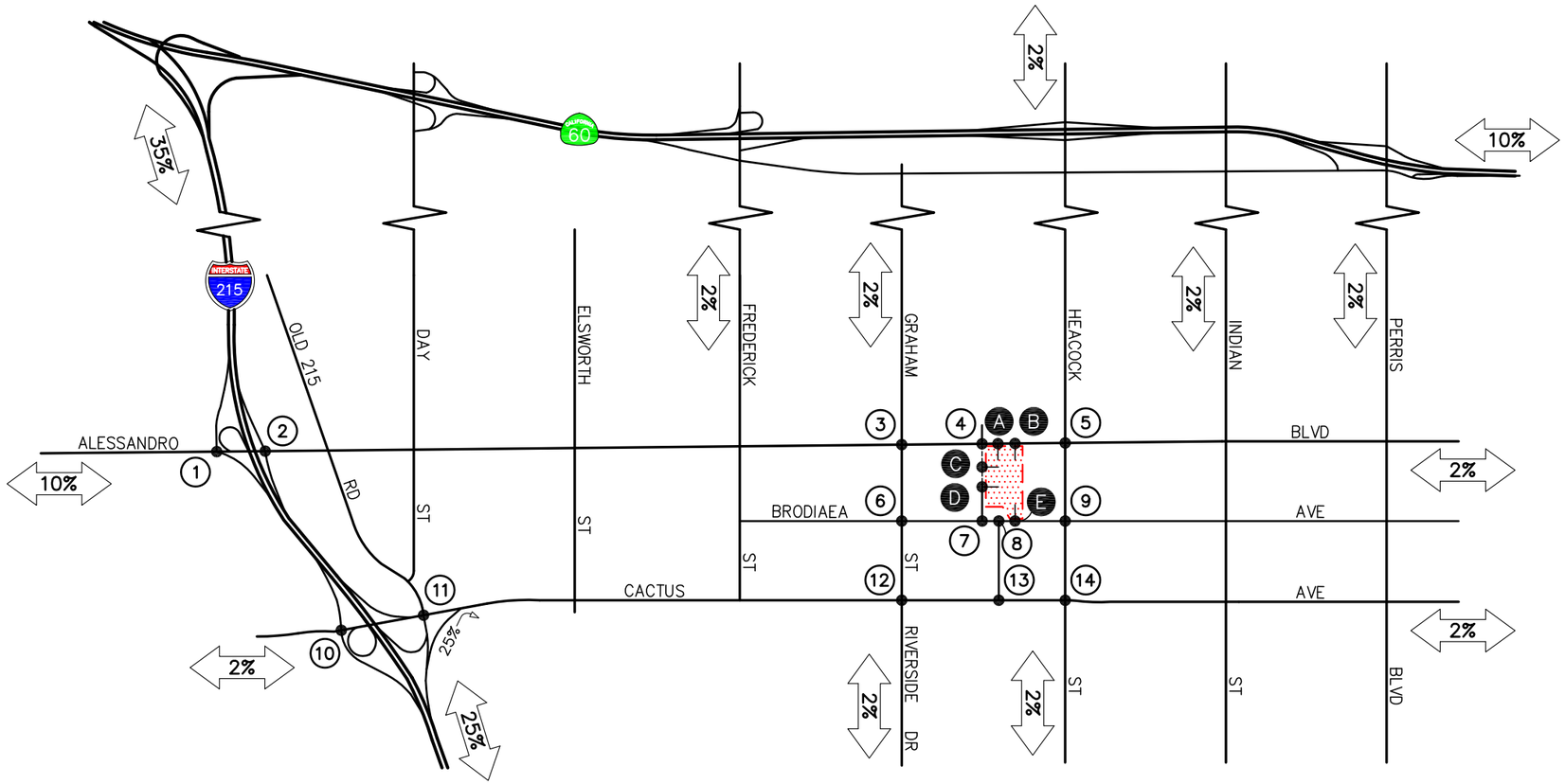
- TE/TSF = Trip End per 1,000 Square Feet of Gross Floor Area

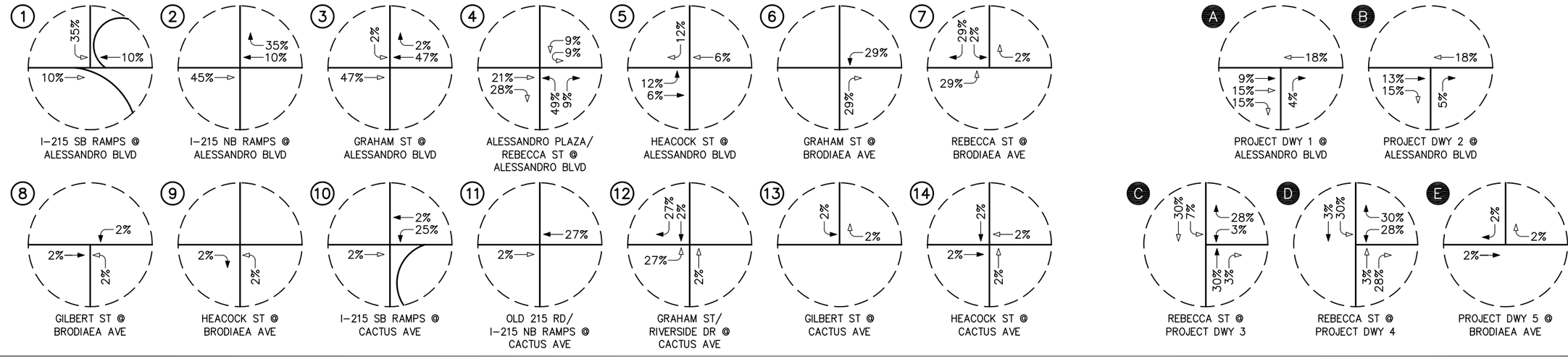
[7] Source: *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017). Recommended mix of traffic, including mix of passenger cars and trucks, based on *Fontana Truck Trip Generation Study (August 2003).*

[8] All trucks converted to passenger car equivalents using a factor of 2.5 vehicles per truck. For industrial park land uses, truck trip generation of the total trips is assumed to be:

- Daily: 20% trucks
- AM Peak Hour: 17% trucks
- PM Peak Hour: 20% trucks

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)





LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION
(#) = FUTURE INTERSECTION
— — = FUTURE ROAD

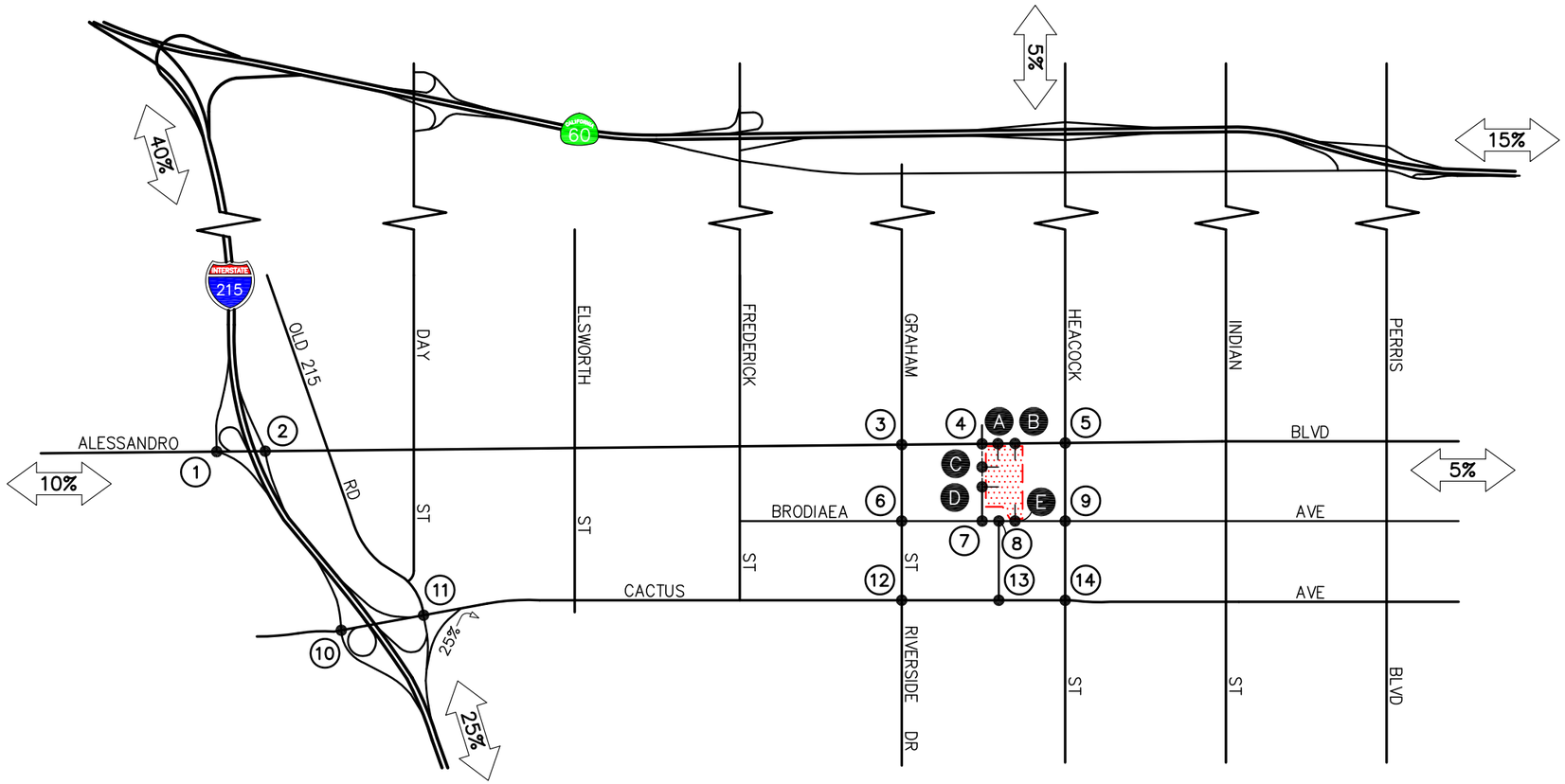
FIGURE 5-1

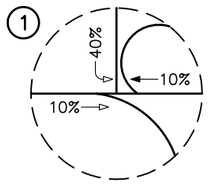
PROJECT TRAFFIC DISTRIBUTION PATTERN – EMPLOYEES

PAMA BUSINESS PARK, MORENO VALLEY

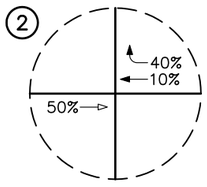
n:\3900\2183972 – pama business park, moreno valley\dwg\3972 f5-1.dwg LDP 17:56:49 06-06-2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

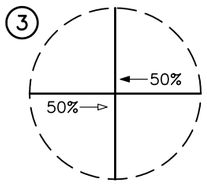




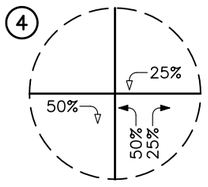
1 I-215 SB RAMPS @ ALESSANDRO BLVD



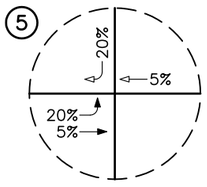
2 I-215 NB RAMPS @ ALESSANDRO BLVD



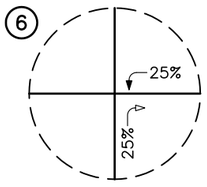
3 GRAHAM ST @ ALESSANDRO BLVD



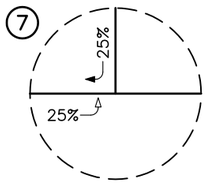
4 ALESSANDRO PLAZA/ REBECCA ST @ ALESSANDRO BLVD



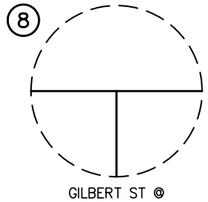
5 HEACOCK ST @ ALESSANDRO BLVD



6 GRAHAM ST @ BRODIAEA AVE

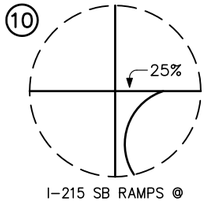


7 REBECCA ST @ BRODIAEA AVE

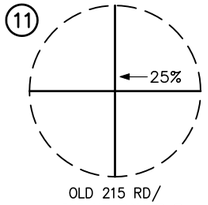


8 GILBERT ST @ BRODIAEA AVE

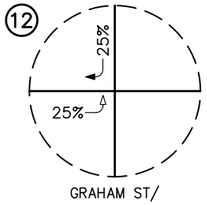
9 HEACOCK ST @ BRODIAEA AVE



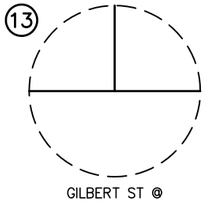
10 I-215 SB RAMPS @ CACTUS AVE



11 OLD 215 RD/ I-215 NB RAMPS @ CACTUS AVE

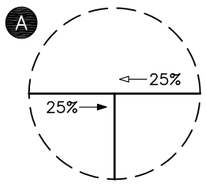


12 GRAHAM ST/ RIVERSIDE DR @ CACTUS AVE

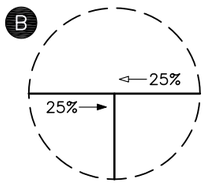


13 GILBERT ST @ CACTUS AVE

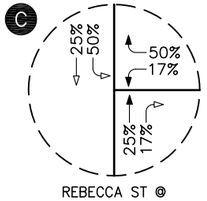
14 HEACOCK ST @ CACTUS AVE



A PROJECT DWY 1 @ ALESSANDRO BLVD

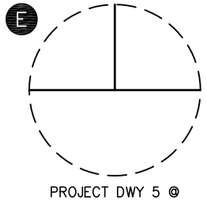


B PROJECT DWY 2 @ ALESSANDRO BLVD



C REBECCA ST @ PROJECT DWY 3

D REBECCA ST @ PROJECT DWY 4



E PROJECT DWY 5 @ BRODIAEA AVE

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION
(#) = FUTURE INTERSECTION
— — = FUTURE ROAD
⟵ = INBOUND PERCENTAGE
⟵ = OUTBOUND PERCENTAGE
= PROJECT SITE

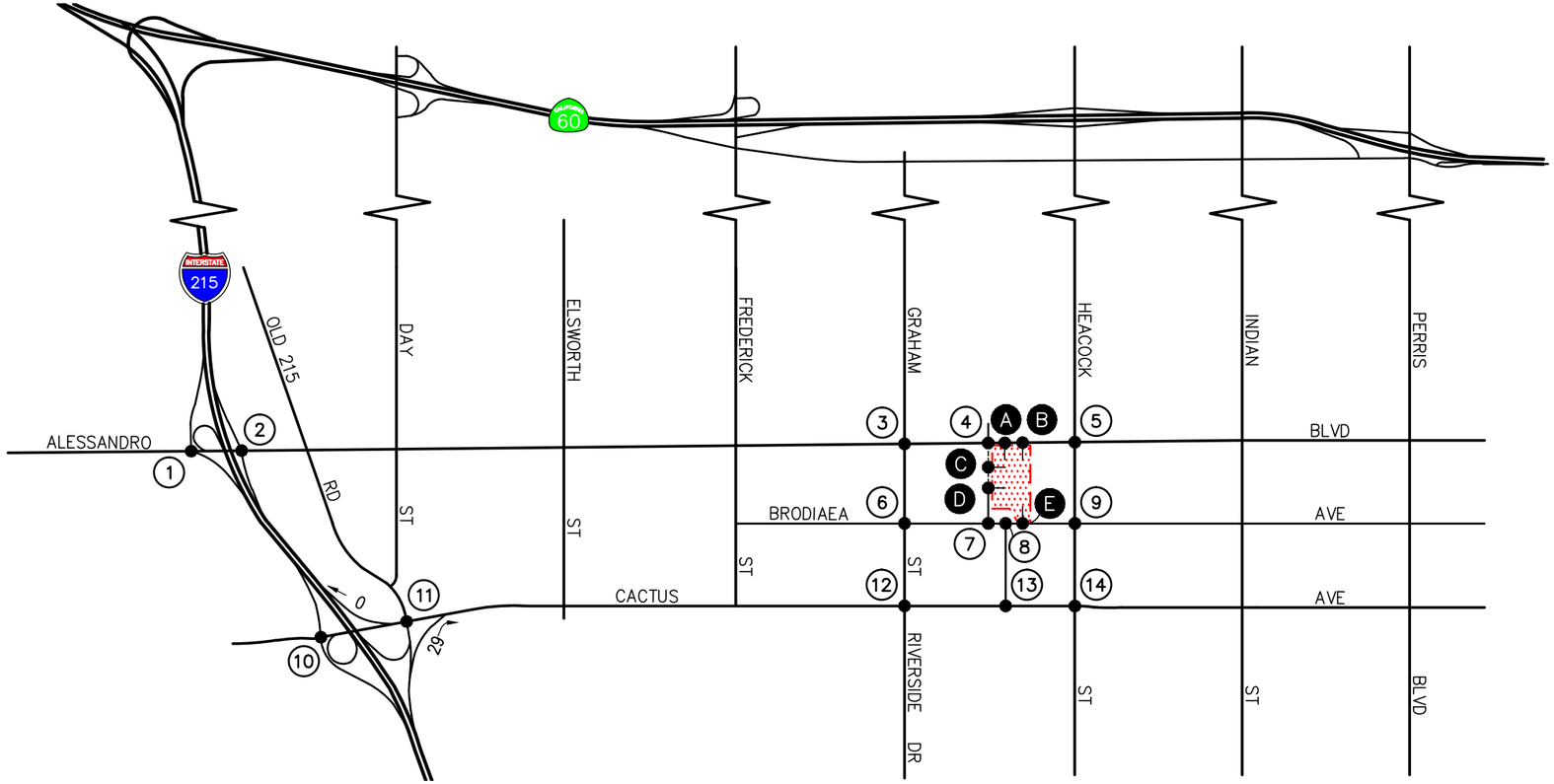
FIGURE 5-2

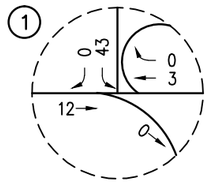
PROJECT TRAFFIC DISTRIBUTION PATTERN – TRUCKS

PAMA BUSINESS PARK, MORENO VALLEY

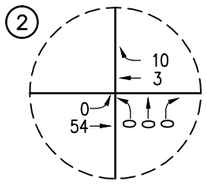
n:\3900\2183972 – pama business park, moreno valley\dwg\3972 f5-2.dwg LDP 17:55:26 06-06-2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

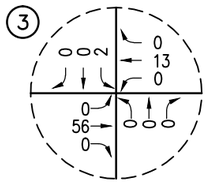




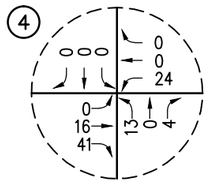
I-215 SB RAMPS @
ALESSANDRO BLVD



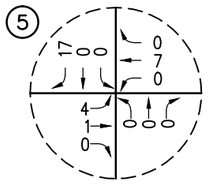
I-215 NB RAMPS @
ALESSANDRO BLVD



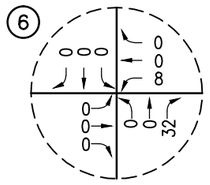
GRAHAM ST @
ALESSANDRO BLVD



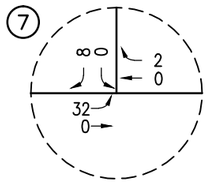
ALESSANDRO PLAZA/
REBECCA ST @
ALESSANDRO BLVD



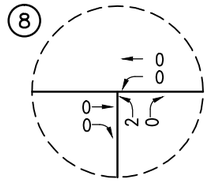
HEACOCK ST @
ALESSANDRO BLVD



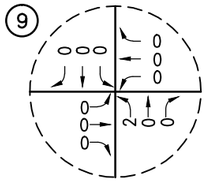
GRAHAM ST @
BRODIAEA AVE



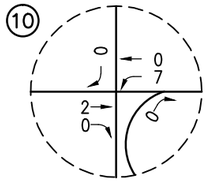
REBECCA ST @
BRODIAEA AVE



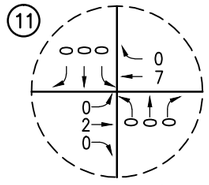
GILBERT ST @
BRODIAEA AVE



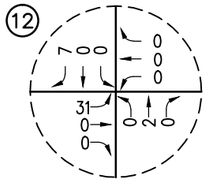
HEACOCK ST @
BRODIAEA AVE



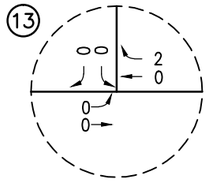
I-215 SB RAMPS @
CACTUS AVE



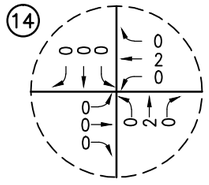
OLD 215 RD/
I-215 NB RAMPS @
CACTUS AVE



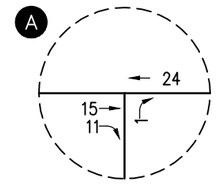
GRAHAM ST/
RIVERSIDE DR @
CACTUS AVE



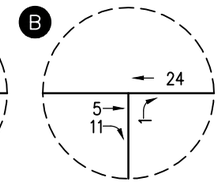
GILBERT ST @
CACTUS AVE



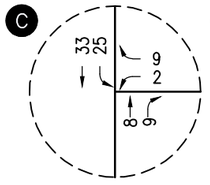
HEACOCK ST @
CACTUS AVE



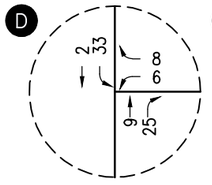
PROJECT DWY 1 @
ALESSANDRO BLVD



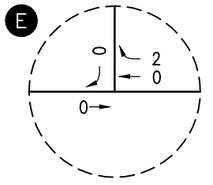
PROJECT DWY 2 @
ALESSANDRO BLVD



REBECCA ST @
PROJECT DWY 3



REBECCA ST @
PROJECT DWY 4



PROJECT DWY 5 @
BRODIAEA AVE

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

(#) = FUTURE INTERSECTION

— — = FUTURE ROAD

= PROJECT SITE

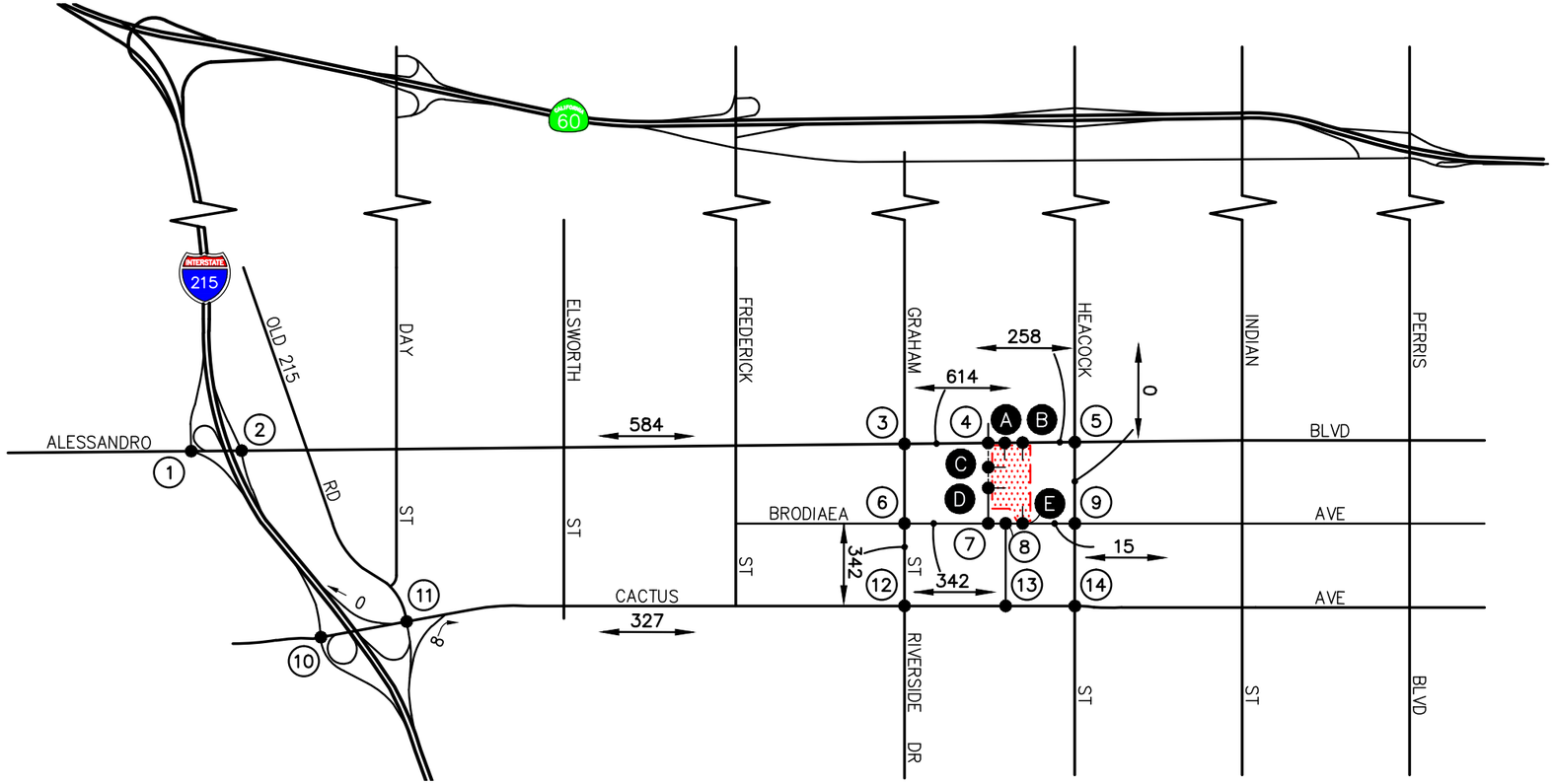
FIGURE 5-3

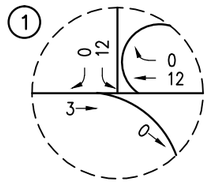
AM PEAK HOUR PROJECT TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY

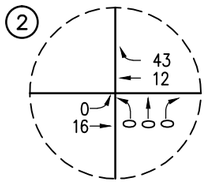
n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f5-3.dwg LDP 13:14:39 06-04-2018 besa

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

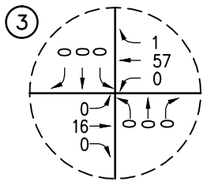




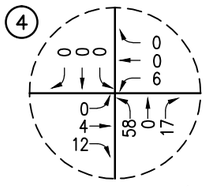
I-215 SB RAMPS @ ALESSANDRO BLVD



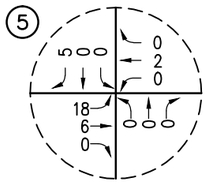
I-215 NB RAMPS @ ALESSANDRO BLVD



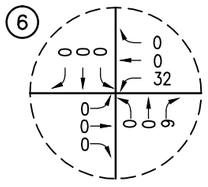
GRAHAM ST @ ALESSANDRO BLVD



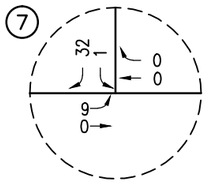
ALESSANDRO PLAZA/ REBECCA ST @ ALESSANDRO BLVD



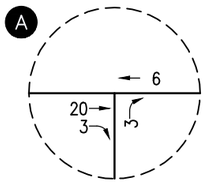
HEACOCK ST @ ALESSANDRO BLVD



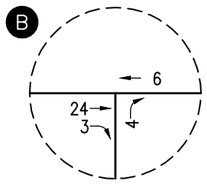
GRAHAM ST @ BRODIAEA AVE



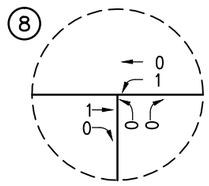
REBECCA ST @ BRODIAEA AVE



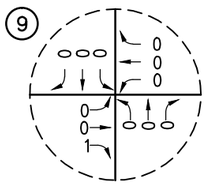
PROJECT DWY 1 @ ALESSANDRO BLVD



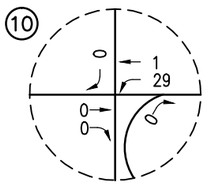
PROJECT DWY 2 @ ALESSANDRO BLVD



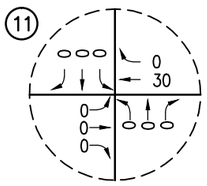
GILBERT ST @ BRODIAEA AVE



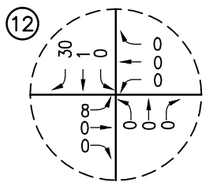
HEACOCK ST @ BRODIAEA AVE



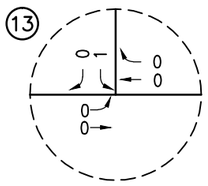
I-215 SB RAMPS @ CACTUS AVE



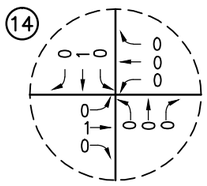
OLD 215 RD/ I-215 NB RAMPS @ CACTUS AVE



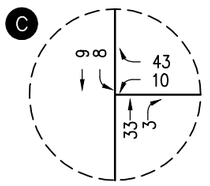
GRAHAM ST/ RIVERSIDE DR @ CACTUS AVE



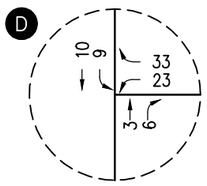
GILBERT ST @ CACTUS AVE



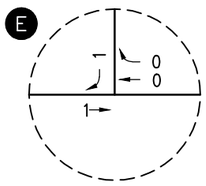
HEACOCK ST @ CACTUS AVE



REBECCA ST @ PROJECT DWY 3



REBECCA ST @ PROJECT DWY 4



PROJECT DWY 5 @ BRODIAEA AVE

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION
(#) = FUTURE INTERSECTION
— — = FUTURE ROAD
XX,XXX = DAILY TRAFFIC VOLUMES
= PROJECT SITE

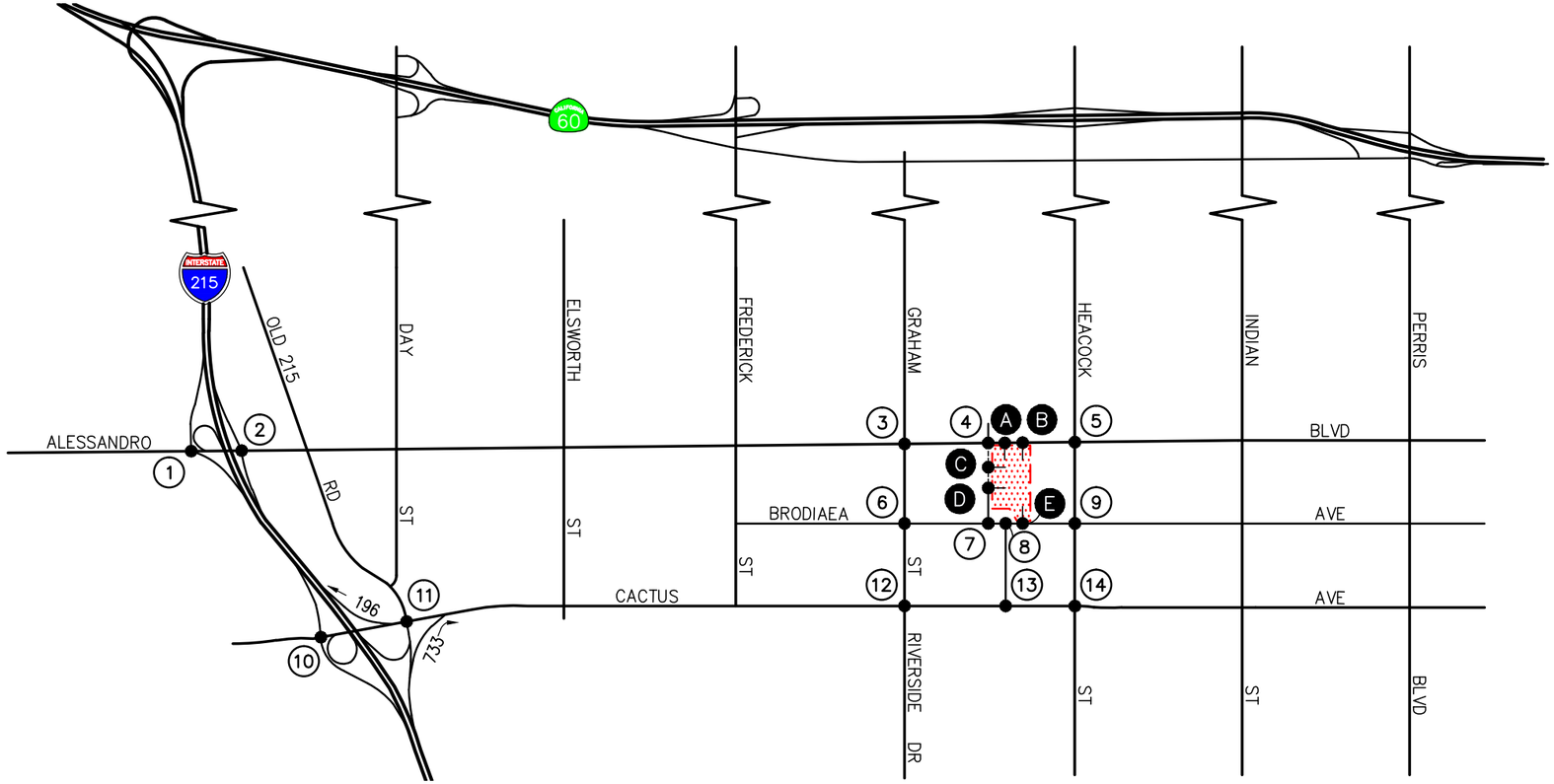
FIGURE 5-4

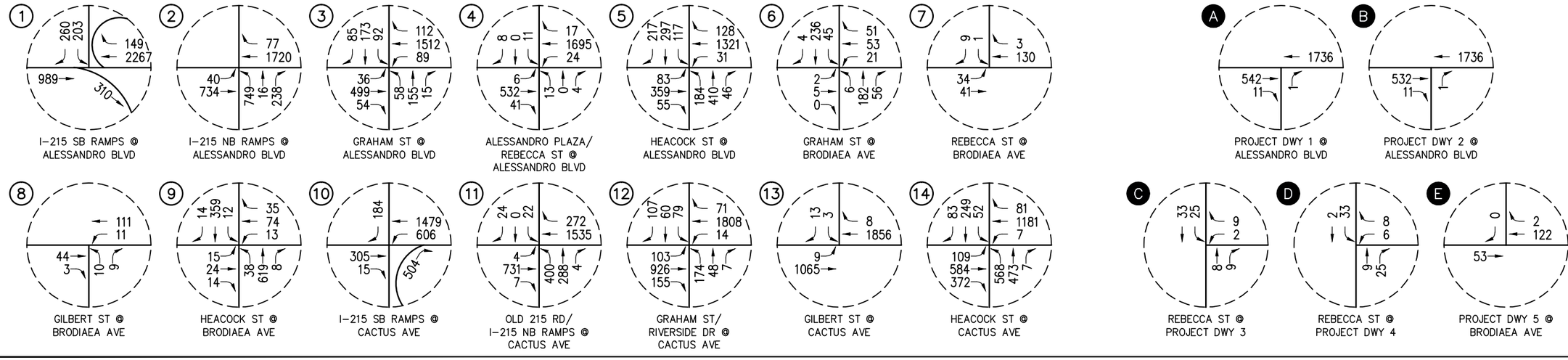
PM PEAK HOUR AND DAILY PROJECT TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY

n:\3900\2183972 - pama business park, moreno valley\dwg\3972 prn base 2.dwg LDP 11:25:14 06-01-2018 besa

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)





n:\3900\2183972 – pama business park, moreno valley\dwg\3972 f5–5.dwg LDP 15:07:17 06–04–2018 besa

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

(#) = FUTURE INTERSECTION

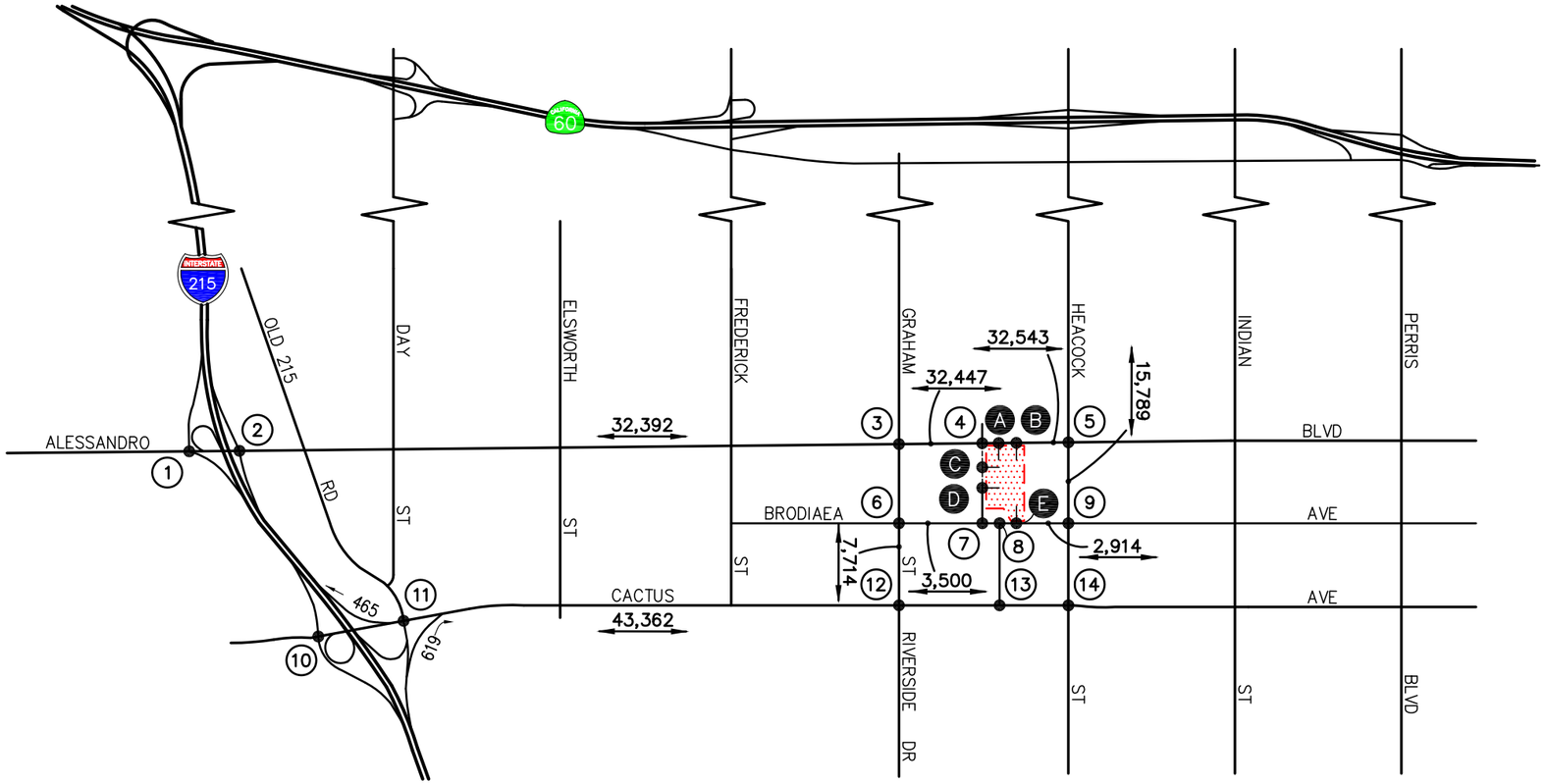
— — = FUTURE ROAD

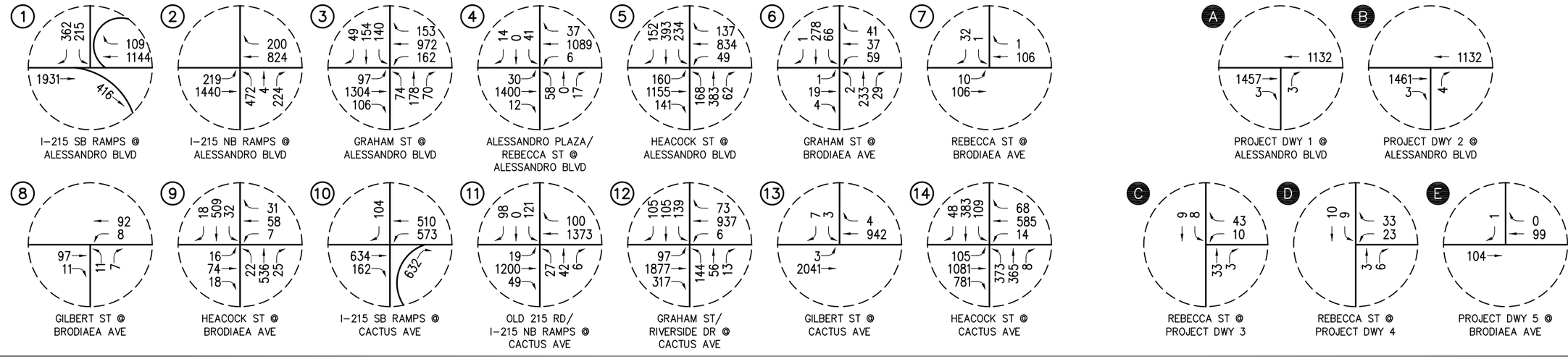
= PROJECT SITE

FIGURE 5–5

EXISTING PLUS PROJECT AM PEAK HOUR TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY





LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION
(#) = FUTURE INTERSECTION
— — = FUTURE ROAD
XX,XXX = DAILY TRAFFIC VOLUMES
= PROJECT SITE

FIGURE 5-6

EXISTING PLUS PROJECT PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY

n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f5-6.dwg LDP 17:43:03 06-06-2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

6.0 FUTURE TRAFFIC CONDITIONS

6.1 Ambient Traffic Growth

Horizon year, background traffic growth estimates have been calculated using an ambient growth factor. The ambient traffic growth factor is intended to include unknown and future cumulative projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. The future growth in traffic volumes has been calculated at two percent (2.0%) per year. Applied to existing Year 2018 traffic volumes results in a ten percent (10.0%) growth in existing volumes to horizon year 2023.

6.2 Cumulative Projects Traffic Characteristics

In order to make a realistic estimate of future on-street conditions prior to implementation of the proposed Project, the status of other known development projects (cumulative projects) within a three-mile radius of the proposed Project has been researched at the City of Moreno Valley, the City of Riverside, the County of Riverside, and the March Joint Powers Authority (March JPA). With this information, the potential impact of the proposed Project can be evaluated within the context of the cumulative impact of all ongoing development. Based on our research, there are fifty (50) cumulative projects in the City of Moreno Valley and four (4) cumulative projects in the March JPA area within a three-mile radius of the Project site. These fifty-four (54) cumulative projects have been included as part of the cumulative background setting.

Table 6-1 provides the location and a brief description for each of the fifty-four (54) cumulative projects. ***Figure 6-1*** graphically illustrates the location of the cumulative projects. These cumulative projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections.

Table 6-2 presents the development totals and resultant trip generation for the cumulative projects. As shown in *Table 6-2*, the cumulative projects are forecast to generate a total of 118,848 daily trips, with 8,895 trips (5,592 inbound and 3,303 outbound) forecast during the AM peak hour and 10,085 trips (3,880 inbound and 6,205 outbound) forecast during the PM peak hour.

The AM and PM peak hour traffic volumes associated with the fifty-four (54) cumulative projects are presented in ***Figures 6-2*** and ***6-3***, respectively. *Figure 6-3* also presents the daily cumulative project traffic volumes.

6.3 Year 2023 Traffic Volumes

Figures 6-4 and ***6-5*** illustrate the Year 2023 forecast AM and PM peak hour Existing Plus Ambient Growth traffic volumes. *Figure 6-5* also presents the Existing Plus Ambient Growth (Year 2023) daily traffic volumes. ***Figures 6-6*** and ***6-7*** illustrate the Year 2023 forecast AM and PM peak hour Existing Plus Ambient Growth traffic volumes, with the inclusion of the trips generated by the proposed Project, respectively. *Figure 6-7* also presents the Existing Plus Ambient Growth (Year 2023) Plus Project daily traffic volumes.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

Figures 6-8 and ***6-9*** illustrate the AM and PM peak hour Year 2023 Cumulative traffic volumes, respectively. *Figure 6-9* also presents the Year 2023 Cumulative daily traffic volumes. ***Figures 6-10*** and ***6-11*** illustrate the Year 2023 Cumulative forecast AM and PM peak hour traffic volumes, with the inclusion of the trips generated by the proposed Project, respectively. *Figure 6-11* also presents the Year 2023 Cumulative Plus Project daily traffic volumes.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 6-1

LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[9]

No.	Cumulative Project	Location	Jurisdiction	Description/Size
1.	The Quarter	NEC of Eucalyptus Avenue at Day Street	Moreno Valley	4,800 SF Medical Office 10,849 SF Retail 1,800 SF Coffee Shop w/ Drive-Tl 1,200 SF Fast-Food Restaurant 12 VHP Gas Station with Convenience Market 112 Room Residence Inn Hotel 104 Room Holiday Inn Hotel
2.	Towngate Square	North of Eucalyptus Ave, east of The Quarter Project	Moreno Valley	104 Room Fairfield Inn Hotel
3.	Towngate Crossing	South of SR-60, east of Day Street	Moreno Valley	8,847 SF Sit 'n Sleep Retail
4.	Country Inn and Suites	NEC of Olive Wood Plaza Dr and Sunnymead Blvd	Moreno Valley	65 Room Country Inn and Suites Hotel
5.	Riverside University Health System Expansion	NWC of Nason Street and Cactus Avenue	Moreno Valley	34,759 SF Medical Office
6.	Meridian North Campus Specific Plan Amendment	Generally bound by Alessandro Blvd, Van Buren Blvd, I-215, and Meridian Pkwy	March Air Reserve Base	257.7 Acres Mixed-Use, including Business Park, Commercial, Industrial, Office, Public Facility, Park/Open Space Uses
7.	Meridian West Campus Lower Plateau	West of Meridian North Campus along Meridian Pkwy	March Air Reserve Base	130 Acres Mixed-Use, including Industrial and Business Park Uses
8.	March LifeCare Medical Campus	Generally bound by Cactus Ave, "N" St, Riverside Dr, and Heacock St	March Air Reserve Base	236 Acres Mixed-Use, including Hospital, Medical Office, Researcl and Development, Commercial, Critical Care Lodging, Wellness Center, and Senior Continuum Use
9.	Freeway Business Center	SWC of Alessandro Boulevard and Old 215 Frontage Road	March Air Reserve Base	709,083 SF High-Cube Warehouse
10.	World Logistics Center Specific Plan	Generally South of SR-60, east of Redland Blvd, west of Gilman Springs Rd, and north of Cactus Ave	Moreno Valley	40,600,000 SF of Logistics Warehouse Uses
11.	Brodiaea Business Center (Core 5)	SWC of Heacock Street and Brodiaea Avenue	Moreno Valley	99,987 SF Industrial Park
12.	Cactus Commerce Center (Industrial Only)	SEC of Commerce Center Drive and Goldencrest Drive	Moreno Valley	48,258 SF General Light Industria
13.	Gateway Business Park	SWC of Day Street and Alessandro Boulevard	Moreno Valley	184,000 SF Industrial Park

[9] Source: City of Moreno Valley and March Joint Powers Authority.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 6-1 (CONTINUED)
LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[10]

No.	Cumulative Project	Location	Jurisdiction	Description/Size
14.	MV Industrial Park (Rados)	NEC of Heacock Street and Iris Avenue	Moreno Valley	207,086 SF Industrial Park
15.	Prologis Muranaka	SWC of Indian Street and Krameria Avenue	Moreno Valley	1,702,518 SF Industrial Park
16.	Tract 32710	SEC of Heacock Street and Gregory Lane	Moreno Valley	6 DU Single-Family
17.	Tract 36761	SEC of Davis Street and Dunlavy Court	Moreno Valley	7 DU Single-Family
18.	Tract 32710	SWC of Perris Boulevard and Metric Drive	Moreno Valley	12 DU Single-Family
19.	Tract 35606	SEC of Perris Boulevard and Lamia Avenue	Moreno Valley	16 DU Single-Family
20.	PEN 17-0096	SEC of Indian Street and Ironwood Avenue	Moreno Valley	4 DU Single-Family
21.	Tract 35956	NWC of Perris Boulevard and Ironwood Avenue	Moreno Valley	2 DU Single-Family
22.	Tract 31297	East of Perris Blvd, between Lamia Ave and Ironwood Ave	Moreno Valley	7 DU Single-Family
23.	Tract 34043	West of Kitching St, between Fir Ave and Eucalyptus Ave	Moreno Valley	12 DU Single-Family
24.	Tract 37060	SEC of Lasselle Street and Cottonwood Avenue	Moreno Valley	16 DU Single-Family
25.	Tract 32556	East of Heacock St, between Meyer Dr and Gentian Ave	Moreno Valley	32 DU Single-Family
26.	Tract 34748	SEC of Heacock Street and Gentian Avenue	Moreno Valley	135 DU Single-Family
27.	Tract 36760	South of Gentian Ave, between Indian Street and Perris Blvd	Moreno Valley	221 DU Single-Family
28.	Tract 22180	North of Gentian Ave, between Indian St and Perris Blvd	Moreno Valley	140 DU Single-Family
29.	PEN 18-0042	SEC of Indian Street and Krameria Avenue	Moreno Valley	2 DU Single-Family
30.	Tract 33024	SEC of Indian Street and Krameria Avenue	Moreno Valley	8 DU Single-Family
31.	Tract 32716	NEC of Indian Street and Mariposa Avenue	Moreno Valley	57 DU Single-Family

[10] Source: City of Moreno Valley and March Joint Powers Authority.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 6-1 (CONTINUED)
LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[11]

No.	Cumulative Project	Location	Jurisdiction	Description/Size
32.	Tract 31442	NWC of Perris Boulevard and Mariposa Avenue	Moreno Valley	63 DU Single-Family
33.	PEN 16-0064	NWC of Edgemont Street and Dracaea Avenue	Moreno Valley	18 DU Multi-Family
34.	PA 14-0027	NWC of Webb Street and Hemlock Avenue	Moreno Valley	39 DU Multi-Family
35.	Tract 32215	NEC of Elsworth Street and Cottonwood Avenue	Moreno Valley	194 DU Multi-Family
36.	Tract 33771	SEC of Heacock Street and Sunnymead Boulevard	Moreno Valley	12 DU Multi-Family
37.	PEN 16-0066	North of Fir Avenue, between Heacock St and Indian St	Moreno Valley	20 DU Multi-Family
38.	Tract 35663	South of Sunnymead Blvd, btwn Heacock St and Indian St	Moreno Valley	12 DU Multi-Family
39.	PEN 16-0060	NEC of Indian Street and Fir Avenue	Moreno Valley	24 DU Multi-Family
40.	Tract 31814	South of Sunnymead Blvd and north of Todd Drive	Moreno Valley	60 DU Multi-Family
41.	Tract 35369	North of Meyers Ave, between Indian St and Perris Blvd	Moreno Valley	12 DU Multi-Family
42.	Tract 35769	NEC of Heacock Street and Eucalyptus Avenue	Moreno Valley	16 DU Multi-Family
43.	PA 09-0006	SEC of Heacock Street and Eucalyptus Avenue	Moreno Valley	15 DU Multi-Family
44.	Tract 35304	SWC of Perris Boulevard and Eucalyptus Avenue	Moreno Valley	12 DU Multi-Family
45.	PEN 16-0039	SEC of Perris Blvd and Alessandro Blvd	Moreno Valley	272 DU Multi-Family
46.	Tract 34216	NEC of Kitching Street and Alessandro Boulevard	Moreno Valley	39 DU Multi-Family
47.	Tract 35429	NEC of Kitching Street and Alessandro Boulevard	Moreno Valley	58 DU Multi-Family
48.	Tract 35304	SWC of Lasselle Street and Alessandro Boulevard	Moreno Valley	24 DU Multi-Family
49.	Tract 34681	SWC of Lasselle Street and Alessandro Boulevard	Moreno Valley	49 DU Multi-Family

[11] Source: City of Moreno Valley and March Joint Powers Authority.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 6-1 (CONTINUED)

LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[12]

No.	Cumulative Project	Location	Jurisdiction	Description/Size
50.	PA 13-0006	SEC of Lasselle Street and Alessandro Boulevard	Moreno Valley	141 DU Multi-Family
51.	PA 15-0046	SEC of Lasselle Street and Alessandro Boulevard	Moreno Valley	426 DU Multi-Family
52.	PEN 16-0123	SEC of Lasselle Street and Brodiaea Avenue	Moreno Valley	220 DU Multi-Family
53.	Tract 33607	NEC of Perris Boulevard and Delphinium Avenue	Moreno Valley	52 DU Multi-Family
54.	Tract 36708	NWC of Perris Boulevard and Delphinium Avenue	Moreno Valley	122 DU Multi-Family

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

[12] Source: City of Moreno Valley and March Joint Powers Authority.

TABLE 6-2

CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST[13]

	Cumulative Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Tot
1.	The Quarter[14]	5,232	160	120	280	152	167	319
2.	Towngate Square	869	29	20	49	32	30	62
3.	Towngate Crossing	42	1	1	2	1	1	2
4.	Country Inn and Suites	543	18	13	31	20	19	39
5.	Riverside University Health System Expansion	1,210	76	21	97	34	86	120
6.	Meridian North Campus Specific Plan Amendment[15]	5,042	154	191	345	103	155	258
7.	Meridian West Campus Lower Plateau[16]	10,269	789	174	963	213	809	1,02
8.	March LifeCare Medical Campus[17]	14,955	579	208	787	436	744	1,18
9.	Freeway Business Center[18]	1,869	76	34	110	39	88	127
10.	World Logistics Center Specific Plan[19]	50,753	2,638	1,286	3,924	1,554	2,732	4,28
11.	Brodiaea Business Center (Core 5)	337	32	8	40	8	32	40
12.	Cactus Commerce Center (Industrial Only)	239	30	4	34	4	26	30
13.	Gateway Business Park	620	60	14	74	16	58	74
14.	MV Industrial Park (Rados)	698	67	16	83	17	66	83
15.	Prologis Muranaka	5,737	552	129	681	143	538	681
16.	Tract 32710	57	1	3	4	4	2	6
17.	Tract 36761	66	1	4	5	4	3	7
18.	Tract 32710	113	2	7	9	8	4	12
19.	Tract 35606	151	3	9	12	10	6	16
20.	PEN 17-0096	38	1	2	3	3	1	4
21.	Tract 35956	19	0	1	1	1	1	2
22.	Tract 31297	66	1	4	5	4	3	7
23.	Tract 34043	113	2	7	9	8	4	12

[13] Unless otherwise noted; Source: *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017). Where applicable, pass-by & internal capture adjustment factors were utilized and are reflected in the cumulative projects trip generation potential.

[14] Source: *Traffic Impact Analysis Report for BCCMS Mixed Use Development*, prepared by LLG Engineers, dated March 2, 2016.

[15] Source: *Traffic Impact Analysis for Meridian Specific Plan Amendment (SPA)*, prepared by Kimley-Horn and Associates, Inc., dated April 2010. Based on existing fieldwork, the majority of the Specific Plan area has been developed. Thus, only 20% of the total proposed Meridian North Campus SPA increase has been assumed in this analysis.

[16] Source: *Traffic Impact Analysis for Meridian Business Park (West Campus)*, prepared by Urban Crossroads, dated May 9, 2017.

[17] Source: *Traffic Impact Analysis for March LifeCare Campus Master Plan*, prepared by Mountain Pacific, Inc., dated June 2011. It has been assumed that only Phase I will be completed by the near-term Year 2023 in this analysis.

[18] Source: *Traffic Impact Analysis for Freeway Business Center*, prepared by Urban Crossroads, dated March 25, 2015.

[19] Source: *Traffic Impact Analysis Report for The World Logistics Center*, prepared by Parson Brickerhoff, Inc., dated September 2014. It should be noted that Phase I is expected to be completed by Year 2022 [approximately 50% of the total development (i.e. 20,300,000 SF)] and Phase II is expected to be completed by Year 2030 (the remaining 50%). As such, only the Phase I trips have been accounted for in this analysis.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 6-2 (CONTINUED)

CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST[20]

	Cumulative Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Tot
24.	Tract 37060	151	3	9	12	10	6	16
25.	Tract 32556	302	6	18	24	20	12	32
26.	Tract 34748	1,274	25	75	100	84	50	134
27.	Tract 36760	2,086	41	123	164	138	81	219
28.	Tract 22180	1,322	26	78	104	88	51	139
29.	PEN 18-0042	19	0	1	1	1	1	2
30.	Tract 33024	76	2	4	6	5	3	8
31.	Tract 32716	538	11	31	42	35	21	56
32.	Tract 31442	595	12	35	47	39	23	62
33.	PEN 16-0064	132	2	6	8	6	4	10
34.	PA 14-0027	285	4	14	18	14	8	22
35.	Tract 32215	1,420	20	69	89	69	40	109
36.	Tract 33771	88	1	5	6	4	3	7
37.	PEN 16-0066	146	2	7	9	7	4	11
38.	Tract 35663	88	1	5	6	4	3	7
39.	PEN 16-0060	176	3	8	11	8	5	13
40.	Tract 31814	439	6	22	28	21	13	34
41.	Tract 35369	88	1	5	6	4	3	7
42.	Tract 35769	117	2	5	7	6	3	9
43.	PA 09-0006	110	2	5	7	5	3	8
44.	Tract 35304	88	1	5	6	4	3	7
45.	PEN 16-0039	1,991	29	96	125	96	56	152
46.	Tract 34216	285	4	14	18	14	8	22
47.	Tract 35429	425	6	21	27	20	12	32
48.	Tract 35304	176	3	8	11	8	5	13
49.	Tract 34681	359	5	18	23	17	10	27
50.	PA 13-0006	1,032	15	50	65	50	29	79
51.	PA 15-0046	3,118	45	151	196	151	88	239

[20] Unless otherwise noted; Source: *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017). Where applicable, pass-by & internal capture adjustment factors were utilized and are reflected in the cumulative projects trip generation potential.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

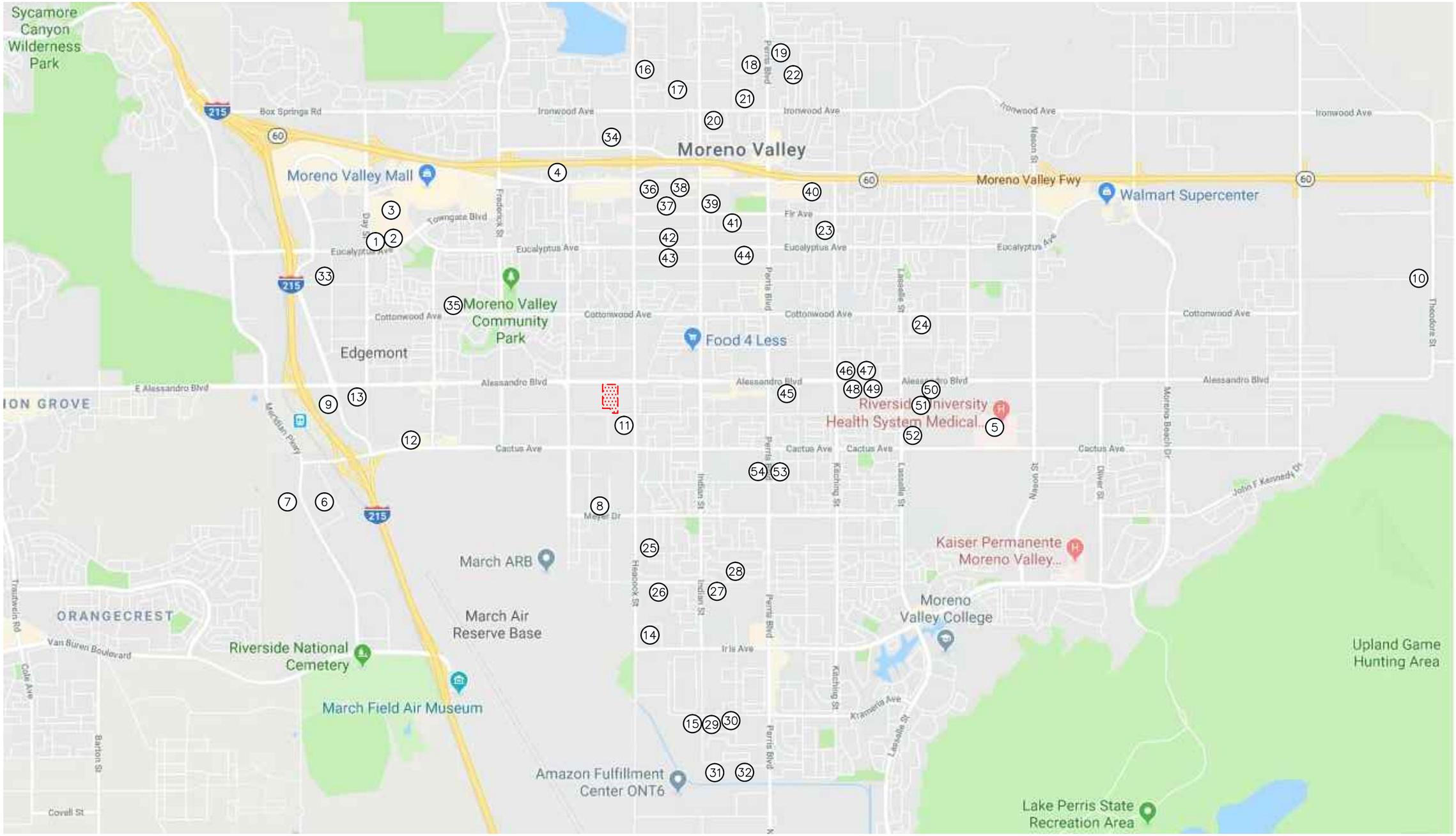
TABLE 6-2 (CONTINUED)

CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST[21]

Cumulative Project Description		Daily 2-Way	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Tot
52.	PEN 16-0123	1,610	23	78	101	77	46	123
53.	Tract 33607	381	6	18	24	18	11	29
54.	Tract 36708	893	13	43	56	43	25	68
Cumulative Projects Total Trip Generation Potential		**118,848**	**5,592**	**3,303**	**8,895**	**3,880**	**6,205**	**10,0**

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

[21] Unless otherwise noted; Source: *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017). Where applicable, pass-by & internal capture adjustment factors were utilized and are reflected in the cumulative projects trip generation potential.



n:\3900\2183972 – pama business park, moreno valley\dwg\3972 f6-1.dwg LDP 17:41:13 05-22-2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

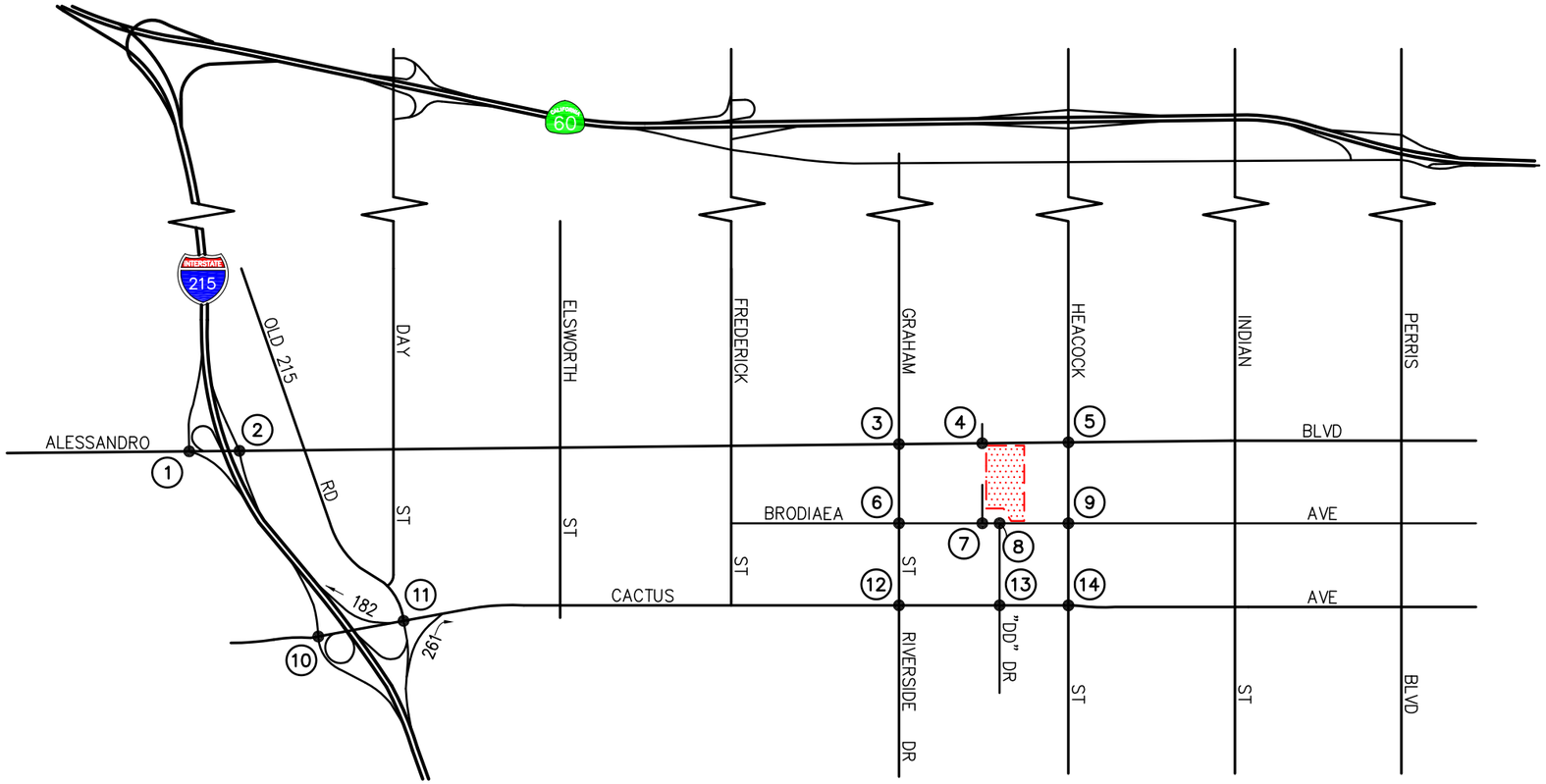
(#) = CUMULATIVE PROJECT LOCATION

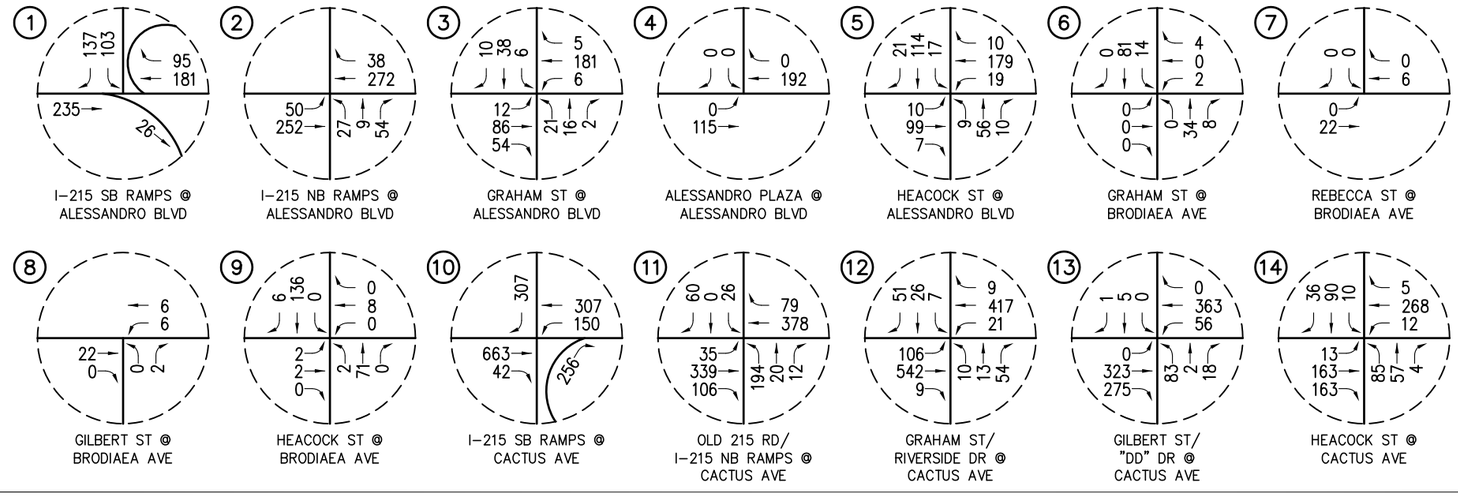
= PROJECT SITE

FIGURE 6-1

LOCATION OF CUMULATIVE PROJECTS

PAMA BUSINESS PARK, MORENO VALLEY





n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f6-2.dwg LDP 17:45:18 06-06-2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

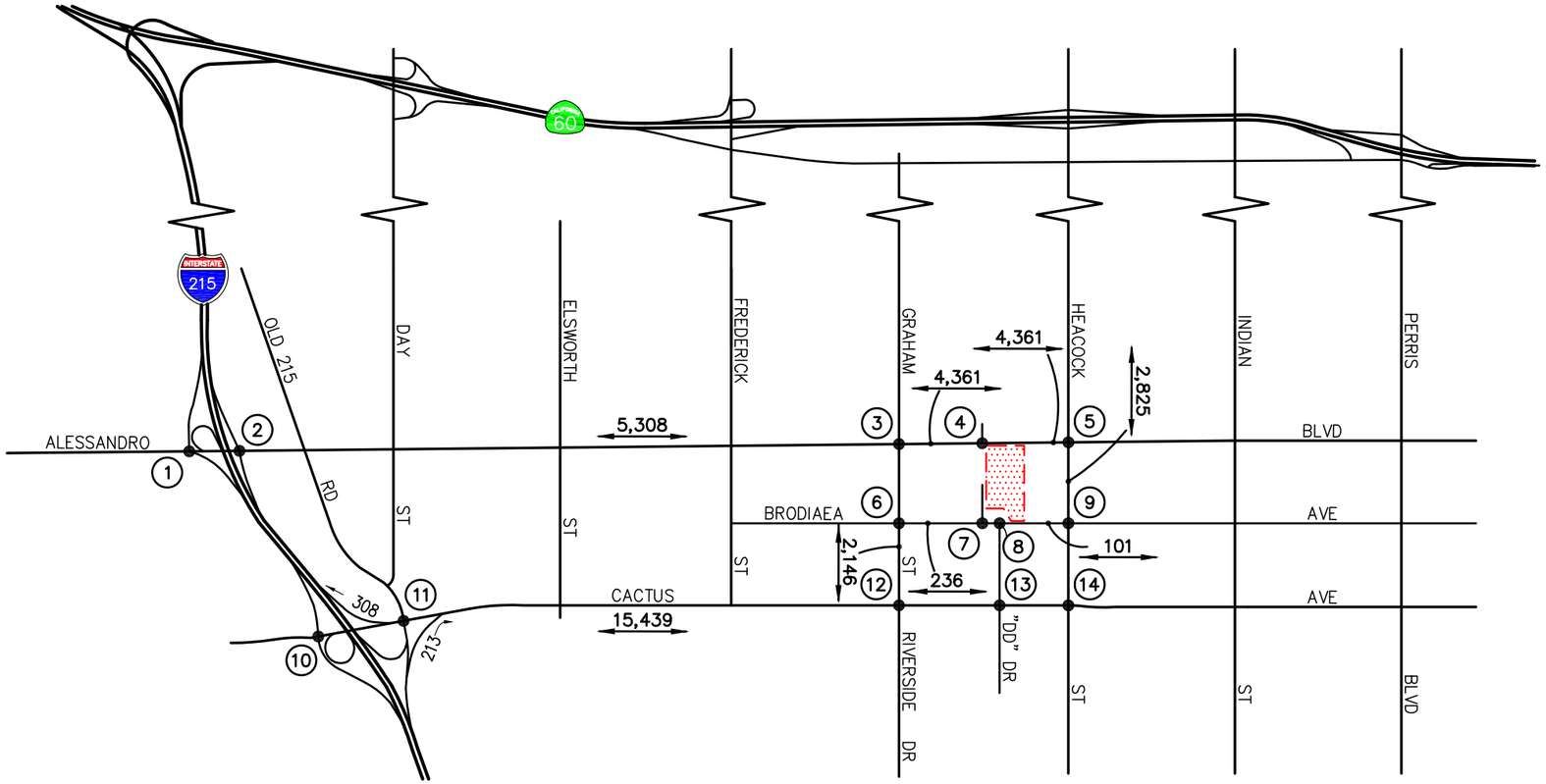
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6-2

AM PEAK HOUR CUMULATIVE PROJECTS TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY



n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f6-3.dwg LDP 17:46:07 06-06-2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

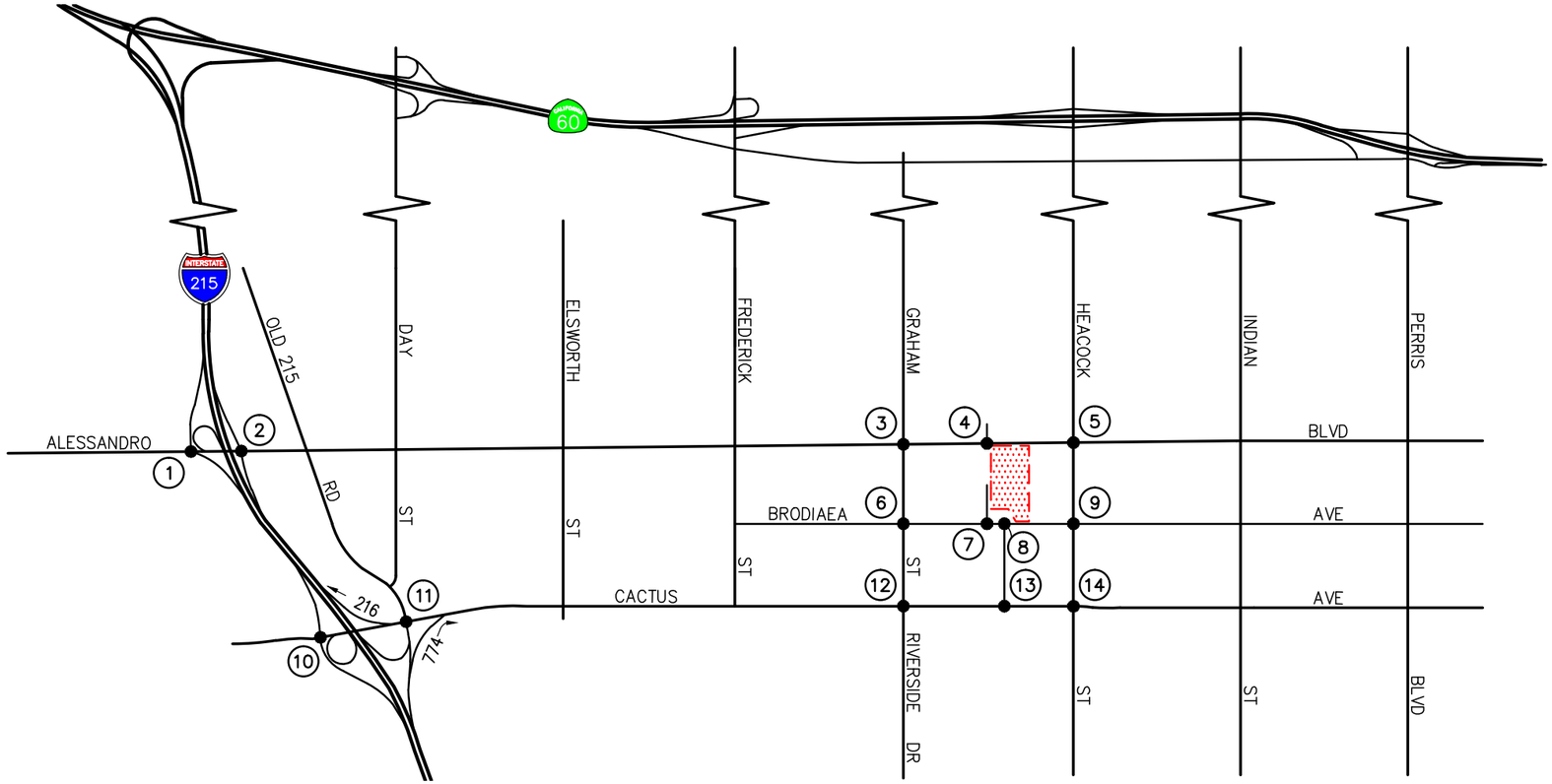
XX,XXX = DAILY TRAFFIC VOLUMES

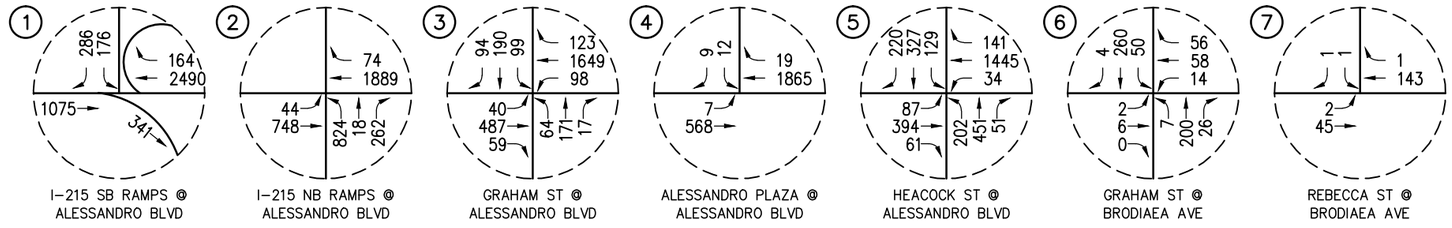
= PROJECT SITE

FIGURE 6-3

PM PEAK HOUR AND DAILY CUMULATIVE PROJECTS TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY





n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f6-4.dwg LDP 14:05:11 06-04-2018 besa

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

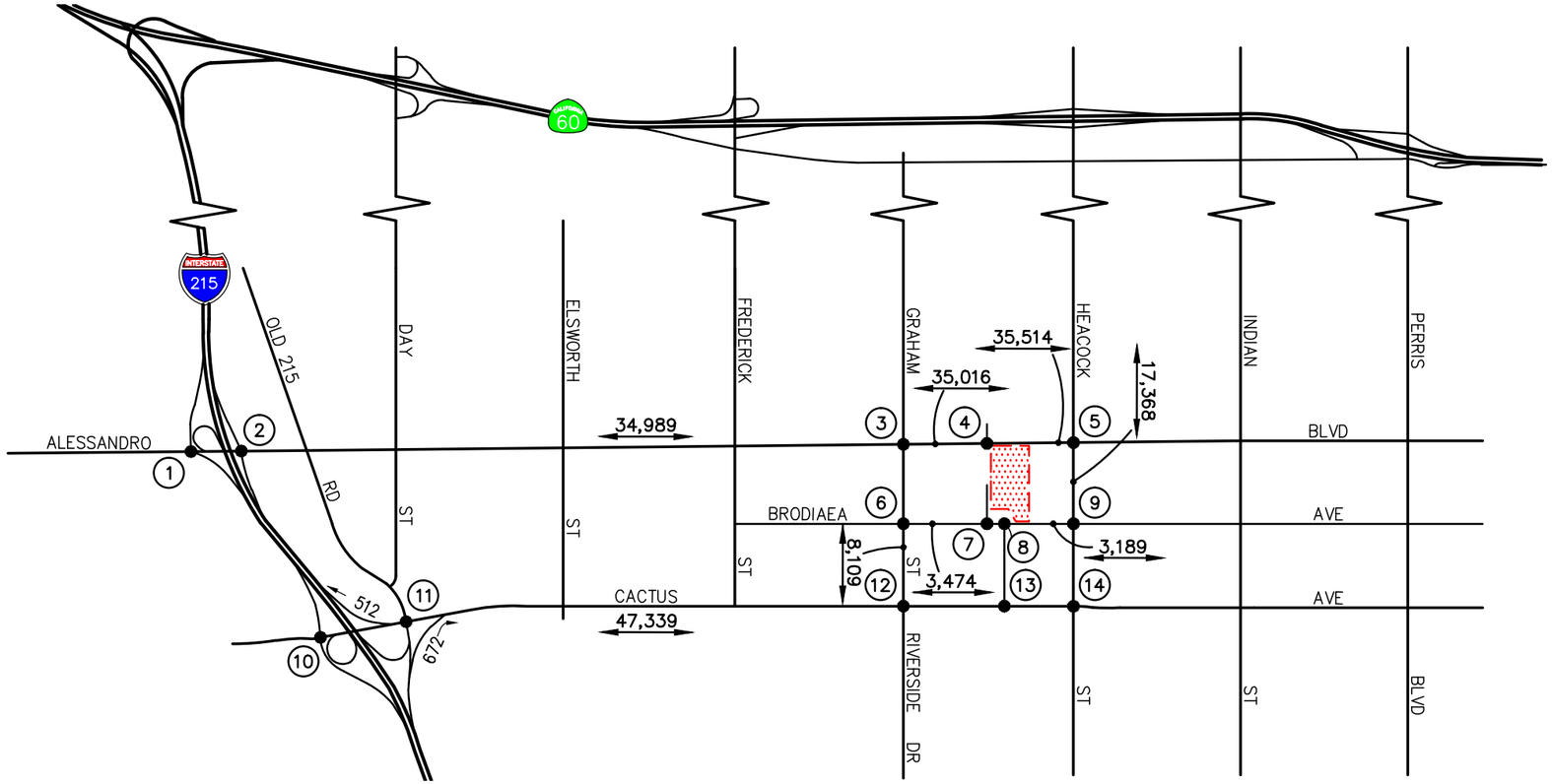
(#) = STUDY INTERSECTION

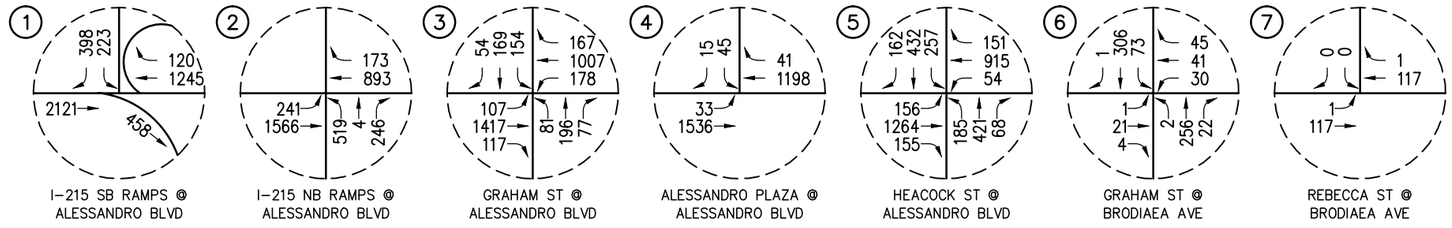
= PROJECT SITE

FIGURE 6-4

EXISTING PLUS AMBIENT GROWTH AM PEAK HOUR TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY





n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f6-5.dwg LDP 14:10:47 06-04-2018 besa

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

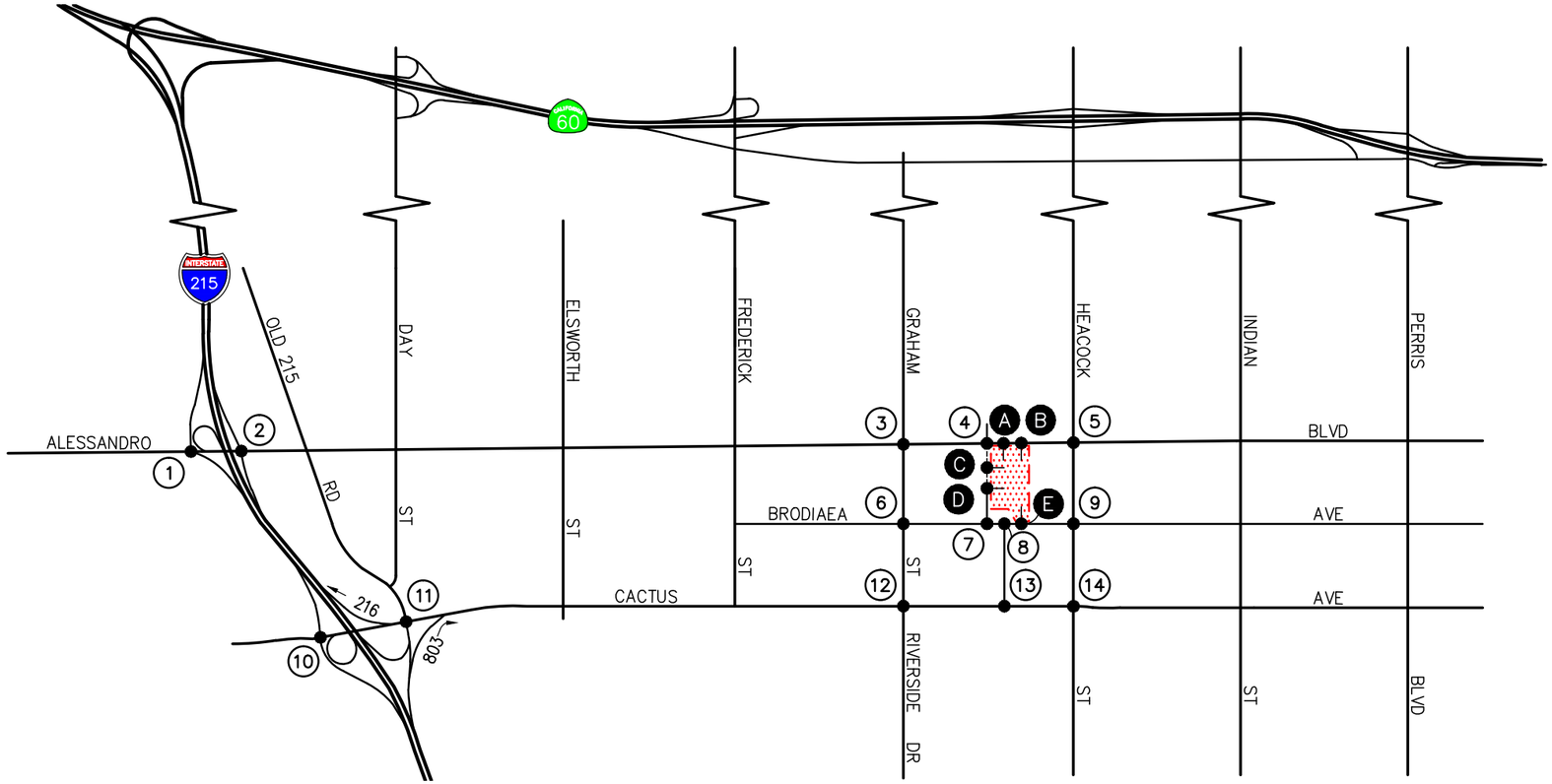
(#) = STUDY INTERSECTION

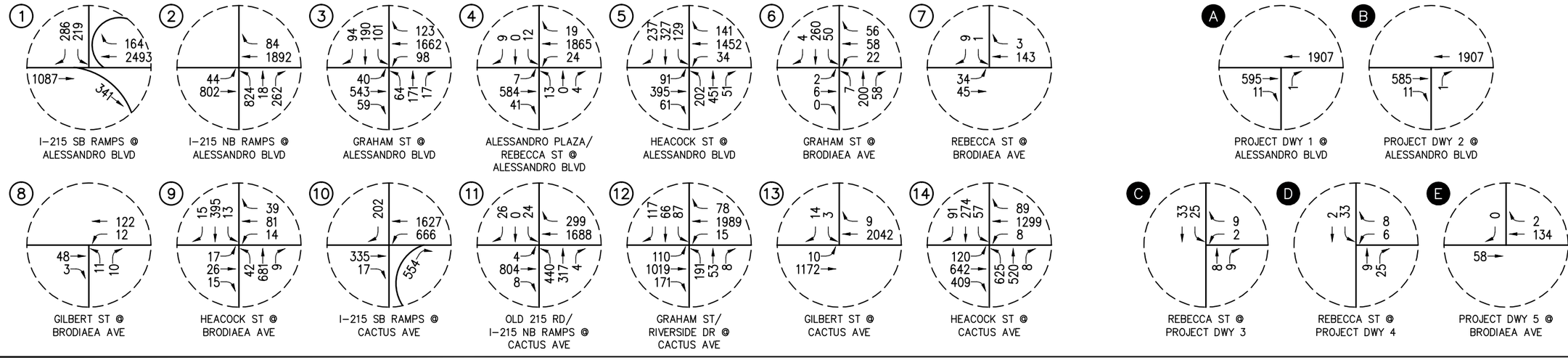
XX,XXX = DAILY TRAFFIC VOLUMES

= PROJECT SITE

FIGURE 6-5

EXISTING PLUS AMBIENT GROWTH
PM PEAK HOUR AND DAILY TRAFFIC VOLUMES
PAMA BUSINESS PARK, MORENO VALLEY





n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f6-6.dwg LDP 14:14:33 06-04-2018 besa

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

(#) = FUTURE INTERSECTION

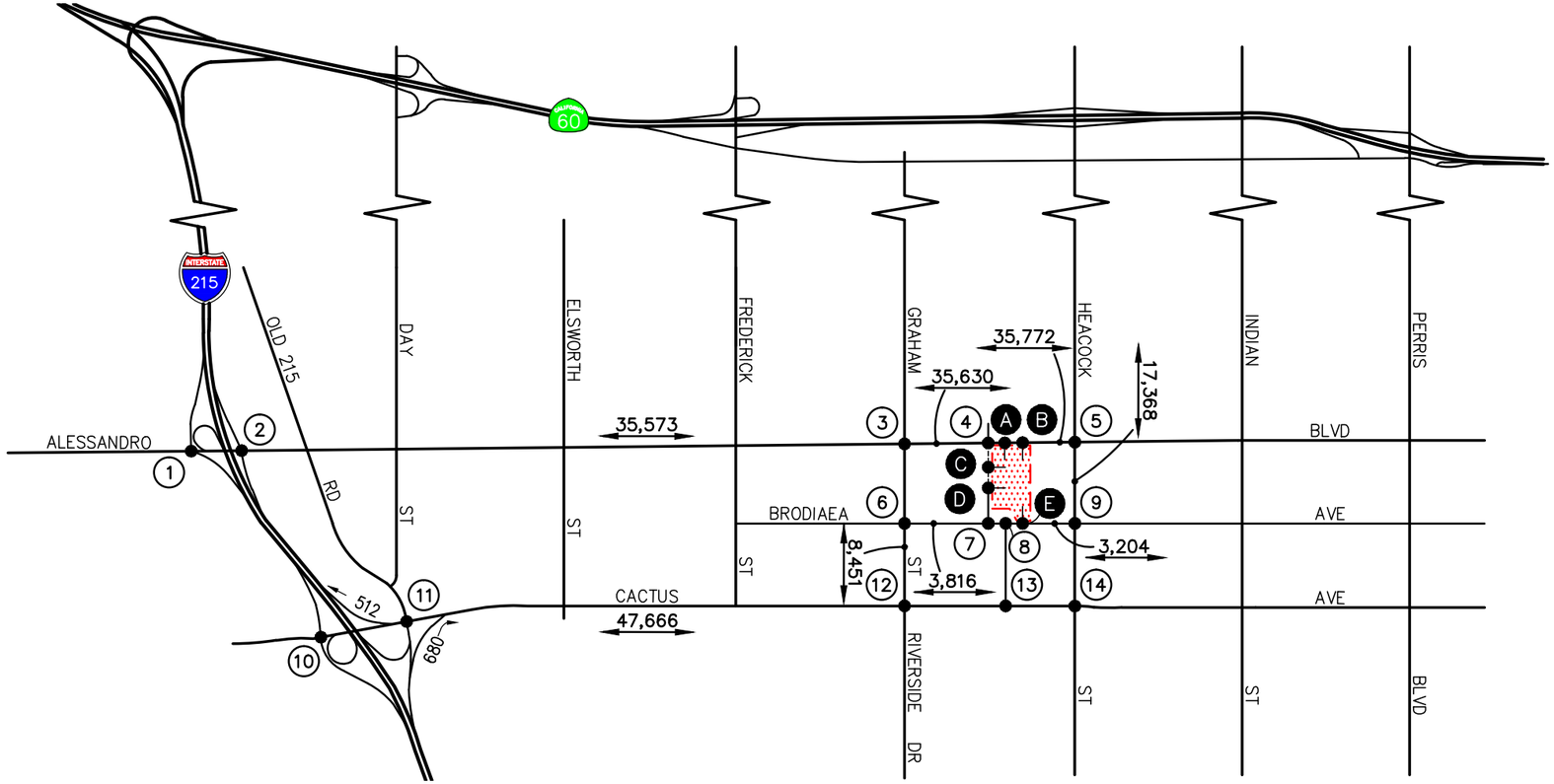
— — = FUTURE ROAD

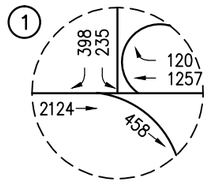
= PROJECT SITE

FIGURE 6-6

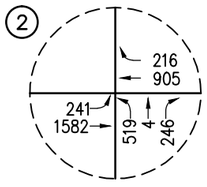
EXISTING PLUS AMBIENT GROWTH PLUS PROJECT AM PEAK HOUR TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY

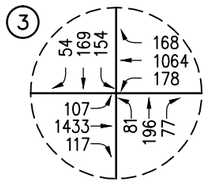




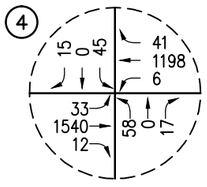
I–215 SB RAMPS @
ALESSANDRO BLVD



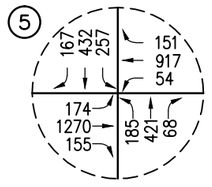
I–215 NB RAMPS @
ALESSANDRO BLVD



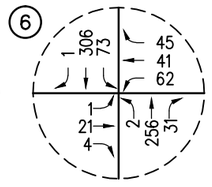
GRAHAM ST @
ALESSANDRO BLVD



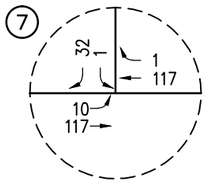
ALESSANDRO PLAZA/
REBECCA ST @
ALESSANDRO BLVD



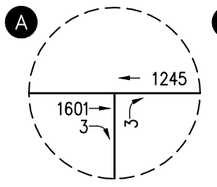
HEACOCK ST @
ALESSANDRO BLVD



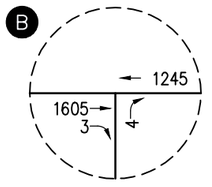
GRAHAM ST @
BRODIAEA AVE



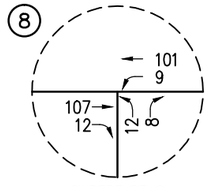
REBECCA ST @
BRODIAEA AVE



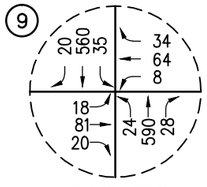
PROJECT DWY 1 @
ALESSANDRO BLVD



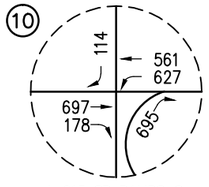
PROJECT DWY 2 @
ALESSANDRO BLVD



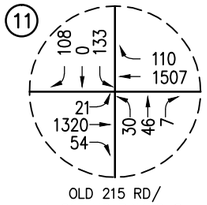
GILBERT ST @
BRODIAEA AVE



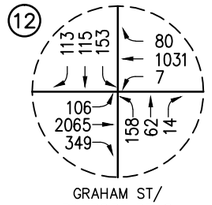
HEACOCK ST @
BRODIAEA AVE



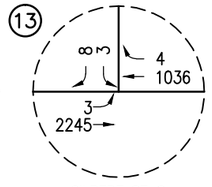
I–215 SB RAMPS @
CACTUS AVE



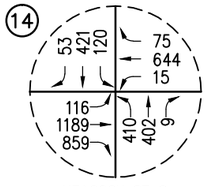
OLD 215 RD/
I–215 NB RAMPS @
CACTUS AVE



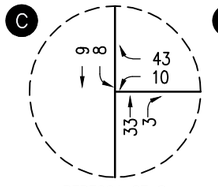
GRAHAM ST/
RIVERSIDE DR @
CACTUS AVE



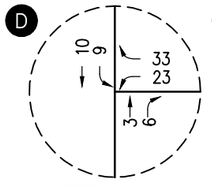
GILBERT ST @
CACTUS AVE



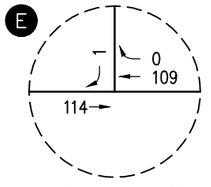
HEACOCK ST @
CACTUS AVE



REBECCA ST @
PROJECT DWY 3



REBECCA ST @
PROJECT DWY 4



PROJECT DWY 5 @
BRODIAEA AVE

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

(#) = FUTURE INTERSECTION

— — = FUTURE ROAD

XX,XXX = DAILY TRAFFIC VOLUMES

= PROJECT SITE

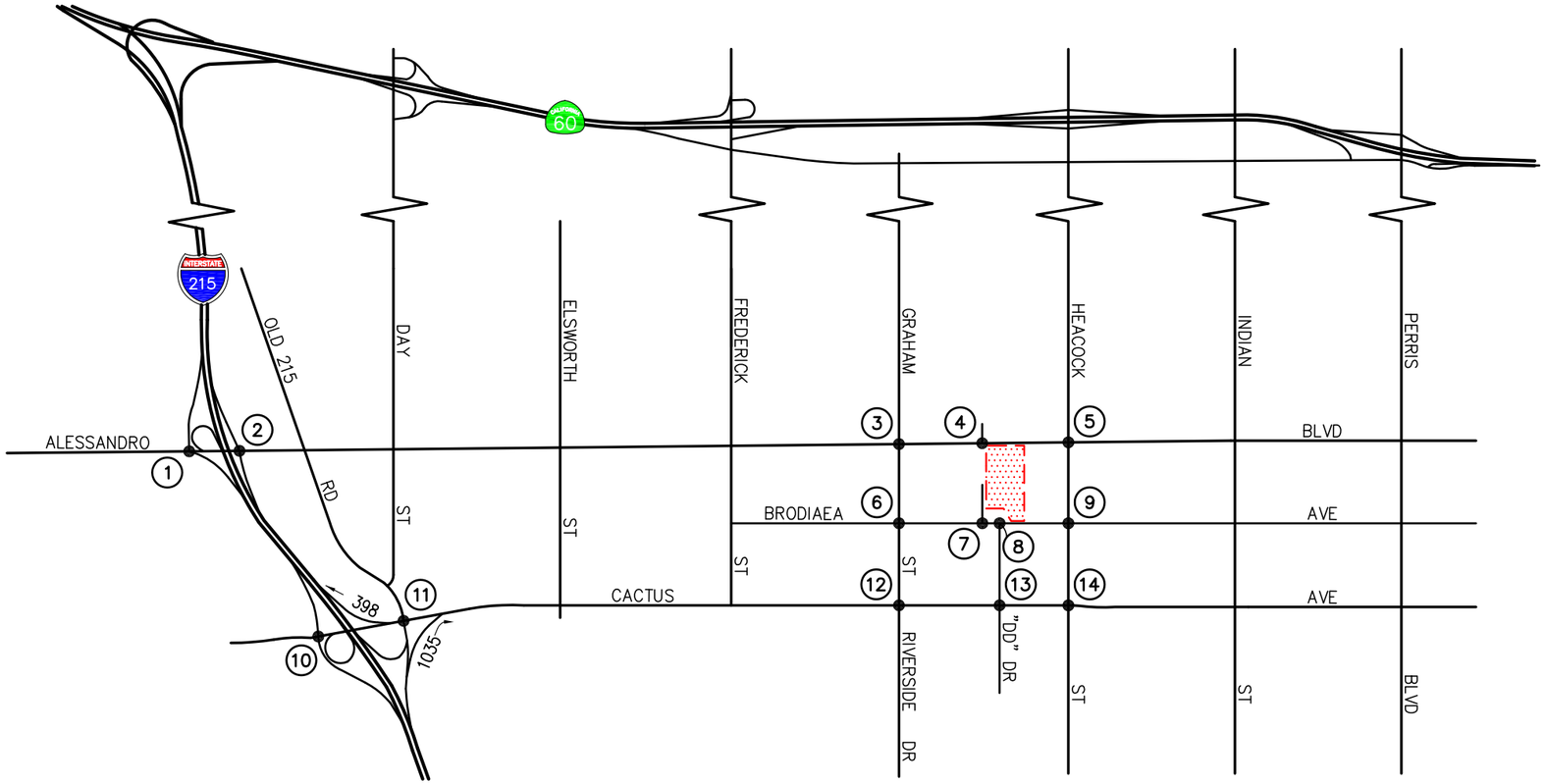
FIGURE 6–7

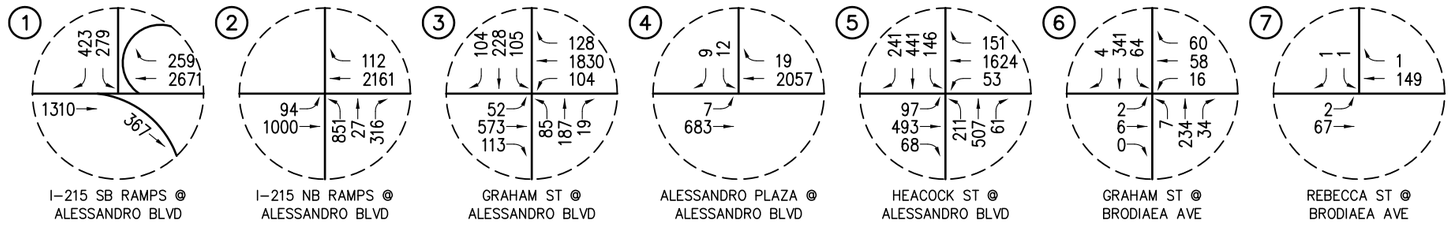
EXISTING PLUS AMBIENT GROWTH PLUS PROJECT PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY

n:\3900\2183972 – pama business park, moreno valley\dwg\3972 f6–7.dwg LDP 14:18:45 06–04–2018 besa

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)





n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f6-8.dwg LDP 17:48:16 06-06-2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

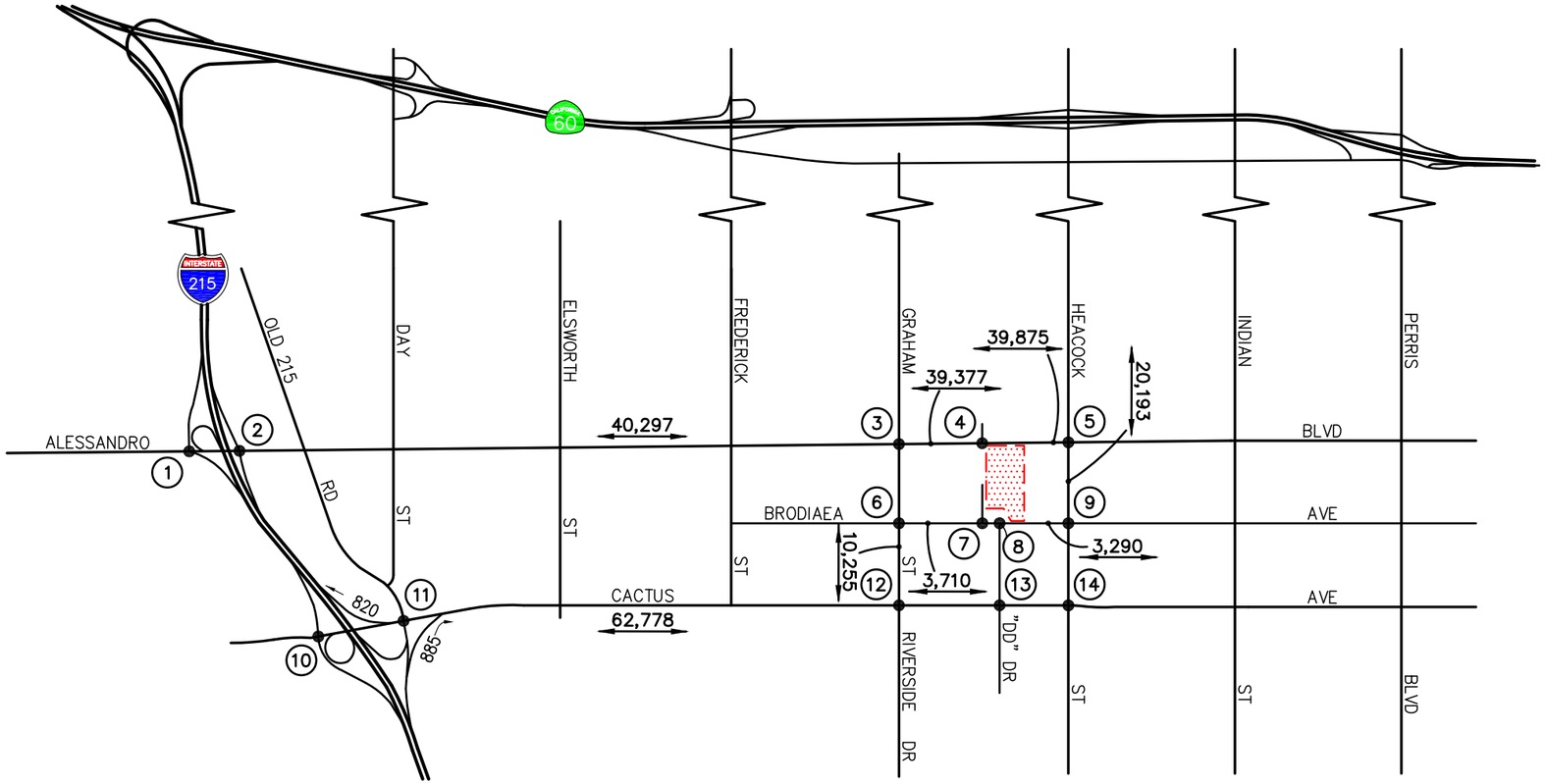
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6-8

YEAR 2023 CUMULATIVE AM PEAK HOUR TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

XX,XXX = DAILY TRAFFIC VOLUMES

= PROJECT SITE

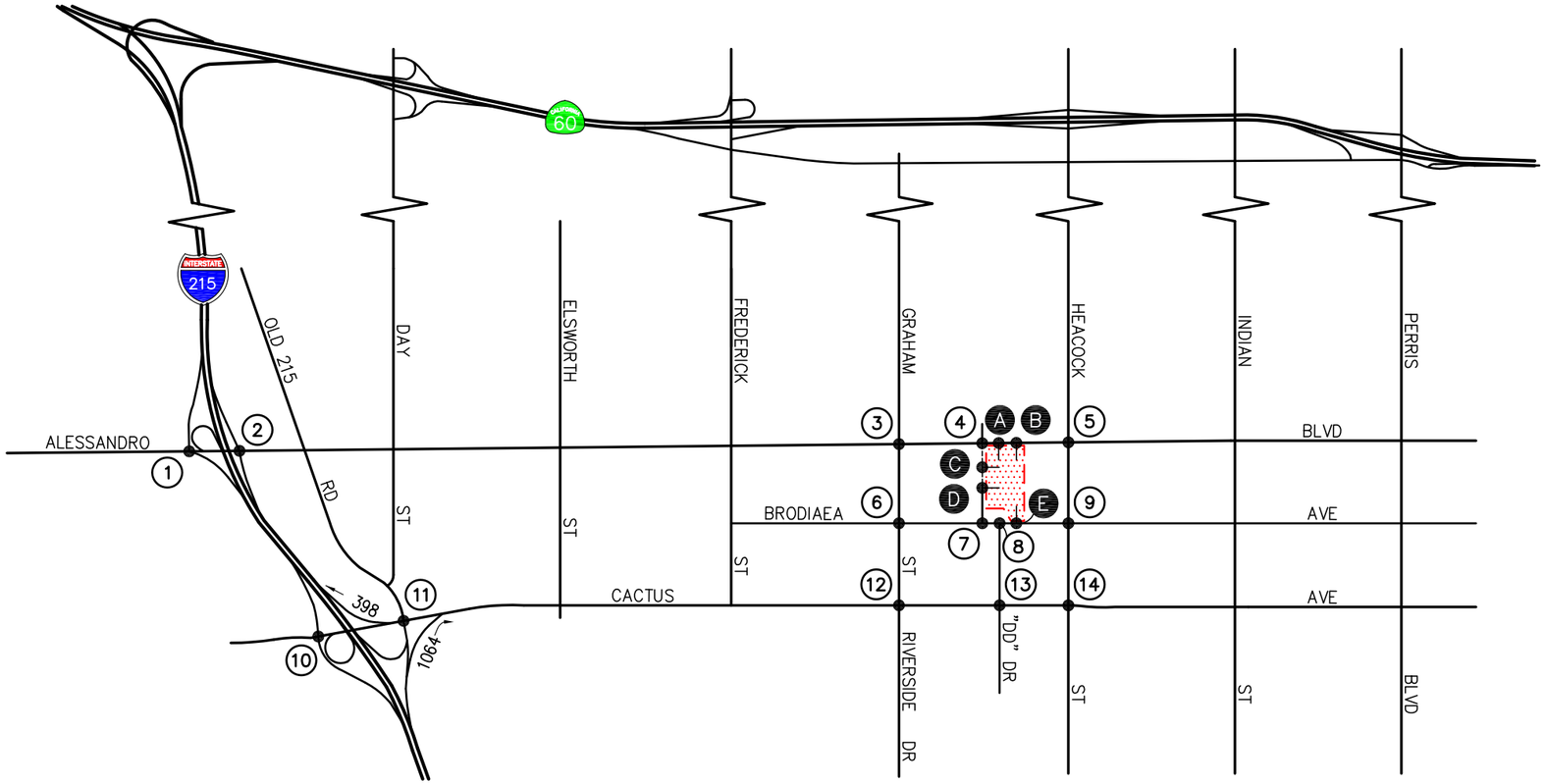
FIGURE 6–9

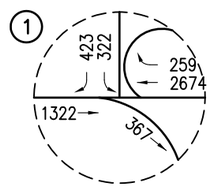
YEAR 2023 CUMULATIVE PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY

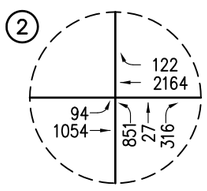
n:\3900\2183972 – pama business park, moreno valley\dwg\3972 f6–9.dwg LDP 17:49:02 06–06–2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

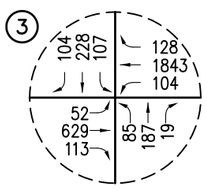




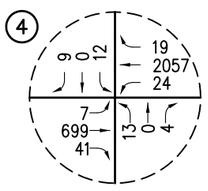
I-215 SB RAMPS @ ALESSANDRO BLVD



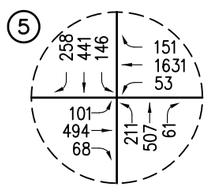
I-215 NB RAMPS @ ALESSANDRO BLVD



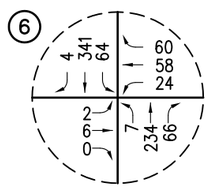
GRAHAM ST @ ALESSANDRO BLVD



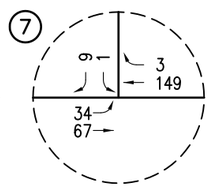
ALESSANDRO PLAZA/ REBECCA ST @ ALESSANDRO BLVD



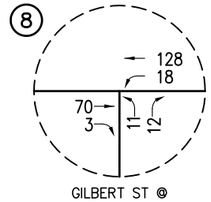
HEACOCK ST @ ALESSANDRO BLVD



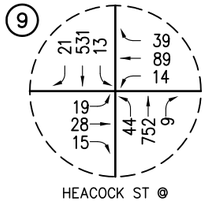
GRAHAM ST @ BRODIAEA AVE



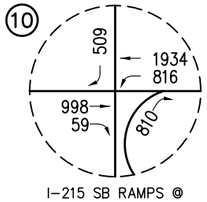
REBECCA ST @ BRODIAEA AVE



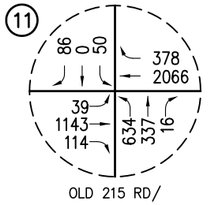
GILBERT ST @ BRODIAEA AVE



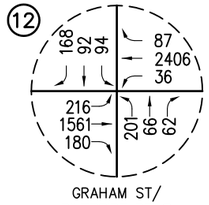
HEACOCK ST @ BRODIAEA AVE



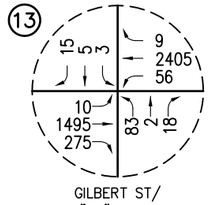
I-215 SB RAMPS @ CACTUS AVE



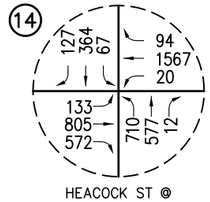
OLD 215 RD/ I-215 NB RAMPS @ CACTUS AVE



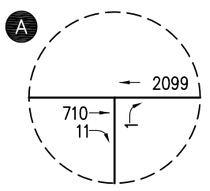
GRAHAM ST/ RIVERSIDE DR @ CACTUS AVE



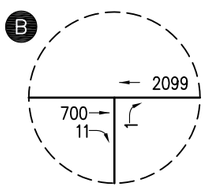
GILBERT ST/ "DD" DR @ CACTUS AVE



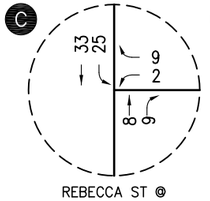
HEACOCK ST @ CACTUS AVE



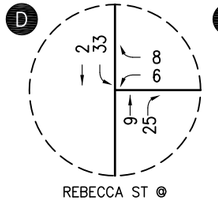
PROJECT DWY 1 @ ALESSANDRO BLVD



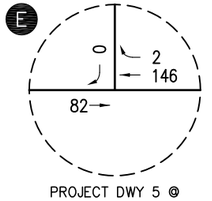
PROJECT DWY 2 @ ALESSANDRO BLVD



REBECCA ST @ PROJECT DWY 3



REBECCA ST @ PROJECT DWY 4



PROJECT DWY 5 @ BRODIAEA AVE

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

(#) = FUTURE INTERSECTION

— — = FUTURE ROAD

= PROJECT SITE

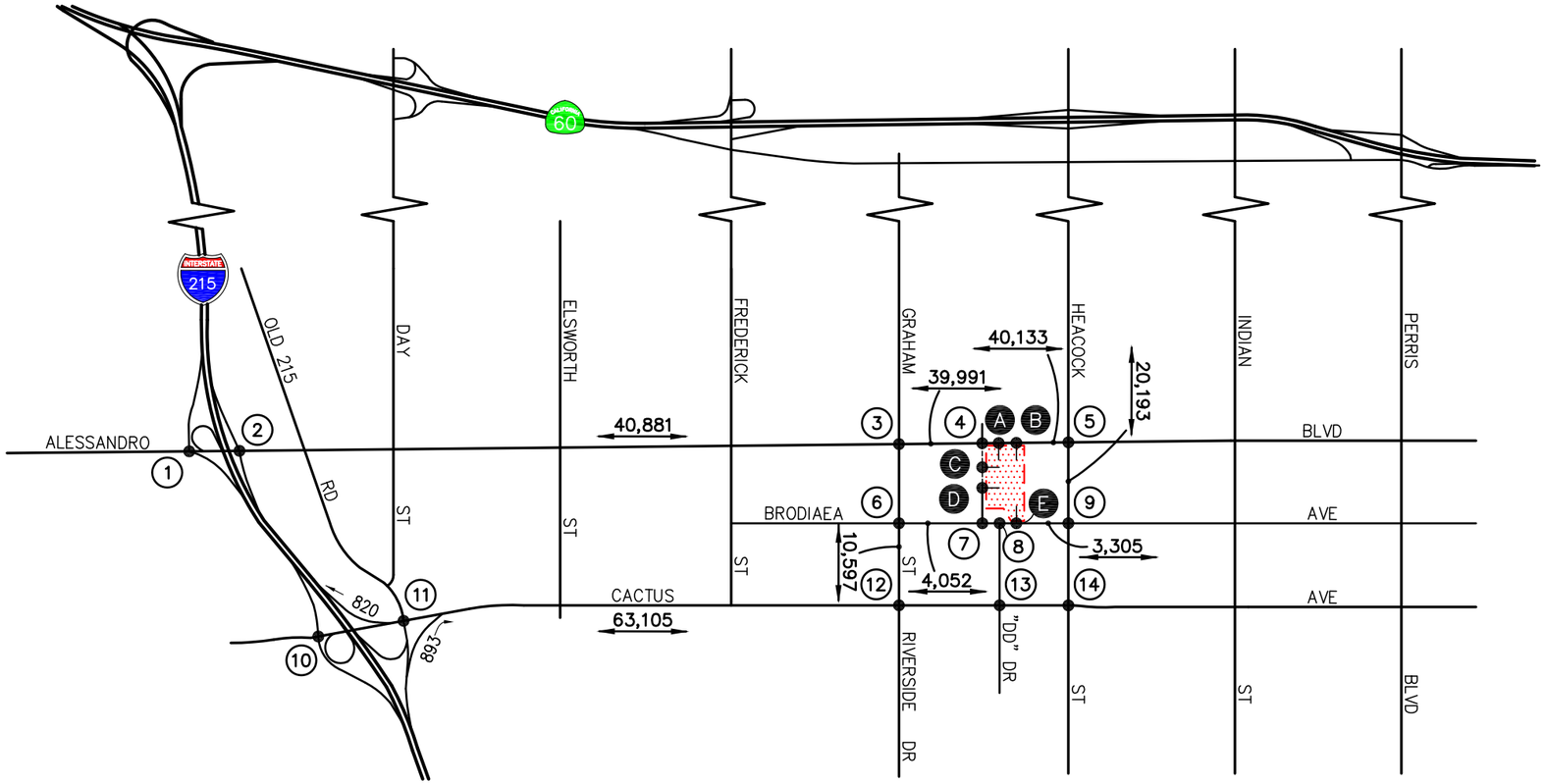
FIGURE 6-10

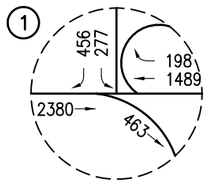
YEAR 2023 CUMULATIVE PLUS PROJECT AM PEAK HOUR TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY

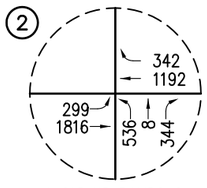
n:\3900\2183972 - pama business park, moreno valley\dwg\3972 f6-10.dwg LDP 17:49:50 06-06-2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

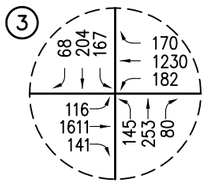




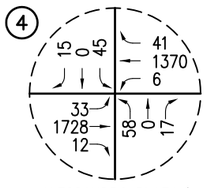
I–215 SB RAMPS @
ALESSANDRO BLVD



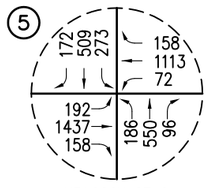
I–215 NB RAMPS @
ALESSANDRO BLVD



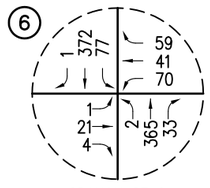
GRAHAM ST @
ALESSANDRO BLVD



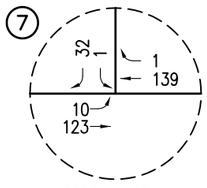
ALESSANDRO PLAZA/
REBECCA ST @
ALESSANDRO BLVD



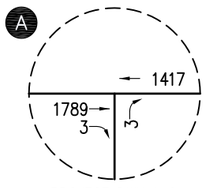
HEACOCK ST @
ALESSANDRO BLVD



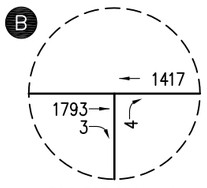
GRAHAM ST @
BRODIAEA AVE



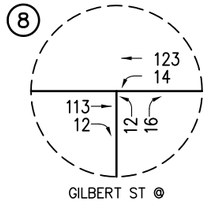
REBECCA ST @
BRODIAEA AVE



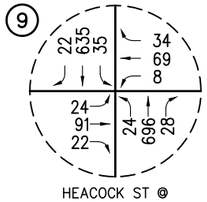
PROJECT DWY 1 @
ALESSANDRO BLVD



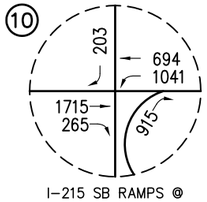
PROJECT DWY 2 @
ALESSANDRO BLVD



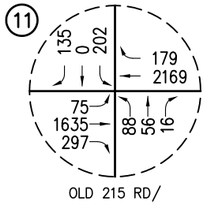
GILBERT ST @
BRODIAEA AVE



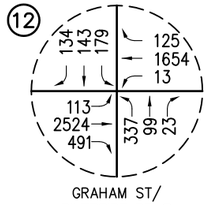
HEACOCK ST @
BRODIAEA AVE



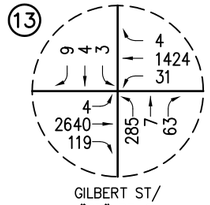
I–215 SB RAMPS @
CACTUS AVE



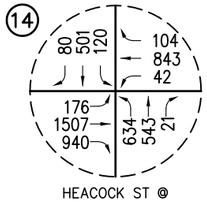
OLD 215 RD/
I–215 NB RAMPS @
CACTUS AVE



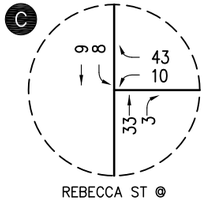
GRAHAM ST/
RIVERSIDE DR @
CACTUS AVE



GILBERT ST/
"DD" DR @
CACTUS AVE

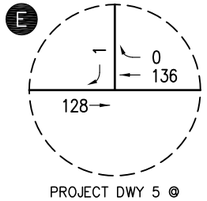


HEACOCK ST @
CACTUS AVE



REBECCA ST @
PROJECT DWY 3

REBECCA ST @
PROJECT DWY 4



PROJECT DWY 5 @
BRODIAEA AVE

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION
(#) = FUTURE INTERSECTION
— — = FUTURE ROAD
XX,XXX = DAILY TRAFFIC VOLUMES
= PROJECT SITE

FIGURE 6–11

YEAR 2023 CUMULATIVE PLUS PROJECT PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

PAMA BUSINESS PARK, MORENO VALLEY

n:\3900\2183972 – pama business park, moreno valley\dwg\3972 f6–11.dwg LDP 17:50:39 06–06–2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

7.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

The relative impact of the proposed Project during the daily, AM peak hour and PM peak hour was evaluated based on analysis of future operating conditions at the fourteen (14) key study intersections/eight (8) key roadway segments, without, then with the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future volume-to-capacity relationships and service level characteristics at each study intersection/roadway segment. The significance of the potential impacts of the Project at each key intersection/roadway segment was then evaluated using the following traffic impact criteria.

7.1 Impact Criteria and Thresholds

7.1.1 *City of Moreno Valley*

The City of Moreno Valley Circulation Element recognizes that LOS "C" is optimal. However, it also allows peak hour levels of service in the LOS "D" range at certain locations. These locations include areas of high employment concentration, roads in the vicinity of freeway on/off ramps and/or other locations in already developed areas of the City with geometric constraints that prevent LOS "C" from being achieved. *Figure 5.2-7* from the *City of Moreno Valley General Plan, Final Program EIR, July 2006* depicts the LOS standards that are applicable to all segments of the Circulation Element. According to this figure and confirmed by City of Moreno staff, two (2) of the fourteen (14) key study intersections must maintain a LOS "C" or better. The remaining twelve (12) intersections must maintain a LOS "D" or better. Additionally, two (2) of the eight (8) key roadway segments must maintain a LOS "C" or better. The remaining six (6) key roadway segments must maintain a LOS "D" or better.

7.1.2 *City of Riverside*

The City of Riverside allows LOS "D" to be used as the maximum acceptable threshold for the study intersections and roadways of Collector or higher classification. However, at some key locations, such as City arterial roadways which are used as a freeway bypass by regional through traffic and at heavily traveled freeway interchanges, LOS "E" may be acceptable as determined on a case-by-case basis. Locations that may warrant the LOS "E" standard include portions of Arlington Avenue/Alessandro Boulevard, Van Buren Boulevard throughout the City, portions of La Sierra Avenue and selected freeway interchanges. The City also recognizes that along key freeway-feeder segments during peak commute hours, LOS F may be expected due to regional travel patterns. A higher standard, such as LOS "C" or better, may be adopted for Local streets in residential areas.

7.1.3 *County of Riverside*

According to Riverside County General Plan, *Section C 2.1*, the following countywide target Levels of Service shall be maintained:

- LOS "C" shall apply to all development proposals in any area of the Riverside County not located within the boundaries of an Area Plan, as well those areas located within the following Area Plans: REMAP, Eastern Coachella Valley, Desert Center, Palo Verde Valley, and those non-Community Development areas of the Elsinore, Lake Mathews/ Woodcrest, Mead Valley and Temescal Canyon Area Plans.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

- LOS "D" shall apply to all development proposals located within any of the following Area Plans: Eastvale, Jurupa, Highgrove, Reche Canyon/Badlands, Lakeview/Nuevo, Sun City/Menifee Valley, Harvest Valley/Winchester, Southwest Area, The Pass, San Jacinto Valley, Western Coachella Valley and those Community Development Areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.
- LOS "E" may be allowed by the Board of Supervisors within designated areas where transit-oriented development and walkable communities are proposed.

7.1.4 *Caltrans*

Caltrans "endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities"; it does not required that LOS "D" (shall) be maintained. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. For this analysis, LOS D is the target level of service standard and will be utilized to assess the project impacts at the state-controlled study intersections, consistent with City of Moreno Valley requirements.

Based on the above and discussions with City of Moreno Valley staff, the following summarizes the LOS required for each key study intersection and roadway segment:

Intersection Level of Service Criteria	
LOS "C" Requirements	
7. Rebecca St at Brodiaea Ave	8. Gilbert St at Brodiaea Ave
LOS "D" Requirements	
1. I-215 SB Ramps at Alessandro Blvd	9. Heacock St at Brodiaea Ave
2. I-215 SB Ramps at Alessandro Blvd	10. I-215 SB Ramps at Cactus Ave
3. Graham St at Alessandro Blvd	11. Old 215 Frontage Rd/I-215 NB Ramps at Cactus Ave
4. Alessandro Plaza at Alessandro Blvd	12. Graham St/Riverside Dr at Cactus Ave
5. Heacock St at Alessandro Blvd	13. Gilbert St at Cactus Ave
6. Graham St at Brodiaea Ave	14. Heacock St at Cactus Ave
Roadway Segment Level of Service Criteria	
LOS "C" Requirements	
E. Brodiaea Avenue *between* Graham Street and Rebecca Street	
F. Brodiaea Avenue *between* Gilbert Street and Heacock Street	
LOS "D" Requirements	
A. Alessandro Boulevard *between* Elsworth Street and Frederick Street	
B. Alessandro Boulevard *between* Graham Street and Alessandro Plaza	
C. Alessandro Boulevard *between* Alessandro Plaza and Heacock Street	
D. Heacock Street *between* Alessandro Boulevard and Brodiaea Avenue	
G. Graham Street *between* Brodiaea Avenue and Cactus Avenue	
H. Cactus Avenue *between* Elsworth Street and Frederick Street	

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

7.2 Traffic Impact Analysis Scenarios

The following scenarios are those for which LOS calculations have been performed at the fourteen (14) key study intersections and eight (8) key roadway segments for Existing Plus Project and near-term (Year 2023) traffic conditions:

1. Existing Traffic Conditions;
2. Existing Plus Project Traffic Conditions;
3. Scenario (2) with Mitigation, if necessary;
4. Existing Plus Ambient Growth to the Year 2023 Traffic Conditions;
5. Existing Plus Ambient Growth to the Year 2023 Plus Project Traffic Conditions;
6. Scenario (5) with Mitigation, if necessary;
7. Year 2023 Cumulative Traffic Conditions;
8. Year 2023 Cumulative Plus Project Traffic Conditions; and
9. Scenario (8) with Mitigation, if necessary.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

8.0 EXISTING PLUS PROJECT ANALYSIS

The following summarizes the "Existing Plus Project" level of service results for the fourteen (14) key study intersections and eight (8) key roadway segments.

8.1 Intersections

Table 8-1 summarizes the peak hour level of service results at the fourteen (14) key study intersections for Existing Plus Project traffic conditions. The first column (1) of HCM/LOS values in *Table 8-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 3-5*). The second column (2) lists existing plus project traffic conditions. The third column (3) shows the increase in HCM value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and significant impact criteria defined in this report. The fourth column (4) indicates the anticipated level of service with planned and/or recommended improvements.

8.1.1 *Existing Plus Project Traffic Conditions*

Review of Columns 2 and 3 of *Table 8-1* indicates that traffic associated with the proposed Project ***will not*** significantly impact any of the fourteen (14) key study intersections when compared to the LOS standards and significant impact criteria specified in this report. The fourteen (14) key study intersections currently operate and are forecast to continue to operate at an acceptable LOS during the AM and PM peak hours with the addition of Project generated traffic to existing traffic.

Appendix C presents the existing plus project HCM/LOS calculations for the fourteen (14) key study intersections for the AM peak hour and PM peak hour.

8.2 Roadway Segments

Table 8-2 summarizes the roadway segment level of service results at the eight (8) key roadway segments for existing plus project traffic conditions. The first column (1) shows the number of lanes, the second column (2) shows the existing LOS "E" capacity. The third column (3) presents a summary of existing daily traffic conditions (which were also presented in *Table 3-6*). The fourth column (4) lists Existing Plus Project daily traffic conditions. Column 4 also shows the increase in V/C ratio value due to the added daily project trips and indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and significant impact criteria defined in this report.

8.2.1 *Existing Plus Project Traffic Conditions*

Review of Column 4 of *Table 8-2* indicates that traffic associated with the proposed Project ***will not*** significantly impact any of the eight (8) key roadway segments when compared to the LOS standards and significant impact criteria specified in this report. The eight (8) key roadway segments currently operate and are forecast to continue to operate at an acceptable service level on a daily basis with the addition of Project generated traffic to existing traffic.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 8-1

EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersections	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Significant Impact	(4) Existing Plus Project With Improvements	
			HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
1. I-215 Southbound Ramps at Alessandro Boulevard	AM	LOS D	13.2 s/v	B	14.3 s/v	B	No	--	--
	PM		11.7 s/v	B	11.8 s/v	B	No	--	--
2. I-215 Northbound Ramps at Alessandro Boulevard	AM	LOS D	28.3 s/v	C	28.3 s/v	C	No	--	--
	PM		18.2 s/v	B	18.4 s/v	B	No	--	--
3. Graham Street at Alessandro Boulevard	AM	LOS D	25.4 s/v	C	25.8 s/v	C	No	--	--
	PM		33.2 s/v	C	33.3 s/v	C	No	--	--
4. Alessandro Plaza/Rebecca Street at Alessandro Boulevard	AM	LOS D	6.5 s/v	A	4.6 s/v	A	No	--	--
	PM		9.1 s/v	A	9.8 s/v	A	No	--	--
5. Heacock Street at Alessandro Boulevard	AM	LOS D	29.7 s/v	C	30.0 s/v	C	No	--	--
	PM		44.4 s/v	D	47.6 s/v	D	No	--	--
6. Graham Street at Brodiaea Avenue	AM	LOS D	32.6 s/v	C	32.8 s/v	C	No	--	--
	PM		25.9 s/v	C	26.0 s/v	C	No	--	--
7. Rebecca Street at Brodiaea Avenue	AM	LOS C	9.4 s/v	A	9.2 s/v	A	No	--	--
	PM		0.0 s/v	A	9.0 s/v	A	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions
- **Bold HCM/LOS values** indicate adverse service levels based on the respective jurisdiction LOS standards

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 8-1 (CONTINUED)
EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersections	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Significant Impact	(4) Existing Plus Project With Improvements	
			HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
8. Gilbert Street at Brodiaea Avenue	AM	LOS C	9.2 s/v	A	9.2 s/v	A	No	--	--
	PM		9.4 s/v	A	9.5 s/v	A	No	--	--
9. Heacock Street at Brodiaea Avenue	AM	LOS D	16.2 s/v	B	16.3 s/v	B	No	--	--
	PM		13.3 s/v	B	13.3 s/v	B	No	--	--
10. I-215 Southbound Ramps at Cactus Avenue	AM	LOS D	8.3 s/v	A	11.8 s/v	B	No	--	--
	PM		15.7 s/v	B	16.3 s/v	B	No	--	--
11. Old 215 Frontage Rd/I-215 NB Ramps at Cactus Avenue	AM	LOS D	38.0 s/v	D	38.3 s/v	D	No	--	--
	PM		11.6 s/v	B	11.7 s/v	B	No	--	--
12. Graham Street/Riverside Drive at Cactus Avenue	AM	LOS D	22.6 s/v	C	23.9 s/v	C	No	--	--
	PM		26.5 s/v	C	26.5 s/v	C	No	--	--
13. Gilbert Street at Cactus Avenue	AM	LOS D	5.9 s/v	A	5.9 s/v	A	No	--	--
	PM		6.8 s/v	A	6.8 s/v	A	No	--	--
14. Heacock Street at Cactus Avenue	AM	LOS D	41.1 s/v	D	41.2 s/v	D	No	--	--
	PM		36.8 s/v	D	36.9 s/v	D	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions
- **Bold HCM/LOS values** indicate adverse service levels based on the respective jurisdiction LOS standards

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 8-2

EXISTING PLUS PROJECT ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY

Key Roadway Segment	Min. Acc. LOS	(1) No. of Existing Lanes	(2) Existing Capacity at LOS "E"	(3) Existing Traffic Conditions			(4) Existing Plus Project Traffic Conditions				
				Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Significant (Yes/No)
A. Alessandro Boulevard *between* Elsworth Street and Frederick Street	D	6D	56,300	31,808	0.565	A	32,392	0.575	A	0.010	No
B. Alessandro Boulevard *between* Graham Street and Alessandro Plaza	D	5D[22]	46,900	31,833	0.679	B	32,447	0.692	B	0.013	No
C. Alessandro Boulevard *between* Alessandro Plaza and Heacock Street	D	5D[22]	46,900	32,285	0.688	B	32,543	0.694	B	0.006	No
D. Heacock Street *between* Alessandro Boulevard and Brodiaea Avenue	D	4D	37,500	15,789	0.421	A	15,789	0.421	A	0.000	No
E. Brodiaea Avenue *between* Graham Street and Rebecca Street	C	2D	12,500	3,158	0.253	A	3,500	0.280	A	0.027	No
F. Brodiaea Avenue *between* Gilbert Street and Heacock Street	C	2D	12,500	2,899	0.232	A	2,914	0.233	A	0.001	No
G. Graham Street *between* Brodiaea Avenue and Cactus Avenue	D	4D	37,500	7,372	0.197	A	7,714	0.206	A	0.009	No
H. Cactus Avenue *between* Elsworth Street and Frederick Street	D	6D	56,300	43,035	0.764	C	43,362	0.770	C	0.006	No

[22] The existing roadway capacity at LOS "E" for a five-lane divided roadway has been interpolated between the six-lane divided and four-lane divided roadway capacities (56,300 and 37,500, respectively) as presented in *Table 3-3* above.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

9.0 EXISTING PLUS AMBIENT GROWTH PLUS PROJECT (YEAR 2023) ANALYSIS

The following summarizes the "Existing Plus Ambient Growth Plus Project (Year 2023)" level of service results for the fourteen (14) key study intersections and eight (8) key roadway segments.

9.1 Intersections

Table 9-1 summarizes the peak hour Level of Service results at the fourteen (14) key study intersections for Existing plus Ambient Growth plus Project (Year 2023) traffic conditions. The first column (1) of HCM/LOS values in *Table 9-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 3-5* and *Table 8-1*). The second column (2) presents Existing Plus Ambient Growth (Year 2023) traffic conditions. The third column (3) presents Existing Plus Ambient Growth (Year 2023) traffic conditions with the addition of Project traffic. The fourth column (4) shows whether the traffic associated with the Project will have an impact based on the LOS standards and the significant impact criteria defined in this report. The fifth column (5) presents the Level of Service with the implementation of mitigation measures, if necessary.

9.1.1 *Existing Plus Ambient Growth Traffic Conditions*

An analysis of existing plus ambient growth (Year 2023) traffic conditions indicates that the addition of ambient traffic growth traffic ***will not*** adversely impact any of the fourteen (14) key study intersections. The fourteen (14) key study intersections currently operate and are forecast to continue to operate at an acceptable LOS during the AM and PM peak hours with the addition of ambient traffic growth.

9.1.2 *Existing Plus Ambient Growth Plus Project Traffic Conditions*

Review of Columns 3 and 4 of *Table 9-1* indicates that traffic associated with the proposed Project ***will not*** significantly impact any of the fourteen (14) key study intersections when compared to the LOS standards and significant impact criteria specified in this report. The fourteen (14) key study intersections currently operate and are forecast to continue to operate at an acceptable LOS during the AM and PM peak hours with the addition of Project generated traffic in the Year 2023.

Appendix C presents the existing plus ambient growth plus project HCM/LOS calculations for the fourteen (14) key study intersections.

9.2 Roadway Segments

Table 9-2 summarizes the roadway segment level of service results at the eight (8) key roadway segments for Existing Plus Ambient Growth Plus Project traffic conditions. The first column (1) shows the number of lanes, the second column (2) shows the existing LOS "E" capacity. The third column (3) presents a summary of Existing Plus Ambient Growth (Year 2023) daily traffic conditions. The fourth column (4) lists Existing Plus Ambient Growth (Year 2023) Plus Project daily traffic conditions. Column (4) also shows the increase in V/C ratio value due to the added daily project trips and indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and significant impact criteria defined in this report.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

9.2.1 *Existing Plus Ambient Growth Traffic Conditions*

An analysis of Existing Plus Ambient Growth (Year 2023) traffic conditions indicates that the eight (8) key roadway segments are forecast to operate at an acceptable service level on a daily basis under Existing Plus Ambient Growth (Year 2023) traffic conditions.

9.2.2 *Existing Plus Ambient Growth Plus Project Traffic Conditions*

Review of Column 4 of *Table 9-2* indicates that traffic associated with the proposed Project ***will not*** significantly impact any of the eight (8) key roadway segments, when compared to the LOS standards and significant impact criteria specified in this report. The eight (8) key roadway segments are forecast to continue to operate at an acceptable service level on a daily basis with the addition of Project generated traffic in the Year 2023.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 9-1

EXISTING PLUS AMBIENT GROWTH (YEAR 2023) PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing Plus Ambient Growth Traffic Conditions		(3) Existing Plus Ambient Growth Plus Project Traffic Conditions		(4) Significant Impact	(5) Existing Plus Ambient Growth Plus Project With Improvements	
			HCM	LOS	HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
1. I-215 Southbound Ramps at Alessandro Boulevard	AM	LOS D	13.2 s/v	B	14.1 s/v	B	15.0 s/v	B	No	--	--
	PM		11.7 s/v	B	14.9 s/v	B	16.3 s/v	B	No	--	--
2. I-215 Northbound Ramps at Alessandro Boulevard	AM	LOS D	28.3 s/v	C	30.4 s/v	C	30.4 s/v	C	No	--	--
	PM		18.2 s/v	B	24.0 s/v	C	25.7 s/v	C	No	--	--
3. Graham Street at Alessandro Boulevard	AM	LOS D	25.4 s/v	C	30.5 s/v	C	30.9 s/v	C	No	--	--
	PM		33.2 s/v	C	37.4 s/v	D	37.8 s/v	D	No	--	--
4. Alessandro Plaza/Rebecca St at Alessandro Boulevard	AM	LOS D	6.5 s/v	A	6.5 s/v	A	4.7 s/v	A	No	--	--
	PM		9.1 s/v	A	9.7 s/v	A	9.6 s/v	A	No	--	--
5. Heacock Street at Alessandro Boulevard	AM	LOS D	29.7 s/v	C	30.5 s/v	C	30.9 s/v	C	No	--	--
	PM		44.4 s/v	D	45.1 s/v	D	48.0 s/v	D	No	--	--
6. Graham Street at Brodiaea Avenue	AM	LOS D	32.6 s/v	C	33.5 s/v	C	33.7 s/v	C	No	--	--
	PM		25.9 s/v	C	30.3 s/v	C	32.9 s/v	C	No	--	--
7. Rebecca Street at Brodiaea Avenue	AM	LOS C	9.4 s/v	A	9.5 s/v	A	9.3 s/v	A	No	--	--
	PM		0.0 s/v	A	0.0 s/v	A	9.1 s/v	A	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions
- **Bold HCM/LOS values** indicate adverse service levels based on the respective jurisdiction LOS standards

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 9-1 (CONTINUED)

EXISTING PLUS AMBIENT GROWTH (YEAR 2023) PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing Plus Ambient Growth Traffic Conditions		(3) Existing Plus Ambient Growth Plus Project Traffic Conditions		(4) Significant Impact	(5) Existing Plus Ambient Growth Plus Project With Improvements	
			HCM	LOS	HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
8. Gilbert Street at Brodiaea Avenue	AM	LOS C	9.2 s/v	A	9.2 s/v	A	9.3 s/v	A	No	--	--
	PM		9.4 s/v	A	9.6 s/v	A	9.6 s/v	A	No	--	--
9. Heacock Street at Brodiaea Avenue	AM	LOS D	16.2 s/v	B	16.7 s/v	B	16.8 s/v	B	No	--	--
	PM		13.3 s/v	B	15.8 s/v	B	16.7 s/v	B	No	--	--
10. I-215 Southbound Ramps at Cactus Avenue	AM	LOS D	8.3 s/v	A	17.1 s/v	B	17.4 s/v	B	No	--	--
	PM		15.7 s/v	B	20.4 s/v	C	22.5 s/v	C	No	--	--
11. Old 215 Frontage Road/I-215 NB Ramps at Cactus Avenue	AM	LOS D	38.0 s/v	D	51.0 s/v	D	51.7 s/v	D	No	--	--
	PM		11.6 s/v	B	14.4 s/v	B	15.0 s/v	B	No	--	--
12. Graham Street/Riverside Drive at Cactus Avenue	AM	LOS D	22.6 s/v	C	24.3 s/v	C	25.3 s/v	C	No	--	--
	PM		26.5 s/v	C	26.9 s/v	C	27.7 s/v	C	No	--	--
13. Gilbert Street at Cactus Avenue	AM	LOS D	5.9 s/v	A	6.3 s/v	A	6.3 s/v	A	No	--	--
	PM		6.8 s/v	A	5.4 s/v	A	5.4 s/v	A	No	--	--
14. Heacock Street at Cactus Avenue	AM	LOS D	41.1 s/v	D	45.6 s/v	D	45.6 s/v	D	No	--	--
	PM		36.8 s/v	D	38.9 s/v	D	42.1 s/v	D	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions
- **Bold HCM/LOS values** indicate adverse service levels based on the respective jurisdiction LOS standards

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 9-2

EXISTING PLUS AMBIENT GROWTH (YEAR 2023) PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Roadway Segment	Min. Acc. LOS	(1) No. of Existing Lanes	(2) Existing Capacity at LOS "E"	(3) Existing Plus Ambient Growth (Year 2023) Traffic Conditions			(4) Existing Plus Ambient Growth (Year 2023) Plus Project Traffic Conditions				
				Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Significant (Yes/No)
A. Alessandro Boulevard *between* Elsworth Street and Frederick Street	D	6D	56,300	34,989	0.621	B	35,573	0.632	B	0.011	No
B. Alessandro Boulevard *between* Graham Street and Alessandro Plaza	D	5D[23]	46,900	35,016	0.747	C	35,630	0.760	C	0.013	No
C. Alessandro Boulevard *between* Alessandro Plaza and Heacock Street	D	5D[23]	46,900	35,514	0.757	C	35,772	0.763	C	0.006	No
D. Heacock Street *between* Alessandro Boulevard and Brodiaea Avenue	D	4D	37,500	17,368	0.463	A	17,368	0.463	A	0.000	No
E. Brodiaea Avenue *between* Graham Street and Rebecca Street	C	2D	12,500	3,474	0.278	A	3,816	0.305	A	0.027	No
F. Brodiaea Avenue *between* Gilbert Street and Heacock Street	C	2D	12,500	3,189	0.255	A	3,204	0.256	A	0.001	No
G. Graham Street *between* Brodiaea Avenue and Cactus Avenue	D	4D	37,500	8,109	0.216	A	8,451	0.225	A	0.009	No
H. Cactus Avenue *between* Elsworth Street and Frederick Street	D	6D	56,300	47,339	0.841	D	47,666	0.847	D	0.006	No

[23] The existing roadway capacity at LOS "E" for a five-lane divided roadway has been interpolated between the six-lane divided and four-lane divided roadway capacities (56,300 and 37,500, respectively) as presented in *Table 3-3* above.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

10.0 YEAR 2023 CUMULATIVE PLUS PROJECT ANALYSIS

The following summarizes the "Year 2023 Plus Project" level of service results for the fourteen (14) key study intersections and eight (8) key roadway segments.

10.1 Intersections

Table 10-1 summarizes the peak hour Level of Service results at the fourteen (14) key study intersections for Year 2023 Cumulative Plus Project traffic conditions. The first column (1) of HCM/LOS values in *Table 10-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 3-5, Table 8-1* and in *Table 9-1).* The second column (2) presents forecast Year 2023 Cumulative traffic conditions (existing plus ambient growth plus cumulative projects). The third column (3) presents forecast Year 2023 Cumulative traffic conditions with the addition of Project traffic. The fourth column (4) shows whether the traffic associated with the Project will have a significant impact based on the LOS standards and the significant impact criteria defined in this report. The fifth column (5) presents the Level of Service with the implementation of mitigation measures, if necessary.

It should be noted that for Year 2023 Cumulative traffic conditions, "DD" Drive is assumed to be included as the southern leg at the intersection of Gilbert Street/Cactus Avenue, as presented in the *Traffic Impact Analysis for March LifeCare Campus Master Plan*, prepared by Mountain Pacific, Inc., dated June 2011.

10.1.1 *Year 2023 Cumulative Traffic Conditions*

An analysis of future (Year 2023) cumulative traffic conditions indicates that the addition of ambient traffic growth and cumulative project traffic will adversely impact two (2) of the fourteen (14) key study intersections. The remaining twelve (12) key study intersections are forecast to continue to operate at acceptable levels of service during the AM and PM peak hours with the addition of ambient traffic growth and cumulative project traffic. The locations projected to operate at an adverse LOS are as follows:

	AM Peak Hour		PM Peak Hour	
Key Intersection	HCM	LOS	HCM	LOS
10. I-215 SB Ramps at Cactus Avenue	--	--	116.4 s/v	F
11. Old 215 Frontage Road/I-215 NB Ramps at Cactus Avenue	139.7 s/v	F	--	--

10.1.2 *Year 2023 Cumulative Plus Project Traffic Conditions*

Review of Columns 3 and 4 of *Table 10-1* indicates that traffic associated with the proposed Project will cumulatively impact two (2) of the fourteen (14) key study intersections when compared to the LOS standards and significant impact criteria specified in this report. The remaining twelve (12) key study intersections are forecast to continue to operate at acceptable levels of service during the AM and PM peak hours with the addition of ambient traffic growth, cumulative project traffic and project traffic in the Year 2023. The locations projected to operate at an adverse LOS are as follows:

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

Key Intersection	AM Peak Hour HCM	AM Peak Hour LOS	PM Peak Hour HCM	PM Peak Hour LOS
10. I-215 SB Ramps at Cactus Avenue	--	--	122.5 s/v	F
11. Old 215 Frontage Road/I-215 NB Ramps at Cactus Avenue	140.6 s/v	F	--	--

As shown in Column 5 of *Table 10-1*, the implementation of improvements at the impacted intersections completely offsets the impact of the proposed Project. The impacted intersections are forecast to operate at an acceptable LOS during the AM and PM peak hours with implementation of improvements (See Column 5 of *Table 10-1*).

Appendix C presents the Year 2023 Cumulative Plus Project HCM/LOS calculations for the fourteen (14) key study intersections.

10.2 Roadway Segments

Table 10-2 summarizes the roadway segment level of service results at the eight (8) key roadway segments for Year 2023 Cumulative Plus Project traffic conditions. The first column (1) shows the number of lanes, the second column (2) shows the existing LOS "E" capacity. The third column (3) presents a summary of projected Year 2023 cumulative daily traffic conditions. The fourth column (4) lists Year 2023 Cumulative Plus Project daily traffic conditions. Column 4 also shows the increase in V/C ratio value due to the added daily project trips and indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and significant impact criteria defined in this report.

10.2.1 *Year 2023 Cumulative Traffic Conditions*

An analysis of future (Year 2023) cumulative traffic conditions indicates that one (1) of the eight (8) key roadway segments is forecast to operate at an unacceptable service level on a daily basis under Year 2023 cumulative traffic conditions (i.e. existing plus ambient traffic plus cumulative project traffic). The remaining seven (7) key study roadway segments are forecast to operate at acceptable levels of service on a daily basis. The roadway segment operating at an adverse level of service is:

Key Roadway Segment	Daily Volume	Daily V/C Ratio	Daily LOS
H. Cactus Avenue *between* Elsworth Street and Frederick Street	62,778	1.115	F

10.2.2 *Year 2023 Cumulative Plus Project Traffic Conditions*

Review of Column 4 of *Table 10-2* indicates that for Year 2023 Cumulative Plus Project traffic conditions, one (1) of the eight (8) key study roadway segments is forecast to operate at an unacceptable level of service on a daily basis when compared to the LOS standards defined in this report. The remaining seven (7) key study roadway segments are forecast to operate at acceptable levels of service on a daily basis. The roadway segment operating at an adverse level of service is:

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

Key Roadway Segment	Volume	Daily V/C Ratio	LOS
H. Cactus Avenue *between* Elsworth Street and Frederick Street	63,105	1.121	F

To determine if the Project creates a significant impact, this adverse roadway segment is further analyzed under peak hour conditions to determine if there are any peak hour deficiencies. As presented in ***Table 10-3***, this study roadway segment is forecast to operate at LOS B or better during the AM and PM peak hours. As a result, the key study roadway segment is not significantly impacted by Year 2023 Cumulative Plus Project traffic and therefore no improvements are required.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 10-1

YEAR 2023 CUMULATIVE PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Year 2023 Cumulative Traffic Conditions		(3) Year 2023 Cumulative Plus Project Traffic Conditions		(4) Significant Impact	(5) Year 2023 Cumulat Plus Project With Improvemen	
			HCM	LOS	HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
1. I-215 Southbound Ramps at Alessandro Boulevard	AM	LOS D	13.2 s/v	B	19.6 s/v	B	20.0 s/v	C	No	--	--
	PM		11.7 s/v	B	17.6 s/v	B	17.7 s/v	B	No	--	--
2. I-215 Northbound Ramps at Alessandro Boulevard	AM	LOS D	28.3 s/v	C	36.0 s/v	D	36.1 s/v	D	No	--	--
	PM		18.2 s/v	B	28.5 s/v	C	28.8 s/v	C	No	--	--
3. Graham Street at Alessandro Boulevard	AM	LOS D	25.4 s/v	C	33.4 s/v	C	33.6 s/v	C	No	--	--
	PM		33.2 s/v	C	45.2 s/v	D	50.6 s/v	D	No	--	--
4. Alessandro Plaza/Rebecca Street at Alessandro Boulevard	AM	LOS D	6.5 s/v	A	8.5 s/v	A	10.7 s/v	B	No	--	--
	PM		9.1 s/v	A	5.2 s/v	A	9.6 s/v	A	No	--	--
5. Heacock Street at Alessandro Boulevard	AM	LOS D	29.7 s/v	C	34.1 s/v	C	38.7 s/v	D	No	--	--
	PM		44.4 s/v	D	47.7 s/v	D	48.0 s/v	D	No	--	--
6. Graham Street at Brodiaea Avenue	AM	LOS D	32.6 s/v	C	33.7 s/v	C	34.4 s/v	C	No	--	--
	PM		25.9 s/v	C	30.8 s/v	C	33.3 s/v	C	No	--	--
7. Rebecca Street at Brodiaea Avenue	AM	LOS C	9.4 s/v	A	9.6 s/v	A	9.4 s/v	A	No	--	--
	PM		0.0 s/v	A	0.0 s/v	A	9.2 s/v	A	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions
- **Bold HCM/LOS values** indicate adverse service levels based on the respective jurisdiction LOS standards

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 10-1 (CONTINUED)

YEAR 2023 CUMULATIVE PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Year 2023 Cumulative Traffic Conditions		(3) Year 2023 Cumulative Plus Project Traffic Conditions		(4) Significant Impact	(5) Year 2023 Cumulat Plus Project With Improvemen	
			HCM	LOS	HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
8. Gilbert Street at Brodiaea Avenue	AM	LOS C	9.2 s/v	A	9.4 s/v	A	9.5 s/v	A	No	--	--
	PM		9.4 s/v	A	9.6 s/v	A	9.6 s/v	A	No	--	--
9. Heacock Street at Brodiaea Avenue	AM	LOS D	16.2 s/v	B	16.7 s/v	B	16.8 s/v	B	No	--	--
	PM		13.3 s/v	B	16.7 s/v	B	16.7 s/v	B	No	--	--
10. I-215 Southbound Ramps at Cactus Avenue	AM	LOS D	8.3 s/v	A	35.1 s/v	D	35.3 s/v	D	No	24.3 s/v	C
	PM		15.7 s/v	B	**116.4 s/v**	**F**	**122.5 s/v**	**F**	**Yes**	52.3 s/v	D
11. Old 215 Frontage Rd/I-215 NB Ramps at Cactus Avenue	AM	LOS D	38.0 s/v	D	**139.7 s/v**	**F**	**140.6 s/v**	**F**	**Yes**	50.7 s/v	D
	PM		11.6 s/v	B	22.9 s/v	C	23.3 s/v	C	No	13.3 s/v	B
12. Graham Street/Riverside Drive at Cactus Avenue	AM	LOS D	22.6 s/v	C	30.4 s/v	C	40.7 s/v	D	No	--	--
	PM		26.5 s/v	C	33.2 s/v	C	33.2 s/v	C	No	--	--
13. Gilbert Street/"DD" Drive at Cactus Avenue	AM	LOS D	5.9 s/v	A	17.3 s/v	B	17.3 s/v	B	No	--	--
	PM		6.8 s/v	A	25.7 s/v	C	27.3 s/v	C	No	--	--
14. Heacock Street at Cactus Avenue	AM	LOS D	41.1 s/v	D	53.4 s/v	D	53.6 s/v	D	No	--	--
	PM		36.8 s/v	D	50.3 s/v	D	50.4 s/v	D	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions
- **Bold HCM/LOS values** indicate adverse service levels based on the respective jurisdiction LOS standards

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 10-2

YEAR 2023 CUMULATIVE PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Roadway Segment	Min. Acc. LOS	(1) No. of Existing Lanes	(2) Existing Capacity at LOS "E"	(3) Year 2023 Cumulative Traffic Conditions			(4) Year 2023 Cumulative Plus Project Traffic Conditions				
				Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Significant (Yes/No)
A. Alessandro Boulevard *between* Elsworth Street and Frederick Street	D	6D	56,300	40,297	0.716	C	40,881	0.726	C	0.010	No
B. Alessandro Boulevard *between* Graham Street and Alessandro Plaza	D	5D[24]	46,900	39,377	0.840	D	39,991	0.853	D	0.013	No
C. Alessandro Boulevard *between* Alessandro Plaza and Heacock Street	D	5D[24]	46,900	39,875	0.850	D	40,133	0.856	D	0.006	No
D. Heacock Street *between* Alessandro Boulevard and Brodiaea Avenue	D	4D	37,500	20,193	0.538	A	20,193	0.538	A	0.000	No
E. Brodiaea Avenue *between* Graham Street and Rebecca Street	C	2D	12,500	3,710	0.297	A	4,052	0.324	A	0.027	No
F. Brodiaea Avenue *between* Gilbert Street and Heacock Street	C	2D	12,500	3,290	0.263	A	3,305	0.264	A	0.001	No
G. Graham Street *between* Brodiaea Avenue and Cactus Avenue	D	4D	37,500	10,255	0.273	A	10,597	0.283	A	0.010	No
H. Cactus Avenue *between* Elsworth Street and Frederick Street	D	6D	56,300	**62,778**	**1.115**	**F**	**63,105**	**1.121**	**F**	**0.006**	**Maybe [a]**

Notes:

- [a] = The significant impact determination is based on the peak hour assessment presented in Table 10-3.

[24] The existing roadway capacity at LOS "E" for a five-lane divided roadway has been interpolated between the six-lane divided and four-lane divided roadway capacities (56,300 and 37,500, respectively) as presented in *Table 3-3* above.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 10-3

YEAR 2023 CUMULATIVE PLUS PROJECT CONDITIONS PEAK HOUR ROADWAY SEGMENT CAPACITY ANALYSIS SUMMARY

Key Roadway Segment	(1) Type of Arterial	(2) Time Period	(3) Approach	(4) Segment Capacity (VPHPL)	(5) Lanes	(6) Total Segment Capacity (VPH)	(7) Year 2023 Cumulative Plus Project Traffic Conditions		
							Peak Hour Volume	V/C Ratio	LOS
H. Cactus Avenue *between* Elsworth Street and Frederick Street	6-Lane Divided Arterial	AM	EB	1,600	3	4,800	2,273	0.474	A
			WB	1,600	3	4,800	2,775	0.578	A
		PM	EB	1,600	3	4,800	3,128	0.652	B
			WB	1,600	3	4,800	2,348	0.489	A

Notes:

- VPHPL = Vehicles Per Hour Per Lane
- VPH = Vehicles Per Hour
- V/C = Volume to Capacity Ratio

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

11.0 SITE ACCESS AND INTERNAL CIRCULATION EVALUATION

11.1 Level of Service Analysis For Project Access Locations

As shown previously in *Figure 2-2,* vehicular access to the proposed Project will be provided via two (2) right-turn in/right-turn out driveways along Alessandro Boulevard (Project Driveways No. 1 and 2). Please note that only passenger cars will utilize these driveways and no truck access will be allowed along Alessandro Boulevard. Access will also be provided via two (2) full access driveways along Rebecca Street (Project Driveways No. 3 and 4) and one (1) right-turn in/right-turn out only driveway along Brodiaea Avenue (Project Driveway No. 5). It should be noted that the driveway spacing requirements contained within Table 9.11.080-14 of the City of Moreno Valley Municipal Code – Design Guidelines were considered and the driveway locations were ultimately approved by the City Engineer.

It should be noted that in conjunction with the proposed Project, Rebecca Street will be extended northerly from the current Rebecca Street terminus (north of Brodiaea Avenue) to Alessandro Boulevard at the existing intersection of Alessandro Plaza and Alessandro Boulevard, which will allow site access via Rebecca Street in addition to Alessandro Boulevard and Brodiaea Avenue. In addition, the existing traffic signal at the intersection of Alessandro Plaza and Alessandro Boulevard will be modified to accommodate Rebecca Street as the fourth leg of the intersection.

Table 11-1 summarizes the intersection operations at the proposed Project driveways under near-term (Year 2023) cumulative traffic conditions at completion and full occupancy of the proposed Project. The operations analysis for the project driveways is based on the *Highway Capacity Manual 6* (HCM 6) methodology for unsignalized intersections. Review of *Table 11-1* shows that the five (5) Project Driveways are forecast to operate at acceptable LOS C or better during the AM and PM peak hours for Year 2023 Cumulative Plus Project traffic conditions. As such, project access will be adequate. Motorists entering and exiting the Project site will be able to do so comfortably, safely, and without undue congestion.

Appendix D presents the Year 2023 Cumulative Plus Project level of service calculation worksheets for the five (5) proposed Project driveways.

11.2 Internal Circulation Evaluation

The on-site circulation layout of the proposed Project as illustrated in *Figure 2-2* on an overall basis is adequate. Curb return radii have been confirmed and are generally adequate for small service/delivery (FedEx, UPS) trucks, trash trucks, fire trucks, and large trucks.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 11-1

PROJECT DRIVEWAY PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Project Driveway		Time Period	Intersection Control	Year 2023 Cumulative Plus Project Traffic Conditions	
				HCM	LOS
A.	Project Driveway No. 1 at Alessandro Boulevard	AM PM	One-Way Stop	10.8 s/v 18.8 s/v	B C
B.	Project Driveway No. 2 at Alessandro Boulevard	AM PM	One-Way Stop	10.8 s/v 18.9 s/v	B C
C.	Rebecca Street at Project Driveway No. 3	AM PM	One-Way Stop	8.5 s/v 8.8 s/v	A A
D.	Rebecca Street at Project Driveway No. 4	AM PM	One-Way Stop	8.7 s/v 8.7 s/v	A A
E.	Project Driveway No. 5 at Brodiaea Avenue	AM PM	One-Way Stop	0.0 s/v 9.0 s/v	A A

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1 and 3-2* for the LOS definitions

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

12.0 INTERSECTION QUEUING ANALYSIS

A queuing evaluation was prepared for the exclusive right-turn and left-turn pockets at the key study intersections of I-215 SB Ramps at Alessandro Boulevard, Graham Street at Alessandro Boulevard, Alessandro Plaza/Rebecca Street at Alessandro Boulevard, Heacock Street at Alessandro Boulevard, Graham Street at Brodiaea Avenue, Rebecca Street at Brodiaea Avenue, Gilbert Street at Brodiaea Avenue, Heacock Street at Brodiaea Avenue, I-215 SB Ramps at Cactus Avenue, Graham Street/Riverside Drive at Cactus Avenue, and Gilbert Street at Cactus Avenue to determine the minimum required stacking/storage lengths. As required by City of Moreno Valley staff, only the intersections where a portion of Project-related traffic utilizes either a left-turn and/or right-turn pocket has been included in this analysis.

For the intersections mentioned above, the queuing evaluation was conducted based on the HCM 6 service level calculation, which calculates a critical (95th percentile) queue value in feet for signalized intersections and the number of vehicles for unsignalized intersections.

12.1 Existing Plus Project Intersection Queuing Evaluation

Table 12-1 identifies the minimum required stacking/storage lengths for specific movements at the key study intersections of I-215 SB Ramps at Alessandro Boulevard, Graham Street at Alessandro Boulevard, Alessandro Plaza/Rebecca Street at Alessandro Boulevard, Heacock Street at Alessandro Boulevard, Graham Street at Brodiaea Avenue, Rebecca Street at Brodiaea Avenue, Gilbert Street at Brodiaea Avenue, Heacock Street at Brodiaea Avenue, I-215 SB Ramps at Cactus Avenue, Graham Street/Riverside Drive at Cactus Avenue, and Gilbert Street at Cactus Avenue for Existing Plus Project traffic conditions. As presented in *Table 12-1*, adequate storage is provided for all movements.

12.2 Existing Plus Ambient Growth Plus Project Intersection Queuing Evaluation

Table 12-2 identifies the minimum required stacking/storage lengths for specific movements at the key study intersections of I-215 SB Ramps at Alessandro Boulevard, Graham Street at Alessandro Boulevard, Alessandro Plaza/Rebecca Street at Alessandro Boulevard, Heacock Street at Alessandro Boulevard, Graham Street at Brodiaea Avenue, Rebecca Street at Brodiaea Avenue, Gilbert Street at Brodiaea Avenue, Heacock Street at Brodiaea Avenue, I-215 SB Ramps at Cactus Avenue, Graham Street/Riverside Drive at Cactus Avenue, and Gilbert Street at Cactus Avenue for Existing Plus Ambient Growth (Year 2023) Plus Project traffic conditions. As presented in *Table 12-2*, adequate storage is provided for all movements, except for the southbound left-turn lane at the intersection of Graham Street/Alessandro Boulevard, which will be deficient by 6 feet. Therefore, it is recommended that the 180-foot southbound left-turn lane at the intersection of Graham Street/Alessandro Boulevard be extended by 20 feet to provide a total of 200 feet of storage.

12.3 Year 2023 Cumulative Plus Project Intersection Queuing Evaluation

Table 12-3 identifies the minimum required stacking/storage lengths for specific movements at the key study intersections of I-215 SB Ramps at Alessandro Boulevard, Graham Street at Alessandro Boulevard, Alessandro Plaza/Rebecca Street at Alessandro Boulevard, Heacock Street at Alessandro

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

Boulevard, Graham Street at Brodiaea Avenue, Rebecca Street at Brodiaea Avenue, Gilbert Street at Brodiaea Avenue, Heacock Street at Brodiaea Avenue, I-215 SB Ramps at Cactus Avenue, Graham Street/Riverside Drive at Cactus Avenue, and Gilbert Street at Cactus Avenue for Year 2023 Cumulative Plus Project traffic conditions. As presented in *Table 12-3*, adequate storage is provided for all movements, except for the southbound left-turn lane at the intersection of Graham Street/Alessandro Boulevard, which will be deficient by 17 feet. Therefore, it is recommended that the 180-foot southbound left-turn lane at the intersection of Graham Street/Alessandro Boulevard be extended by 20 feet to provide a total of 200 feet of storage.

It should be noted that in conjunction with the proposed Project, Rebecca Street will be extended northerly from the current Rebecca Street terminus (north of Brodiaea Avenue) to Alessandro Boulevard at the existing intersection of Alessandro Plaza and Alessandro Boulevard. As such, the Project shall provide at the minimum 150 feet of storage for the future westbound left-turn lane and 100 feet for the future northbound left-turn lane at this intersection.

It should be further noted that based on discussions with City of Moreno Valley staff, the minimum storage length for vehicle queuing in front of any gated truck access shall be 75 feet. In addition, the Project shall provide at the minimum 50 feet of storage for the outbound movements at the remaining Project Driveways.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 12-1

EXISTING PLUS PROJECT INTERSECTION QUEUING ANALYSIS[25]

Key Intersection	Estimated Storage Provided (feet)	Existing Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)
1. I-215 SB Ramps at Alessandro Boulevard					
Southbound Left-Turn	785’	162’	Yes	105’	Yes
3. Graham Street at Alessandro Boulevard					
Southbound Left-Turn	180’	128’	Yes	173’	Yes
4. Alessandro Plaza/Rebecca Street at Alessandro Boulevard					
Westbound Left-Turn	150’	49’	Yes	14’	Yes
Northbound Left-Turn	100’	31’	Yes	60’	Yes
5. Heacock Street at Alessandro Boulevard					
Southbound Right-Turn	200’	75’	Yes	33’	Yes
Eastbound Left-Turn	200’	165’	Yes	195’	Yes
6. Graham Street at Brodiaea Ave					
Westbound Left-Turn	150’	44’	Yes	62’	Yes
7. Rebecca Street at Brodiaea Ave					
Southbound Right-Turn	150’	22’	Yes	22’	Yes
Southbound Left-Turn	150’	22’	Yes	22’	Yes
Eastbound Left-Turn	150’	22’	Yes	22’	Yes

[25] Queue is based on the *95th Percentile Queue* and is reported in number of cars per lane for unsignalized intersections and in total queue length (feet) for signalized intersections.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 12-1 (CONTINUED)
EXISTING PLUS PROJECT INTERSECTION QUEUING ANALYSIS[26]

Key Intersection	Estimated Storage Provided (feet)	Existing Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)
8. Gilbert Street at Brodiaea Ave					
Northbound Left-Turn	150’	22’	Yes	22’	Yes
Westbound Left-Turn	150’	22’	Yes	22’	Yes
9. Heacock Street at Brodiaea Ave					
Northbound Left-Turn	150’	68’	Yes	32’	Yes
Eastbound Right-Turn	150’	0’	Yes	0’	Yes
10. I-215 SB Ramps at Cactus Avenue					
Westbound Left-Turn	210’	256’	Yes[27]	355’	Yes[27]
12. Graham Street/Riverside Drive at Cactus Avenue					
Southbound Right-Turn	90’	37’	Yes	8’	Yes
Eastbound Left-Turn	225’	141’	Yes	92’	Yes
13. Gilbert Street at Cactus Avenue					
Southbound Left-Turn	150’	12’	Yes	8’	Yes

[26] Queue is based on the *95th Percentile Queue* and is reported in number of cars per lane for unsignalized intersections and in total queue length (feet) for signalized intersections.

[27] Although the expected queue exceeds the estimated storage of 210 feet, the remaining queue can be accommodated within the existing trap lane extending 1,250 feet back to the intersection of Old 215 Frontage Road/I-215 Northbound Ramps at Cactus Avenue.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 12-2

EXISTING PLUS AMBIENT GROWTH (YEAR 2023) PLUS PROJECT INTERSECTION QUEUING ANALYSIS[28]

Key Intersection	Existing Plus Ambient Growth Plus Project Traffic Conditions				
		AM Peak Hour		PM Peak Hour	
	Estimated Storage Provided (feet)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)
1. I-215 SB Ramps at Alessandro Boulevard					
Southbound Left-Turn	785’	181’	Yes	168’	Yes
3. Graham Street at Alessandro Boulevard					
Southbound Left-Turn	180’	135’	Yes	186’	No
4. Alessandro Plaza/Rebecca Street at Alessandro Boulevard					
Westbound Left-Turn	150’	49’	Yes	19’	Yes
Northbound Left-Turn	100’	31’	Yes	88’	Yes
5. Heacock Street at Alessandro Boulevard					
Southbound Right-Turn	200’	85’	Yes	49’	Yes
Eastbound Left-Turn	200’	184’	Yes	210’	Yes[29]
6. Graham Street at Brodiaea Ave					
Westbound Left-Turn	150’	46’	Yes	90’	Yes
7. Rebecca Street at Brodiaea Ave					
Southbound Right-Turn	150’	22’	Yes	22’	Yes
Southbound Left-Turn	150’	22’	Yes	22’	Yes
Eastbound Left-Turn	150’	22’	Yes	22’	Yes

[28] Queue is based on the *95th Percentile Queue* and is reported in number of cars per lane for unsignalized intersections and in total queue length (feet) for signalized intersections.

[29] Although the expected queue exceeds the estimated storage of 200 feet, the remaining queue can be accommodated within the existing trap lane extending 400 feet back to the median break.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 12-2 (CONTINUED)

EXISTING PLUS AMBIENT GROWTH (YEAR 2023) PLUS PROJECT INTERSECTION QUEUING ANALYSIS[30]

Key Intersection	Estimated Storage Provided (feet)	Existing Plus Ambient Growth Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)
8. Gilbert Street at Brodiaea Ave					
Northbound Left-Turn	150’	22’	Yes	22’	Yes
Westbound Left-Turn	150’	22’	Yes	22’	Yes
9. Heacock Street at Brodiaea Ave					
Northbound Left-Turn	150’	74’	Yes	47’	Yes
Eastbound Right-Turn	150’	0’	Yes	1’	Yes
10. I-215 SB Ramps at Cactus Avenue					
Westbound Left-Turn	210’	288’	Yes[31]	531’	Yes[311]
12. Graham Street/Riverside Drive at Cactus Avenue					
Southbound Right-Turn	90’	45’	Yes	35’	Yes
Eastbound Left-Turn	225’	150’	Yes	139’	Yes
13. Gilbert Street at Cactus Avenue					
Southbound Left-Turn	150’	12’	Yes	11’	Yes

[30] Queue is based on the *95th Percentile Queue* and is reported in number of cars per lane for unsignalized intersections and in total queue length (feet) for signalized intersections.

[31] Although the expected queue exceeds the estimated storage of 210 feet, the remaining queue can be accommodated within the existing trap lane extending 1,250 feet back to the intersection of Old 215 Frontage Road/I-215 Northbound Ramps at Cactus Avenue.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 12-3

YEAR 2023 CUMULATIVE PLUS PROJECT INTERSECTION QUEUING ANALYSIS[32]

Key Intersection	Year 2023 Cumulative Plus Project Traffic Conditions				
		AM Peak Hour		PM Peak Hour	
	Estimated Storage Provided (feet)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)
1. I-215 SB Ramps at Alessandro Boulevard					
Southbound Left-Turn	785’	256’	Yes	215’	Yes
3. Graham Street at Alessandro Boulevard					
Southbound Left-Turn	180’	137’	Yes	197’	No
4. Alessandro Plaza/Rebecca Street at Alessandro Boulevard					
Westbound Left-Turn	150’	49’	Yes	18’	Yes
Northbound Left-Turn	100’	31’	Yes	83’	Yes
5. Heacock Street at Alessandro Boulevard					
Southbound Right-Turn	200’	100’	Yes	40’	Yes
Eastbound Left-Turn	200’	182’	Yes	230’	Yes[33]
6. Graham Street at Brodiaea Ave					
Westbound Left-Turn	150’	48’	Yes	98’	Yes
7. Rebecca Street at Brodiaea Ave					
Southbound Right-Turn	150’	22’	Yes	22’	Yes
Southbound Left-Turn	150’	22’	Yes	22’	Yes
Eastbound Left-Turn	150’	22’	Yes	22’	Yes

[32] Queue is based on the *95th Percentile Queue* and is reported in number of cars per lane for unsignalized intersections and in total queue length (feet) for signalized intersections.

[33] Although the expected queue exceeds the estimated storage of 200 feet, the remaining queue can be accommodated within the existing trap lane extending 400 feet back to the median break.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 12-3 (CONTINUED)

YEAR 2023 CUMULATIVE PLUS PROJECT INTERSECTION QUEUING ANALYSIS[34]

Key Intersection	Estimated Storage Provided (feet)	Year 2023 Cumulative Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)
8. Gilbert Street at Brodiaea Ave					
Northbound Left-Turn	150’	22’	Yes	22’	Yes
Westbound Left-Turn	150’	22’	Yes	22’	Yes
9. Heacock Street at Brodiaea Ave					
Northbound Left-Turn	150’	76’	Yes	47’	Yes
Eastbound Right-Turn	150’	0’	Yes	2’	Yes
10. I-215 SB Ramps at Cactus Avenue					
Westbound Left-Turn	210’	1,056’	Yes[35]	1,155’	Yes[35]
12. Graham Street/Riverside Drive at Cactus Avenue					
Southbound Right-Turn	90’	90’	Yes	41’	Yes
Eastbound Left-Turn	225’	237’[36]	Yes	137’	Yes
13. Gilbert Street at Cactus Avenue					
Southbound Left-Turn	150’	12’	Yes	11’	Yes
A. Project Driveway 1 at Alessandro Boulevard					
Northbound Right-Turn	50’	22’	Yes	22’	Yes

[34] Queue is based on the *95th Percentile Queue* and is reported in number of cars per lane for unsignalized intersections and in total queue length (feet) for signalized intersections.

[35] Although the expected queue exceeds the estimated storage of 210 feet, the remaining queue can be accommodated within the existing trap lane extending 1,250 feet back to the intersection of Old 215 Frontage Road/I-215 Northbound Ramps at Cactus Avenue.

[36] Although the expected queue exceeds the estimated storage of 225 feet, the remaining queue can be accommodated within the existing 100 foot transition.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 12-3 (CONTINUED)

YEAR 2023 CUMULATIVE PLUS PROJECT INTERSECTION QUEUING ANALYSIS[37]

Key Intersection	Year 2023 Cumulative Plus Project Traffic Conditions				
		AM Peak Hour		PM Peak Hour	
	Estimated Storage Provided (feet)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)	Max. Queue/ Min. Storage Required	Adequate Storage (Yes / No)
B. Project Driveway 2 at Alessandro Boulevard *Northbound Right-Turn*	50’	22’	Yes	22’	Yes
C. Rebecca Street at Project Driveway 3 *Westbound Shared Left/Right-Turn*	50’	22’	Yes	22’	Yes
D. Rebecca Street at Project Driveway 4 *Westbound Shared Left/Right-Turn*	50’	22’	Yes	22’	Yes
E. Project Driveway 5 at Brodiaea Avenue *Southbound Right-Turn*	50’	22’	Yes	22’	Yes

[37] Queue is based on the *95th Percentile Queue* and is reported in number of cars per lane for unsignalized intersections and in total queue length (feet) for signalized intersections.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

13.0 CALTRANS FACILITIES ANALYSIS

Caltrans requires the use of analysis methods provided in the Highway Capacity Manual 6 (*HCM 6)* for the analysis of ramp intersections. As discussed previously in Section 7.1.2, Caltrans "endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities"; it does not require that LOS "D" (shall) be maintained. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. For this analysis, LOS D is the target level of service standard and will be utilized to assess the Project impacts at the state-controlled study intersections.

Ramp Intersection Capacity Analyses were conducted for the following four (4) state-controlled key study intersections:

1. I-215 Southbound Ramps at Alessandro Boulevard
2. I-215 Northbound Ramps at Alessandro Boulevard
10. I-215 Southbound Ramps at Cactus Avenue
11. Old 215 Frontage Road/I-215 Northbound Ramps at Cactus Avenue

Additionally, Basic Freeway Segment Analysis for freeway mainline segments was conducted for the following four (4) Caltrans freeway segments for Existing traffic conditions:

1. I-215 Northbound *south of* Cactus Avenue
2. I-215 Northbound *north of* Alessandro Boulevard
3. I-215 Southbound *north of* Alessandro Boulevard
4. I-215 Southbound *south of* Cactus Avenue

13.1 Ramp Intersection Capacity Analysis

Refer to ***Tables 8-1, 9-1,*** and ***10-1*** presented previously in Sections 8.0, 9.0, and 10.0 for the results of the level of service analyses conducted for the four (4) state-controlled study intersections listed above.

13.2 Basic Freeway Segment Capacity Analysis

13.2.1 *Existing Traffic Conditions*

Table 13-1 summarizes the peak hour level of service results at the aforementioned four (4) key freeway segments for Existing traffic conditions. Review of *Table 13-1* indicates that the four (4) key freeway segments currently operate at LOS D or better during the AM and PM peak hours.

Per Caltrans guidelines, the following is stated in the *Caltrans Guide for the Preparation of Traffic Impact Studies, December 2002*:

> *"The following criterion is a starting point in determining when a TIS is needed. When a project:*

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

1. *Generates over 100 peak hour trips assigned to a State highway facility…..*
2. *Generates 50 to 100 peak hour trips assigned to a State highway facility and noticeable delay approaching LOS C or D…..*
3. *Generates 1 to 49 peak hour trips assigned to a State highway facility and noticeable delay approaching LOS E or F…..”*

Based on the Caltrans criteria above, the results of the basic freeway segment analysis for Existing traffic conditions as presented in *Table 13-1,* it is determined that no additional analysis is needed for the Caltrans Facilities since the Project generates between 7 and 43 peak hour trips assigned to a state highway facility and all freeway segments are forecast to operate at an acceptable LOS D or better during the AM and PM peak hours under Existing traffic conditions.

Appendix E contains the Basic Freeway Segments Analysis Calculation Worksheets for the four (4) freeway mainline segments for Existing Traffic Conditions.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 13-1

EXISTING PEAK HOUR FREEWAY MAINLINE CAPACITY ANALYSIS SUMMARY

Key Basic Freeway Segment	Time Period	Lanes	Total Project Trips	(1) Existing Traffic Conditions		
				Peak Hour Volume (pc/h/ln)	Density (pc/mi/ln)	LOS
1. I-215 Northbound *south of* Cactus Avenue	AM	4	29	3,368	13.9	B
	PM		8	5,423	22.4	C
2. I-215 Northbound *north of* Alessandro Boulevard	AM	3	10	1,295	7.1	A
	PM		43	4,931	28.0	D
3. I-215 Southbound *north of* Alessandro Boulevard	AM	3	43	5,403	31.7	D
	PM		12	4,369	24.2	C
4. I-215 Southbound *south of* Cactus Avenue	AM	4	7	5,368	22.2	C
	PM		29	4,299	17.8	B

Notes:

- pc/mi/ln = Passenger cars per mile per lane (density)
- LOS = Level of Service, please refer to *Table 3-4* for the LOS definitions
- **Bold Volume/Density/LOS values** indicate adverse service levels based on the Caltrans LOS Criteria

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

14.0 AREA-WIDE TRAFFIC IMPROVEMENTS

For those intersections and roadway segments where projected traffic volumes are expected to result in significant impacts, this report recommends traffic improvements that change the intersection and/or roadway segment geometry to increase capacity. These capacity improvements involve roadway widening and/or re-striping to reconfigure (add lanes) roadways to specific approaches of a key intersection and/or roadway segment. The identified improvements are expected to:

- Address the impact of existing traffic, Project traffic and future non-project (ambient traffic growth and Cumulative) traffic, and
- Improve Levels of Service to an acceptable range and/or to pre-project conditions.

14.1 Project Specific Improvements

The following improvements are recommended to ensure that adequate ingress and egress to the Project site is provided:

- Intersection #4: Alessandro Plaza/Rebecca Street at Alessandro Boulevard: Construct the southern leg of the intersection (Rebecca Street) to provide for an exclusive northbound left-turn lane and a shared northbound through/right-turn lane. Stripe a crosswalk across Rebecca Street on the south leg of the intersection. Restripe the shared southbound left/right-turn lane to a shared left/through/right-turn lane. Provide an exclusive westbound left-turn lane on Alessandro Boulevard. Modify the existing traffic signal to provide permissive left-turn phasing in the northbound-southbound directions and protected left-turn phasing in the eastbound-westbound directions.

14.2 Planned Improvements

The following planned improvements are anticipated to be completed by the Year 2023 with the completion of the March LifeCare Campus Master Plan Phase I and have been included in the level of service calculations for Year 2023 Cumulative Plus Project traffic conditions:

- Intersection #13: Gilbert Street/"DD" Drive at Cactus Avenue: Construct the southern leg of the intersection ("DD" Drive) to provide for dual northbound left-turn lanes and a shared northbound through/right-turn lane. Remove the southbound right-turn overlap and restripe the exclusive southbound right-turn lane to provide a shared through/right-turn lane. Widen Cactus Avenue to provide an exclusive eastbound free right-turn lane and an exclusive westbound left-turn lane. Modify the existing traffic signal to provide for a six phase signal (northbound/southbound split phase).

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

14.3 Existing Plus Project Recommended Improvements

14.3.1 *Intersections*

The results of the intersection analyses for "Existing Plus Project" traffic conditions indicate that the proposed Project is not forecast to have a significant impact at any of the fourteen (14) key intersections. As there are no significant impacts, no traffic mitigation measures are required or recommended for the key study intersections.

14.3.2 *Roadway Segments*

The results of the roadway segment analyses for "Existing Plus Project" traffic conditions indicate that the proposed Project is not forecast to have a significant impact at any of the eight (8) key roadway segments. As there are no significant impacts, no traffic mitigation measures are required or recommended for the roadway segments.

14.4 Existing Plus Ambient Plus Project Recommended Improvements

14.4.1 *Intersections*

The results of the intersection analyses for "Existing Plus Ambient Growth (Year 2023) Plus Project" traffic conditions indicate that the proposed Project is not forecast to have a significant impact at any of the fourteen (14) key intersections. As there are no significant impacts, no traffic mitigation measures are required or recommended for the key study intersections.

14.4.2 *Roadway Segments*

The results of the roadway segment analyses for "Existing Plus Ambient Growth (Year 2023) Plus Project" traffic conditions indicate that the proposed Project is not forecast to have a significant impact at any of the eight (8) key roadway segments. As there are no significant impacts, no traffic mitigation measures are required or recommended for the roadway segments.

14.5 Year 2023 Cumulative Plus Project Recommended Improvements

14.5.1 *Intersections*

The results of the intersection analyses for "Year 2023 Cumulative Plus Project" traffic conditions indicate that the proposed Project will cumulatively impact two (2) of the fourteen (14) key intersections. The following improvements listed below have been identified to mitigate the traffic impacts of the Project for "Year 2023 Cumulative Plus Project" traffic conditions at the following two (2) cumulatively impacted intersections:

- Intersection #10: I-215 Southbound Ramps at Cactus Avenue: Widen and restripe Cactus Avenue to provide a 3rd eastbound through lane and a 3rd westbound through lane. The installation of these improvements are subject to the approval of the County of Riverside and Caltrans.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

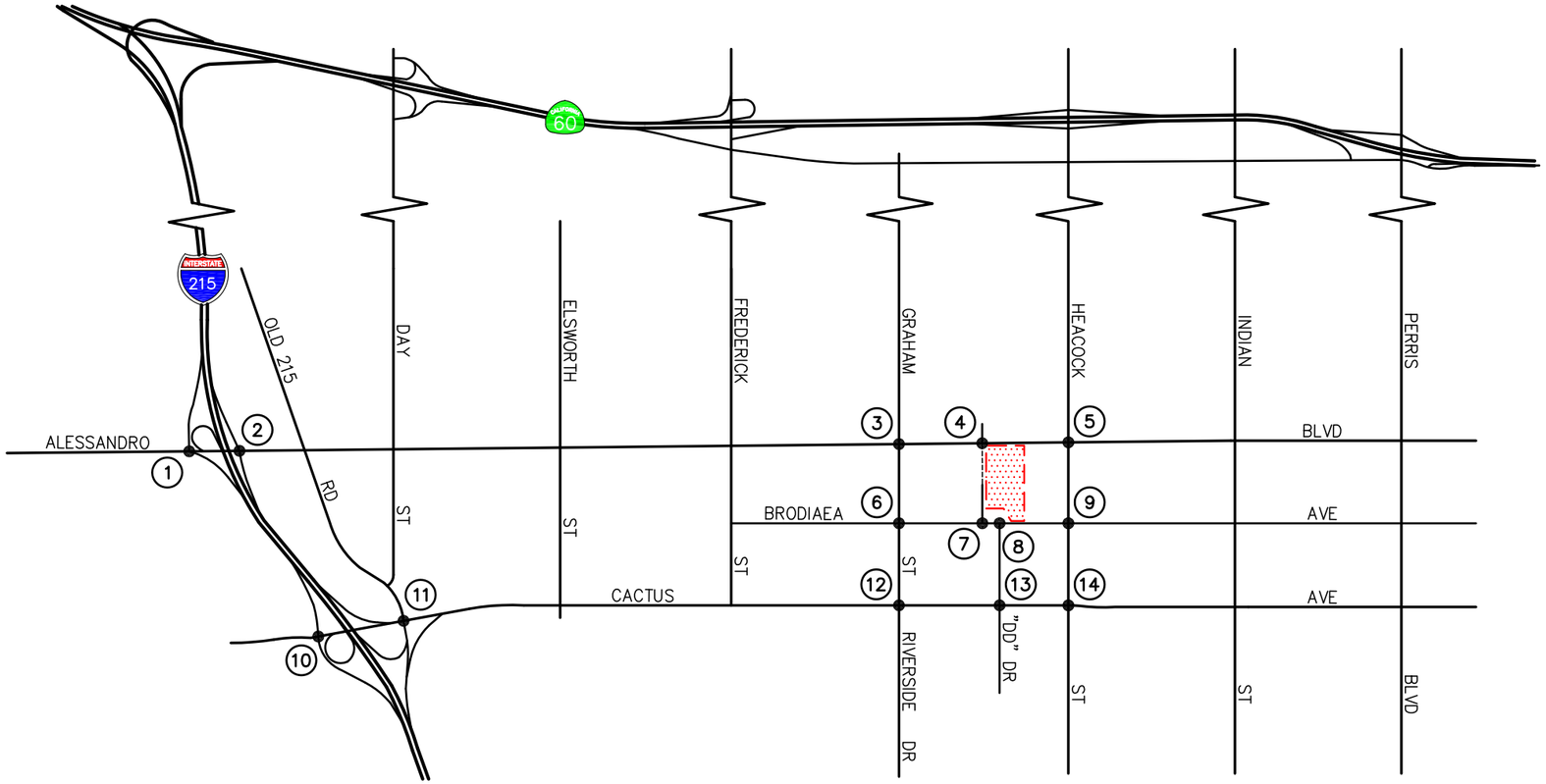
- Intersection #11: Old 215 Frontage Road/I-215 Northbound Ramps at Cactus Avenue: Widen and restripe Cactus Avenue to provide a 3rd eastbound through lane, a 3rd westbound through lane, and an exclusive westbound right-turn lane. The installation of these improvements are subject to the approval of the County of Riverside and Caltrans.

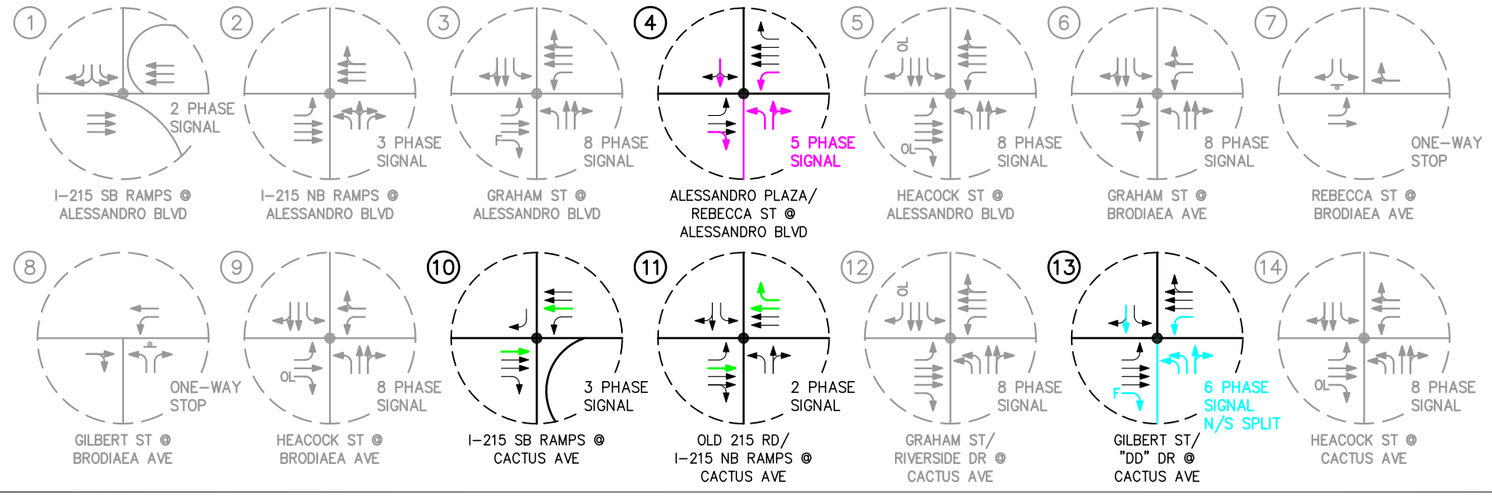
14.5.2 *Roadway Segments*

The results of the roadway segment analyses for "Year 2023 Cumulative Plus Project" traffic conditions indicate that the proposed Project is not forecast to have a significant impact at any of the eight (8) key roadway segments. As there are no significant impacts, no traffic mitigation measures are required or recommended for the roadway segments.

Figure 14-1 graphically illustrates the recommended improvements for "Year 2023 Cumulative Plus Project" traffic conditions at the two (2) cumulatively impacted key study intersections. *Figure 14-1* also graphically illustrates the Project specific improvements as well as the Year 2023 cumulative planned improvements.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)





LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= APPROACH LANE ASSIGNMENT
= PROJECT SPECIFIC IMPROVEMENTS
= YEAR 2023 CUMULATIVE PLANNED IMPROVEMENTS
= YEAR 2023 CUMULATIVE PLUS PROJECT RECOMMENDED IMPROVEMENTS
= TRAFFIC SIGNAL, = STOP SIGN
OL = OVERLAP, F = FREE RIGHT–TURN
= PROJECT SITE

FIGURE 14–1

YEAR 2023 CUMULATIVE PLANNED AND RECOMMENDED IMPROVEMENTS

PAMA BUSINESS PARK, MORENO VALLEY

n:\3900\2183972 – pama business park, moreno valley\dwg\3972 f14–1.dwg LDP 14:27:52 06–07–2018 tucker

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

15.0 PROJECT-RELATED FAIR SHARE CONTRIBUTION

The transportation impacts associated with development of the proposed Project were determined based on the level of service analyses presented previously in *Tables 8-1, 9-1* and *10-1*. As summarized previously in Section 10.0, the proposed Project is anticipated to create two (2) cumulative impacts in the Year 2023. As such, the proposed Project can be expected to pay a proportional "fair-share" of the improvement costs of the impacted intersections to mitigate the project's traffic impacts. It should be noted that the recommended improvements are identified above in Section 14.0.

15.1 Year 2023 (Cumulative Analysis) Project-Related Fair Share Contribution

Table 15-1 presents the AM peak hour and PM peak hour percentage of net traffic impact at the study intersections impacted by the proposed Project for Year 2023 cumulative traffic conditions (i.e. cumulative analysis). As presented in this table, the first column (1) presents a total of all intersection peak hour movements for existing traffic conditions. The second column (2) presents project only traffic conditions. The third column (3) presents future Year 2023 cumulative traffic conditions with project traffic. The fourth column (4) represents what percentage of total intersection peak hour traffic is project-related traffic.

Review of *Table 15-1* shows that the Project's traffic percentage at the intersection of I-215 SB Ramps at Cactus Avenue and Old 215 Frontage Road/I-215 NB Ramps at Cactus Avenue totals 1.53% and 0.57%, respectively.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

TABLE 15-1

YEAR 2023 PROJECT FAIR SHARE CONTRIBUTION

Key Intersections		Impacted Time Period	(1) Existing Traffic	(2) Project Only Traffic	(3) Year 2023 Cumulative Plus Project Traffic	(4) Net Projec Percent Increase
10.	I-215 Southbound Ramps at Cactus Avenue	PM	1,953	30	3,918	**1.53%**
11.	Old 215 Frontage Road/I-215 Northbound Ramps at Cactus Avenue	AM	3,278	9	4,863	**0.57%**

Notes:
Net Project Percent Increase (4) = [Column (2)] / [Column (3) – Column (1)]

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

16.0 SUMMARY OF FINDINGS AND CONCLUSIONS

- ***Project Description*** – The Project site is a vacant parcel of land generally located east of Rebecca Street, between Alessandro Boulevard and Brodiaea Avenue, in the City of Moreno Valley, California. The Project will consist of an industrial park with 284,000 SF of warehouse/office uses within seven (7) buildings. The Project will provide 349 parking spaces. The proposed Project is expected to be constructed in one phase. Consistent with City of Moreno Valley guidelines, a five year horizon was assumed, resulting in an opening year of 2023.

  Vehicular access to the proposed Project will be provided via two (2) right-turn in/right-turn out driveways along Alessandro Boulevard (Project Driveways No. 1 and 2). Please note that only passenger cars will utilize these driveways and no truck access will be allowed along Alessandro Boulevard. Access will also be provided via two (2) full access driveways along Rebecca Street (Project Driveways No. 3 and 4) and one (1) right-turn in/right-turn out only driveway along Brodiaea Avenue (Project Driveway No. 5).

- ***Study Scope*** – The following fourteen (14) key study intersections and eight (8) key roadway segments were selected for detailed peak hour level of service analyses under Existing Traffic Conditions, Existing Plus Project Traffic Conditions, Existing Plus Ambient Growth (Year 2023) Plus Project Traffic Conditions and Year 2023 Cumulative Plus Project Traffic Conditions:

  Key Study Intersections

  1. I-215 SB Ramps at Alessandro Boulevard (Caltrans/City of Riverside)
  2. I-215 NB Ramps at Alessandro Boulevard (Caltrans/City of Riverside)
  3. Graham Street at Alessandro Boulevard (City of Moreno Valley)
  4. Alessandro Plaza at Alessandro Boulevard (City of Moreno Valley)
  5. Heacock Street at Alessandro Boulevard (City of Moreno Valley)
  6. Graham Street at Brodiaea Avenue (City of Moreno Valley)
  7. Rebecca Street at Brodiaea Avenue (City of Moreno Valley)
  8. Gilbert Street at Brodiaea Avenue (City of Moreno Valley)
  9. Heacock Street at Brodiaea Avenue (City of Moreno Valley)
  10. I-215 SB Ramps at Cactus Avenue (Caltrans/Riverside County)
  11. Old 215 Frontage Road/I-215 NB Ramps at Cactus Avenue (Caltrans/Riverside County)
  12. Graham Street/Riverside Drive at Cactus Avenue (City of Moreno Valley)
  13. Gilbert Street at Cactus Avenue (City of Moreno Valley)
  14. Heacock Street at Cactus Avenue (City of Moreno Valley)

  Key Roadway Segments

  A. Alessandro Boulevard, between Elsworth Street and Frederick Street (City of Moreno Valley)
  B. Alessandro Boulevard, between Graham Street and Alessandro Plaza (City of Moreno Valley)
  C. Alessandro Boulevard, between Alessandro Plaza and Heacock Street (City of Moreno Valley)

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

D. Heacock Street, between Alessandro Boulevard and Brodiaea Avenue (City of Moreno Valley)
E. Brodiaea Avenue, between Graham Street and Rebecca Street (City of Moreno Valley)
F. Brodiaea Avenue, between Gilbert Street and Heacock Street (City of Moreno Valley)
G. Graham Street, between Brodiaea Avenue and Cactus Avenue (City of Moreno Valley)
H. Cactus Avenue, between Elsworth Street and Frederick Street (City of Moreno Valley)

- ***Existing Traffic Conditions*** – All fourteen (14) key study intersections currently operate at an acceptable level of service during the AM and PM peak hours. All eight (8) key roadway segments also currently operate at an acceptable service level on a daily basis.

- ***Project Trip Generation*** – The proposed Project is forecast to generate 1,244 daily trips (one half arriving, one half departing), with 143 trips (116 inbound, 27 outbound) produced in the AM peak hour and 149 trips (32 inbound, 117 outbound) produced in the PM peak hour on a "typical" weekday. Please note that these estimates include the conversion of truck-related trips to passenger car equivalents (PCE).

- ***Cumulative Projects Trip Generation*** – The fifty-four (54) cumulative projects are forecast to generate a total of 118,848 daily trips, with 8,895 trips (5,592 inbound and 3,303 outbound) forecast during the AM peak hour and 10,085 trips (3,880 inbound and 6,205 outbound) forecast during the PM peak hour.

- ***Existing Plus Project Traffic Conditions*** – The results of the "Existing Plus Project" analysis indicate that the proposed Project ***will not*** significantly impact any of the fourteen (14) key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The fourteen (14) key study intersections currently operate and are forecast to continue to operate at an acceptable service level during the AM and PM peak hours with the addition of Project generated traffic to existing traffic. Also, traffic associated with the proposed Project ***will not*** significantly impact any of the eight (8) key roadway segments when compared to the LOS standards and significant impact criteria specified in this report.

- ***Existing Plus Ambient Growth (Year 2023) Plus Project Traffic Conditions*** – The proposed Project ***will not*** significantly impact any of the fourteen (14) key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The fourteen (14) key study intersections are forecast to continue to operate at an acceptable service level during the AM and PM peak hours with the addition of Project generated traffic to existing traffic and ambient growth traffic. Also, traffic associated with the proposed Project ***will not*** significantly impact any of the eight (8) key roadway segments when compared to the LOS standards and significant impact criteria specified in this report.

- ***Year 2023 Cumulative Plus Project Traffic Conditions*** – The proposed Project will cumulatively impact two (2) of the fourteen (14) key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The remaining twelve (12) key study intersections are forecast to continue to operate in the Year 2023 at an acceptable

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

service level during the AM and PM peak hours with the addition of Project generated traffic to existing traffic, ambient growth traffic and cumulative projects traffic. The locations projected to operate at an unacceptable LOS with the addition of project traffic to existing traffic, ambient growth traffic and cumulative projects traffic are as follows:

	AM Peak Hour		PM Peak Hour	
Key Intersection	HCM	LOS	HCM	LOS
10. I-215 SB Ramps at Cactus Avenue	--	--	122.5 s/v	F
11. Old 215 Frontage Road/I-215 NB Ramps at Cactus Avenue	140.6 s/v	F	--	--

The implementation of improvements at the impacted intersections completely offsets the impact of the proposed project. The two (2) cumulatively impacted intersections are forecast to operate at an acceptable LOS during the AM and PM peak hours with implementation of improvements.

Traffic associated with the proposed Project ***will not*** significantly impact any of the eight (8) key roadway segments when compared to the LOS standards and significant impact criteria specified in this report.

- ***Site Access and Internal Circulation Evaluation*** – The five (5) Project Driveways are forecast to operate at acceptable LOS C or better during the AM and PM peak hours for near-term (Year 2023) cumulative plus project traffic conditions. As such, project access will be adequate. Motorists entering and exiting the Project site will be able to do so comfortably, safely, and without undue congestion.

- ***Queuing Analysis*** – Adequate storage is provided for all movements under Existing Plus Project traffic conditions. Adequate storage is provided for all movements under Existing Plus Ambient Growth (Year 2023) Plus Project and Year 2023 Cumulative Plus Project traffic conditions, except for the southbound left-turn lane at the intersection of Graham Street/Alessandro Boulevard. Therefore, it is recommended that the 180-foot southbound left-turn lane at the intersection of Graham Street/Alessandro Boulevard be extended by 20 feet to provide a total of 200 feet of storage.

  It should be noted that in conjunction with the proposed Project, Rebecca Street will be extended northerly from the current Rebecca Street terminus (north of Brodiaea Avenue) to Alessandro Boulevard at the existing intersection of Alessandro Plaza and Alessandro Boulevard. As such, the Project shall provide at the minimum 150 feet of storage for the future westbound left-turn lane and 100 feet for the future northbound left-turn lane at this intersection.

  It should be further noted that based on discussions with City of Moreno Valley staff, the minimum storage length for vehicle queuing in front of any gated truck access shall be 75 feet. In addition, the Project shall provide at the minimum 50 feet of storage for the outbound movements at the remaining Project Driveways.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

- ***Caltrans Facilities Analysis (Ramp Intersection Analyses)*** – Refer to ***Tables 8-1, 9-1,*** and ***10-1*** presented previously in Sections 8.0, 9.0, and 10.0 for the results of the level of service analyses conducted for the four (4) state-controlled study intersections listed above.

- ***Basic Freeway Segment Capacity Analysis*** – The Project generates between 7 and 43 peak hour trips assigned to a state highway facility and all freeway segments are forecast to operate at an acceptable LOS D or better during the AM and PM peak hours under Existing traffic conditions. As such, no additional analysis is needed for the Caltrans Facilities.

- ***Project Specific Improvements –*** The following improvements are recommended to ensure that adequate ingress and egress to the Project site is provided:

  - Intersection #4: Alessandro Plaza/Rebecca Street at Alessandro Boulevard: Construct the southern leg of the intersection (Rebecca Street) to provide for an exclusive northbound left-turn lane and a shared northbound through/right-turn lane. Stripe a crosswalk across Rebecca Street on the south leg of the intersection. Restripe the shared southbound left/right-turn lane to a shared left/through/right-turn lane. Provide an exclusive westbound left-turn lane on Alessandro Boulevard. Modify the existing traffic signal to provide permissive left-turn phasing in the northbound-southbound directions and protected left-turn phasing in the eastbound-westbound directions.

- ***Planned Improvements –*** The following planned improvements are anticipated to be completed by the Year 2023 with the completion of the March LifeCare Campus Master Plan Phase I and have been included in the level of service calculations for Year 2023 Cumulative Plus Project traffic conditions:

  - Intersection #13: Gilbert Street/"DD" Drive at Cactus Avenue: Construct the southern leg of the intersection ("DD" Drive) to provide for dual northbound left-turn lanes and a shared northbound through/right-turn lane. Remove the southbound right-turn overlap and restripe the exclusive southbound right-turn lane to provide a shared through/right-turn lane. Widen Cactus Avenue to provide an exclusive eastbound free right-turn lane and an exclusive westbound left-turn lane. Modify the existing traffic signal to provide for a six phase signal (northbound/southbound split phase).

- ***Recommended Year 2023 Cumulative Plus Project Improvements –*** The following improvements listed below have been identified to mitigate the Year 2023 cumulative plus project impacts at the two (2) cumulatively impacted key study intersections. The proposed Project can be expected to contribute a fair-share to implement the following recommended improvements:

  - Intersection #10: I-215 Southbound Ramps at Cactus Avenue: Widen and restripe Cactus Avenue to provide a 3rd eastbound through lane and a 3rd westbound through lane. The installation of these improvements are subject to the approval of the County of Riverside and Caltrans.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

- Intersection #11: Old 215 Frontage Road/I-215 Northbound Ramps at Cactus Avenue: Widen and restripe Cactus Avenue to provide a 3rd eastbound through lane, a 3rd westbound through lane, and an exclusive westbound right-turn lane. The installation of these improvements are subject to the approval of the County of Riverside and Caltrans.

- ***Year 2023 (Cumulative Analysis) Project-Related Fair Share Contribution*** – The Project's traffic percentage at the intersection of I-215 SB Ramps at Cactus Avenue and Old 215 Frontage Road/I-215 NB Ramps at Cactus Avenue totals 1.53% and 0.57%, respectively.

Attachment: Traffic Impact Analysis (3285 : PAMA Business Center)

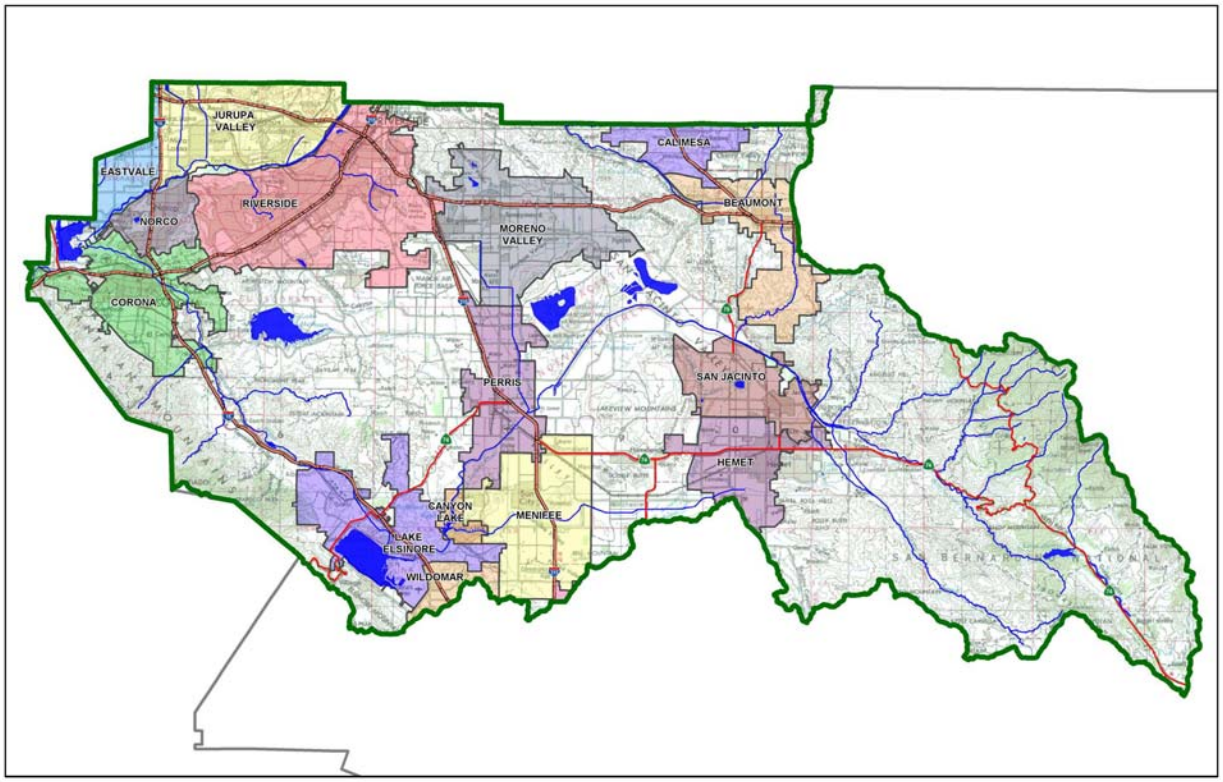
Project Specific Water Quality Management Plan

*A Template for Projects located within the **Santa Ana Watershed** Region of Riverside County*

Project Title: Alessandro Industrial Center

Development No: TPM 37478

Design Review/Case No: PEN 18-0027, LWQ 18-0006



☒ **Preliminary**
☐ **Final**

Original Date Prepared: 1/26/18

Revision Date(s): 05/22/18

Prepared for Compliance with
Regional Board Order No. **R8-2010-0033**
Template revised June 30, 2016

Contact Information:

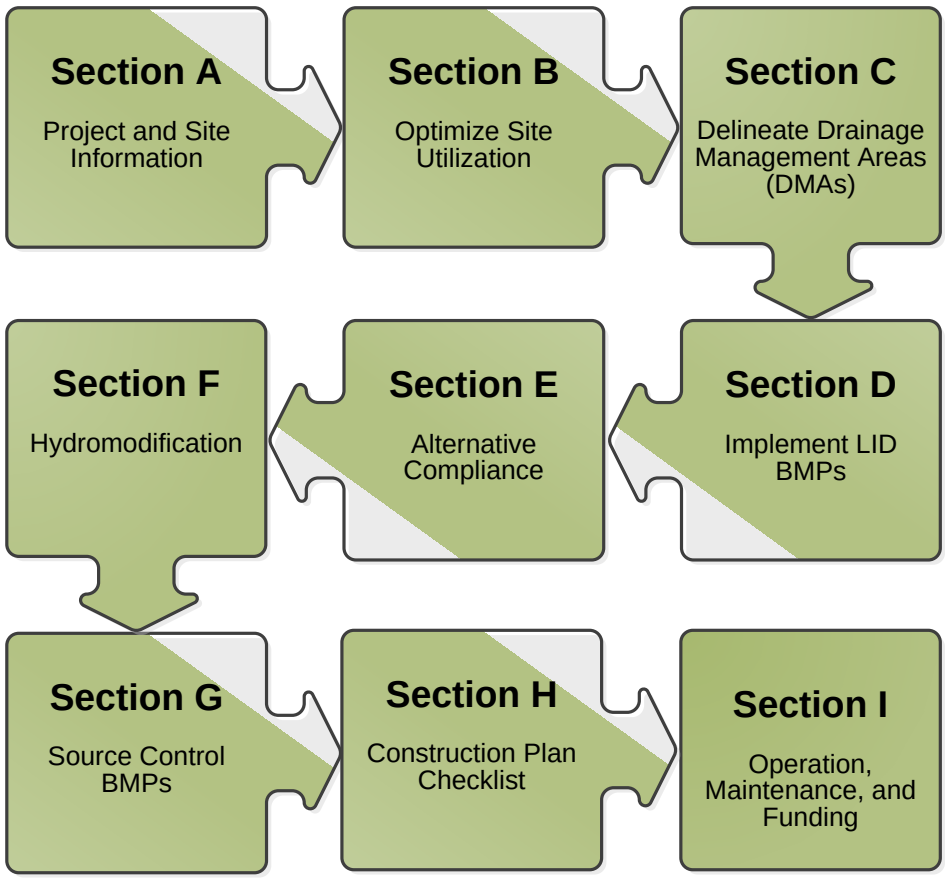
Prepared for:
PAMA Management
Ryan Liu
4900 Santa Anita Avenue, Suite 2C
El Monte, CA 91731
626-258-3374

Prepared by:
Huitt-Zollars, Inc.
3990 Concours, Suite 330
Ontario, CA 91764
909-941-7799

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

A Brief Introduction

This Project-Specific WQMP Template for the **Santa Ana Region** has been prepared to help guide you in documenting compliance for your project. Because this document has been designed to specifically document compliance, you will need to utilize the WQMP Guidance Document as your "how-to" manual to help guide you through this process. Both the Template and Guidance Document go hand-in-hand, and will help facilitate a well prepared Project-Specific WQMP. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for PAMA Management by Huitt-Zollars, Inc for the Pama Business Park project.

This WQMP is intended to comply with the requirements of City of Moreno Valley for APN:297-170-083 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under City of Moreno Valley Water Quality Ordinance (Municipal Code Section 8.10).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

Preparer's Signature	Date
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure:

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Table of Contents

Section A: Project and Site Information 6
A.1 Maps and Site Plans 6
A.2 Identify Receiving Waters 7
A.3 Additional Permits/Approvals required for the Project: 8
Section B: Optimize Site Utilization (LID Principles) 9
Section C: Delineate Drainage Management Areas (DMAs) 11
Section D: Implement LID BMPs 13
D.1 Infiltration Applicability 13
D.2 Harvest and Use Assessment 14
D.3 Bioretention and Biotreatment Assessment 16
D.4 Feasibility Assessment Summaries 17
D.5 LID BMP Sizing 18
Section E: Alternative Compliance (LID Waiver Program) 19
E.1 Identify Pollutants of Concern 20
E.2 Stormwater Credits (N/A) 21
E.3 Sizing Criteria (N/A) 21
E.4 Treatment Control BMP Selection 22
Section F: Hydromodification 23
F.1 Hydrologic Conditions of Concern (HCOC) Analysis 23
F.2 HCOC Mitigation 24
Section G: Source Control BMPs 25
Section H: Construction Plan Checklist 27
Section I: Operation, Maintenance and Funding 28

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

List of Tables

Table A.1 Identification of Receiving Waters 7
Table A.2 Other Applicable Permits 8
Table C.1 DMA Classifications 11
Table C.2 Type 'A', Self-Treating Areas (N/A) 11
Table C.3 Type 'B', Self-Retaining Areas (N/A) 11
Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas (N/A) 12
Table C.5 Type 'D', Areas Draining to BMPs 12
Table D.1 Infiltration Feasibility 13
Table D.2 LID Prioritization Summary Matrix 17
Table D.3 DCV Calculations for LID BMPs 18
Table E.1 Potential Pollutants by Land Use Type 20
Table E.2 Water Quality Credits 21
Table E.3 Treatment Control BMP Sizing 21
Table E.4 Treatment Control BMP Selection 22
Table F.1 Hydrologic Conditions of Concern Summary 23
Table G.1 Permanent and Operational Source Control Measures 25
Table H.1 Construction Plan Cross-reference 27

List of Appendices

Appendix 1: Maps and Site Plans 33
Appendix 2: Construction Plans 34
Appendix 3: Soils Information 35
Appendix 4: Historical Site Conditions 36
Appendix 5: LID Infeasibility 37
Appendix 6: BMP Design Details 38
Appendix 7: Hydromodification 39
Appendix 8: Source Control 40
Appendix 9: O&M 41
Appendix 10: Educational Materials 42

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Industrial
Planning Area:	~15.65 Acres
Community Name:	Alessandro Industrial Center
Development Name:	Alessandro Industrial Center
	This project is a new development of an industrial warehouse business park located at the northeast corner of Brodiaea Ave and Rebecca St, in the City of Moreno Valley. There are 7 buildings proposed on approximately 15.65 acres of undeveloped land. New curb gutter and commercial driveway entrances will be installed. The existing site is vacant and slopes gently from the northeast corner to the southerly property line.

PROJECT LOCATION
Latitude & Longitude (DMS): 33°54'55"N & 117°14'48"W
Project Watershed and Sub-Watershed: Santa Ana River Watershed & San Jacinto River Watershed
Gross Acres: 15.65 Acres
APN(s): 297-170-083
Map Book and Page No.: Thomas Bros. Map, Page 717

PROJECT CHARACTERISTICS		
Proposed or Potential Land Use(s)	Industrial	
Proposed or Potential SIC Code(s)	4225	
Area of Impervious Project Footprint (SF)	544,484	
Total Area of proposed Impervious Surfaces within the Project Footprint (SF)/or Replacement	544,484	
Does the project consist of offsite road improvements?	☐ Y	☒ N
Does the project propose to construct unpaved roads?	☐ Y	☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y	☒ N
EXISTING SITE CHARACTERISTICS		
Total area of existing Impervious Surfaces within the Project limits Footprint (SF)	681,734 SF	
Is the project located within any MSHCP Criteria Cell?	☐ Y	☒ N
If so, identify the Cell number:	N/A	
Are there any natural hydrologic features on the project site?	☐ Y	☒ N
Is a Geotechnical Report attached?	☒ Y	☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	N/A	
What is the Water Quality Design Storm Depth for the project?	0.65	

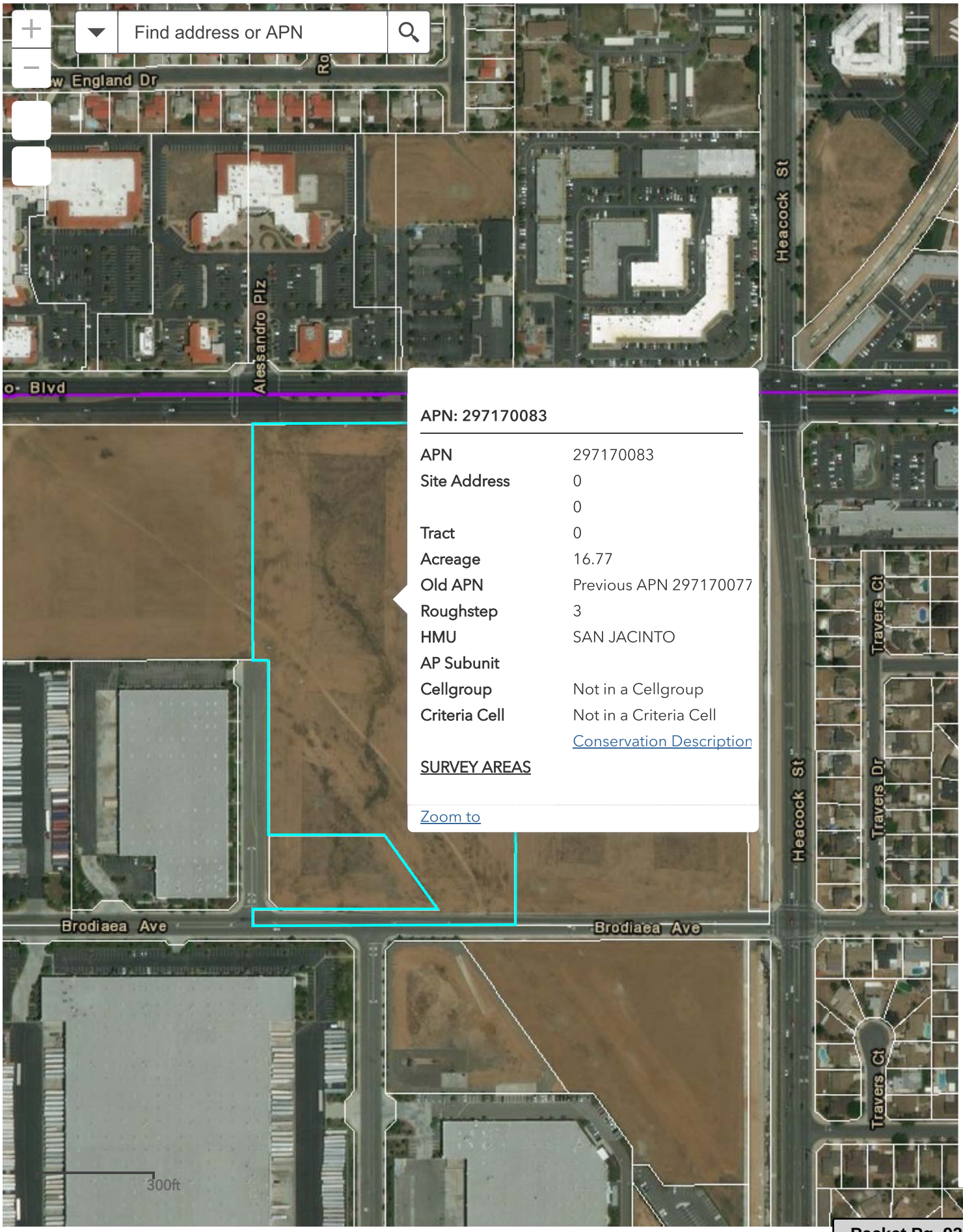
A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the local vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

RCA MSHCP Information App with Web AppBuilder for ArcGIS



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

- Drainage Infrastructure, Inlets, Overflows
- Standard Labeling
- BMP Locations (Lat/Long)

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Co-Permittee plan reviewer must be able to easily analyze your project utilizing this template and its associated site plans and maps.

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Sunnymead Storm Drain Line F	None	None	Not a designated RARE
Heacock Channel	None	None	Not a designated RARE
Perris Valley Storm Drain Channel	None	None	Not a designated RARE
San Jacinto River (Reach 3)	None	MUN, AGR, GWR, REC1, REC2, WARM, WILD	Not a designated RARE
Canyon Lake	Pathogens, Nutrients	MUN, AGR, GWR, REC1, REC2, WARM, WILD	Not a designated RARE
San Jacinto River (Reach 1)	None	MUN, AGR, GWR, REC1, REC2, WARM, WILD	Not a designated RARE
Lake Elsinore	PCBs (Polychlorinated Biphenyls), Nutrients, Sediment/Unknown toxicity, Nutrients, Organic Enrichment/Low Dissolved Oxygen, Pathogens	MUN, REC1, REC2, WARM, WILD	Not a designated RARE
Alberhill Creek	None	None	Not a designated RARE
Temescal Creek (Reach 6)	Pathogens	MUN, GWR, REC1, REC2, WARM, WILD	Not a designated RARE
Temescal Creek (Reach 5)	None	MUN, AGR, GWR, REC1, REC2, WARM, WILD, RARE	19 Miles
Temescal Creek (Reach 4)	None	MUN, AGR, GWR, REC1, REC2, WARM, WILD, RARE	16 Miles
Lee Lake	None	MUN, AGR, GWR, REC1, REC2, WARM, WILD	Not a designated RARE
Temescal Creek (Reach 2)	None	MUN, AGR, IND, GWR, REC1, REC2, LWRM	Not a designated RARE

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Temescal Creek (Reach 1)	pH	MUN, REC1, REC2, WARM, WILD	19 Miles
Santa Ana River (Reach 3)	Pathogens, Metals (Copper & Lead)	MUN, AGR, GWR, REC1, REC2, WARM, WILD, RARE, SPWN	20 Miles
Prado Flood Control Basin	Nutrients and Pathogens	MUN, AGR, GWR, REC1, REC2, WARM, WILD, RARE	26 Miles
Santa Ana River (Reach 2)	Pathogens	MUN, AGR, GWR, REC1, REC2, WARM, WILD, RARE	26 Miles
Santa Ana River (Reach 1)	None	MUN, REC1, REC2, WARM, WILD	Not a designated RARE
Pacific Ocean	None	None	Not a designated RARE

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* City of Moreno Valley Building & Grading Permits Riverside County FCD – Connection Permit to Public Storm Drain	☒ Y	☐ N

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, constraints might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. Opportunities might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your LID design and explain your design decisions to others.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1.

Consideration of "highest and best use" of the discharge should also be considered. For example, Lake Elsinore is evaporating faster than runoff from natural precipitation can recharge it. Requiring infiltration of 85% of runoff events for projects tributary to Lake Elsinore would only exacerbate current water quality problems associated with Pollutant concentration due to lake water evaporation. In cases where rainfall events have low potential to recharge Lake Elsinore (i.e. no hydraulic connection between groundwater to Lake Elsinore, or other factors), requiring infiltration of Urban Runoff from projects is counterproductive to the overall watershed goals. Project proponents, in these cases, would be allowed to discharge Urban Runoff, provided they used equally effective filtration-based BMPs.

Site Constraints:
Based on the site specific infiltration test and report (see Appendix 3), the site soils are impermeable.

Solution:
The site drainage design has incorporated a bioretention basin in the southeast corner of the project site. All site drainage will be conveyed to the bioretention areas where the runoff will be allowed to pass through an engineered media, stone section, and through a perforated pipe network beneath the basin footprint.

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

Yes. The site mimics the existing topography by draining from northeast to the south property line.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Did you identify and protect existing vegetation? If so, how? If not, why?

No. The site has no existing vegetation to protect. New vegetation will be planted throughout the site.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

Yes. Natural Infiltration capacity was identified by the soil (infiltration) report. However, the site's infiltration rate is below the minimum rate and is not expected to be feasible on this project site as a BMP type.

Did you identify and minimize impervious area? If so, how? If not, why?

No. The developer has chosen to maximize the building and parking footprint, but the site maintains the minimum amount of landscape required area.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

No. Runoff from the impervious area is not able to drain into the pervious area. Onsite storm drain system will convey the runoff to the proposed bioretention basin in the southeast corner of the site.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s) [1][2]	Area (Sq. Ft.)	DMA Type
DMA A1	Roof	268,900	D
DMA A2	Paving	269,670	D
DMA A3	Landscape	130,609	D
DMA A4	Basin Bottom	12,555	D

[1] *Reference Table 2-1 in the WQMP Guidance Document to populate this column*
[2] *If multi-surface provide back-up*

Table C.2 Type 'A', Self-Treating Areas (N/A)

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
N/A	N/A	N/A	N/A

Table C.3 Type 'B', Self-Retaining Areas (N/A)

Self-Retaining Area				**Type 'C' DMAs that are draining to the Self-Retaining Area**		
DMA Name/ ID	Post-project surface type	Area (square feet) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]
N/A	N/A	N/A	N/A	N/A	N/A	N/A

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas (N/A)

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet)	Post-project surface type	Impervious fraction	Product	DMA name /ID	Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]		[D]	[C]/[D]
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
DMA A1	Bioretention Basin 1
DMA A2	Bioretention Basin 1
DMA A3	Bioretention Basin 1
DMA A4	Bioretention Basin 1

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ Y ☒ N

If yes has been checked, Infiltration BMPs shall not be used for the site; proceed to section D.3

If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream 'Highest and Best Use' feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?	x	
If Yes, list affected DMAs:	DMA A	
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		x
If Yes, list affected DMAs:		
…geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?		x
Describe here:		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

D.2 Harvest and Use Assessment

Please check what applies*:*

☐ Reclaimed water will be used for the non-potable water demands for the project.

☐Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

☐The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If none of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: 137,250 SF (3.15 ac)

Type of Landscaping (Conservation Design or Active Turf): Conservation Design

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 544,484 SF (12.50 ac)

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: 0.79

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: 430,142 SF (9.87 ac)

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
430,142 SF	137,250 SF

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: 525

Project Type: Industrial

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 544,484 SF (12.50 ac)

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-2 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: 185

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: 2,313

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
2,583 Users	525 Users

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

N/A

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: N/A

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-4 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-4: N/A

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: N/A

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the projected average daily use (Step 1) to the minimum required non-potable use (Step 4).

Minimum required non-potable use (Step 4)	Projected average daily use (Step 1)
N/A	N/A

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment per Section 3.4.2 of the WQMP Guidance Document.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

■ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA A	☐	☐	☒	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First, calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second, design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	DMA Runoff Factor [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
						Design Storm Depth (in)	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
DMA A	*681,734*	*Mixed Surface Types*	*0.79*	*0.59*	*400,647.9*			
	$A_T = \Sigma[A]$ 681,734				Σ= [D] 400,648	[E] 0.65	$[F] = \frac{[D] \times [E]}{12}$ 21,701.8	[G] 22,473

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Copermittee). Check one of the following Boxes:

■ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P(2)
■ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft²)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft²)	P	N	P	P	N	P	P	P
☐ Parking Lots (>5,000 ft²)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☐ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	■	■	■	■	■	■	■	■

P = Potential

N = Not Potential

(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

(3) A potential Pollutant is land use involving animal waste

(4) Specifically petroleum hydrocarbons

(5) Specifically solvents

(6) Bacterial indicators are routinely detected in pavement runoff

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

E.2 Stormwater Credits (N/A)

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
Total Credit Percentage[1]	

[1]Cannot Exceed 50%
[2]Obtain corresponding data from Table 3-8 in the WQMP Guidance Document

E.3 Sizing Criteria (N/A)

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Area x Runoff Factor		*Enter BMP Name / Identifier Here*		
	[A]		[B]	[C]	[A] x [C]				
						Design Storm Depth (in)	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	A_T = Σ[A]				Σ= [D]	[E]	$[F] = \frac{[D]x[E]}{[G]}$	[F] X (1-[H])	[I]

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document
[E] is for Flow-Based Treatment Control BMPs [E] = .2, for Volume-Based Control Treatment BMPs, [E] obtained from Exhibit A in the WQMP Guidance Document
[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12
[H] is from the Total Credit Percentage as Calculated from Table E.2 above
[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]
Bioretention Basin	Bacteria, metal, nutrients, pesticides, toxic organic compounds, sediments, trash & debis, and oil & grease.	High (per Riverside Flood Control LID BMP Design Handbook Appendix E, see Appendix 6)
Catch Basin Filters	Trash, sediment and oil & grease	TSS – 93%

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.
[2] Cross Reference Table E.1 above to populate this column.
[3] As documented in a Co-Permittee Approved Study and provided in Appendix 6.

Catch Basin Filters (Bio-Clean or approved equal) will be provided in all on-site catch basins as a pretreatment control BMP prior to allowing runoff to be conveyed to the primary treatment BMP.

The catch basin filters will help remove large debris, trash, sediment and oil/grease from the runoff before outleting into the downstream storm drain system. Refer to Post-Construction BMP Site Map in Appendix 1 for the specific locations where these catch basin filters will be implemented.

Specific project site pollutants that will be treated by these Bio-Clean Filter Systems are as follows: Heavy metals, sediments, trash & debris, and oil & grease.

An important note that must be observed is that these Bio-Clean filter systems will not act as a primary treatment control BMPs but as pre-treatment or secondary treatment control BMPs. To ensure maximum performance, these catch basin filters must be maintained as required per the manufacturer's guidelines.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ■ N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☐ Y ■ N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	**Post-condition**	**% Difference**
Time of Concentration	(N/A)	(N/A)	(N/A)
Volume (Cubic Feet)	(N/A)	(N/A)	(N/A)

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Susceptibility Maps.

Does the project qualify for this HCOC Exemption? ☐ Y ■ N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

(N/A)

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

A pre-development and post-development hydrograph will be prepared for the 2-year storm event for the proposed basins and the results will be presented in the Final WQMP submittal.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and "housekeeping", that must be implemented by the site's occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. ***Identify Pollutant Sources*:** Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.

2. ***Note Locations on Project-Specific WQMP Exhibit*:** Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.

3. ***Prepare a Table and Narrative*:** Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. **Add additional narrative** in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.

4. ***Identify Operational Source Control BMPs:*** To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
On-Site Storm Drain Inlet	Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	• Maintain and periodically repaint or replace inlet markings. • Provide stormwater pollution prevention information to new site owners, lessees, or operators. • See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com • Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

		materials so as to create a potential discharge to storm drains."
Loading Docks	The project site will have truck docks which shown on the Post-Construction BMP Site Plan. The truck docks shall be inspected on a weekly basis to help ensure that any trash and debris are collected prior to being washed into the underground storm drain system. All storm water runoff from the loading dock areas will be discharged into infiltration basins and/or underground infiltration chambers prior to conveyance to the public storm drain system. Documentation of such inspection/maintenance shall be kept by the owner in perpetuity.	• Move loaded and unloaded items indoors as soon as possible. See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
Fire Sprinkler Test Water	Underground fire protection service and fire sprinklers test will be provided per the uniform fire code and the requirements of the County of Riverside	• Provide a means to drain fire sprinkler test water to the sanitary sewer.
Plazas, sidewalks, and parking lots.	Documentation of such sweeping shall be kept by the owner inperpetuity. Frequency of sweeping shall be adjusted as needed to maintain a clean site.	• Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.
Refuse Trash Storage Areas	Trash container storage areas shall be paved with an impervious surface designed not to allow run-on from adjoining areas. They shall be designed to divert drainage from adjoining roofs and pavements from the surrounding area, and screened or walled to prevent off-site transport of trash. Trash dumpsters (containers) shall be leak proof and have attached covers and lids. Trash enclosures shall be roofed per City standards and the details on the WQMP exhibit in Appendix 1. Trash compactors shall be roofed and set on a concrete pad per City standards. The pad shall be a minimum of one foot larger all around than the trash compactor and sloped to drain to a sanitary sewer line. Connection of trash area drains to the MS4 is prohibited. See CASQA SD-32 BMP fact sheet in Appendix 10 for additional information. Signs shall be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	Adequate number of receptacles shall be provided. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available onsite. See fact sheet SC-34 "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbook at www.cabmphandbooks.com and in Appendix 10.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section H: Construction Plan Checklist

This section will be completed and addressed at the time of the final WQMP submittal

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)	BMP Location (Lat/Long)

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section I: Operation, Maintenance and Funding

This section will be completed and addressed at the time of the final WQMP submittal

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism:

BMP	Responsible Party(s)	Inspection/Maintenance Activities Required	Minimum Frequency of Activities
On-Site Storm Drain Filter	Owner	See Appendix 10 -The Owner will contract a contractor to inspect and maintain all catch basin filters located throughout the site. -The contracted party must have the proper training and knowledge to perform maintenance procedures on all catch basin filters. -The contracted party will inspect all the catch basin filters every three months, at the beginning of the wet season, and after periods of heavy runoff.	Quarterly

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

		-The contracted party will inspect for sediment, trash and debris build up and that the systems are properly functioning. Sediments, trash, and debris build up within the catch basin filter systems would be hand or vacuumed cleaned every three months or if during inspection ¼ of the catch basin filter system is full. Hand cleaning will require that the filter be removed from the catch basins. The waste material will then be dumped into a DOT approved container for disposal. Vacuum cleaning requires the filter system to be cleaned in place with the use of an industrial vacuum truck/trailer. The waste material will then be dumped into a DOT approved container for disposal. -Confined Space procedures must be followed at all times. -When all the waste materials have been removed, the catch basin filters must be inspected for continued serviceability. -Minor damage or defects found shall be corrected on the spot and a notation made on the maintenance record. The filter media shall be inspected for defects and continued serviceability and replaced as necessary if needed during any inspection. -The filter media though shall be replaced once a year as a regular maintenance service. All spent media filters must be placed in the DOT approved container, along with the collected waste materials. -Since the collected materials most likely contain petroleum hydrocarbons, heavy metals and other harmful pollutants, the materials must be treated as an EPA Class 2 Hazardous Waste and therefore proper disposal will be imposed by the City of Moreno Valley or the County of Riverside. Therefore the Owner will contract a contractor with OSHA 1910.120 training in handling hazardous waste material. The contracted party will also be qualified as a licensed hazardous waste transporter to dispose of the all the collected waste materials in a lawful and timely manner and following all City of Moreno Valley or County of Riverside requirements. The waste material will be transported and disposed at an approved Hazardous Waste Facility.	
Landscape and Irrigation	Owner	See CASQA BMP Fact Sheet SD-10 in Appendix 10 -Site landscaping design shall be implemented in accordance with the requirements of the site specific WQMP and local agency requirements. -Site landscaping maintenance shall begin immediately after it has been planted. -Maintenance of landscaping shall occur on a weekly basis and adjusted accordingly based on current conditions and seasonal needs. -Inspection of irrigation system shall be provided on a bi-weekly basis to ensure proper function of the irrigation system, no significant overspray is occurring. -Malfunctioning systems shall be repaired or replaced immediately.	Weekly

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

		-Inspect plant health on a monthly basis. Repair or replace unhealthy plants as needed. -Inspect side slopes of basins and sloped areas on a bi-weekly basis and repair as needed. Re-plant and apply erosion protection to those areas to help prevent erosion in the future. -Landscape clippings shall be swept and picked up immediately to prevent it from entering the storm drain system or adjacent sedimentation basins and filtration basins. Dispose of landscape clippings in a legal manner	
MS4 Stenciling and Signage	Owner	See CASQA BMP Fact Sheet SD-13 in Appendix 10 -MS4 Stenciling and signage shall be placed during construction and inspection and maintenance shall begin upon completion of construction. -Inspect catch basin stenciling on a bi-monthly basis. Replace any damaged, missing or faded stencils in a timely manner.	Bi-monthly
Common area litter control, loading docks and trash storage areas	Owner	See CASQA BMP Fact Sheet SD-32 in Appendix 10 -Inspection and Maintenance of common areas, loading docks and trash storage areas shall begin upon completion of construction. -Visual inspection of trash storage areas shall take place on a weekly basis and adjusted on an as needed basis. -Inspect areas for trash and debris. Remove any found trash and debris immediately. Dispose of trash and debris in a legal manner. -Inspect areas for any spills. Pick up/clean up found spills immediately. Dispose of spill material in a legal manner.	Daily
Parking lot sweeping		See CASQA BMP Fact Sheet SE-7 in Appendix 10 -Parking lot sweeping shall being after the completion of construction and take place on a monthly basis. Dispose of picked up material in a legal manner.	Monthly
Drainage facility (including roof drains) inspection and maintenance		-Inspection and maintenance of site drainage facilities and roof drains shall begin immediately upon completion of construction. -Catch basins and roof drain inlet shall be clear of any debris - prior to any storm event to ensure proper function of the roof drains. Collected debris shall be disposed of in a legal manner. Catch basin filters shall be inspected on a monthly basis. Catch basin filters that have exceeded 50% of the storage capacity shall be cleaned immediately. -Catch basin filters shall be maintained per the manufacturer's specifications. -Damaged catch basin filters shall be replaced with an approved equal prior to the next storm event or as soon as practicable.	Monthly & after rain event
Bioretention Basin (Sand Filters)		See Appendix 10 -Once the sedimentation and sand filter basin have gone on-line, inspections should occur after every major storm for the first year to ensure that proper stabilization and function is achieved. Continuous inspection and maintenance shall be	Every 6 months

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

		provided once every six months. Special attention should be paid to how long water remains standing in the basin after a storm; standing water within the basin more than 48 hours after a storm indicates that the filtration rates are insufficient and maintenance of the filter basin bottom is needed. If standing water remains after 48 hours, the standing water shall be removed in accordance with the local agency guidelines and maintenance of the filter basin bottom shall be scheduled immediately. Factors that are typically responsible for clogging the filter basin bottom include upstream sediment erosion and excessive compaction of the basin bottom. These should be repaired immediately to help achieve the desired filtration rates. -Observe and document evidence of collected sediments, trash, debris and oils/greases. -Sediments, trash, debris and oils/greases shall be removed and disposed of in a legal manner. -Observe and document evidence of erosion of side slopes or flowlines. -Schedule repair of eroded side slopes or flowlines immediately. -Protection measures against further erosion shall be placed until the eroded areas are repaired. Protection measures should be at a minimum placement of gravel bags and fiber rolls to prevent further erosion of the affected areas until the areas have been repaired and vegetation has been established.	

Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

■ Y ☐ N

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Owner Information:
Mr. Ryan Liu
PAMA Management
4900 Santa Anita Avenue, Suite 2C
El Monte, CA 91731
626-258-3374

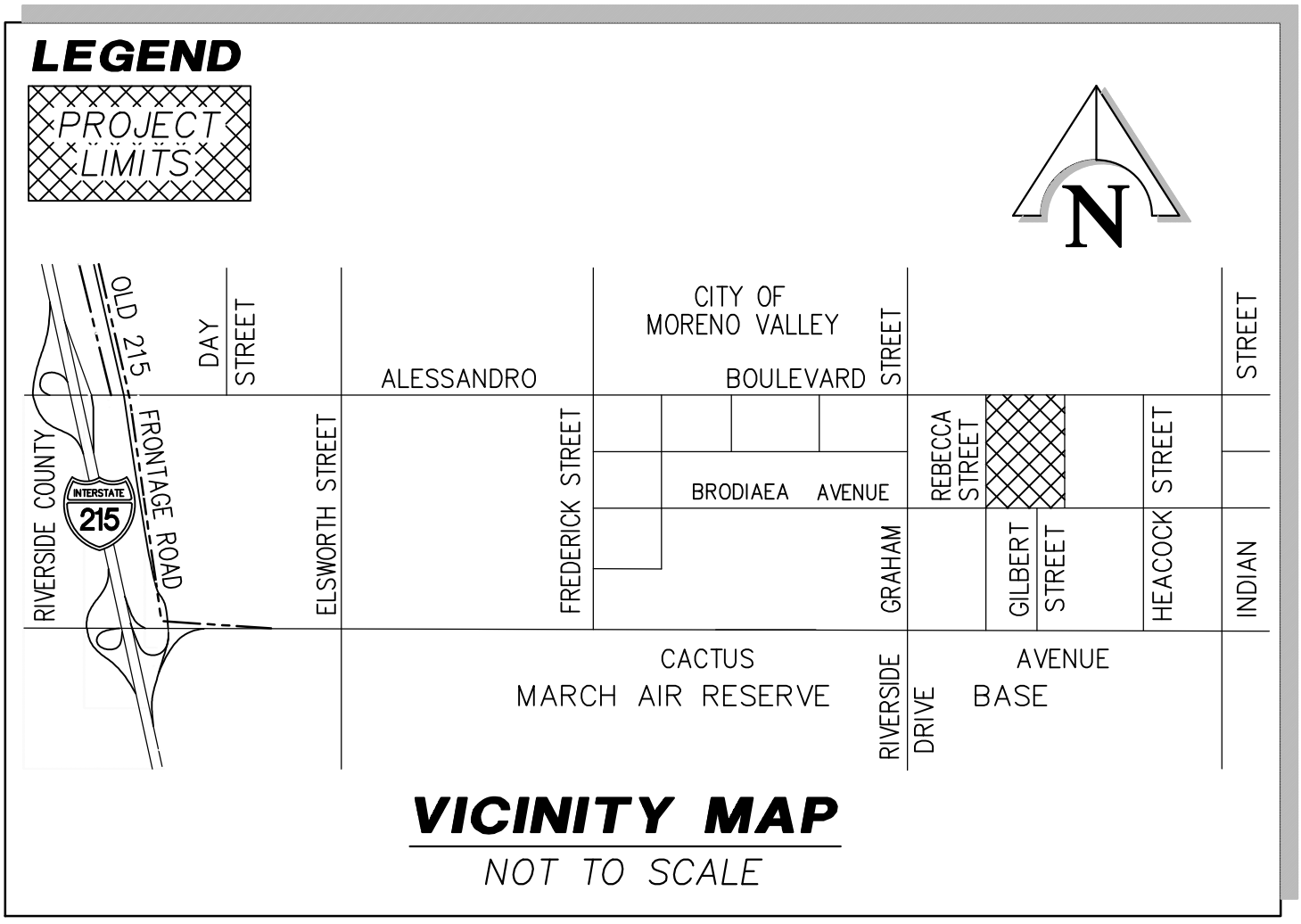
Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

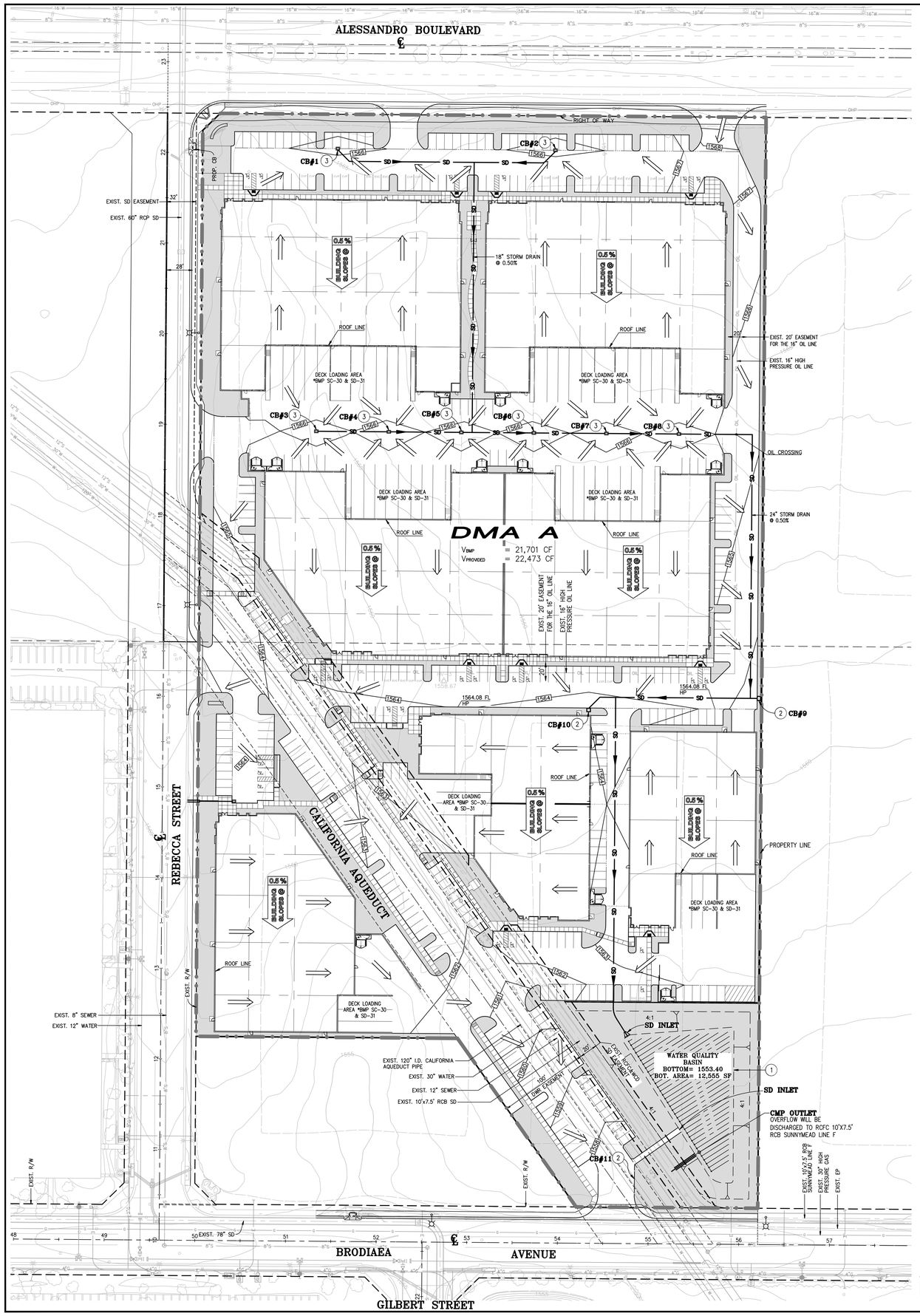
Attachment: Water Quality Management Plan (3285 : PAMA Business Center)



VICINITY MAP

NOT TO SCALE

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

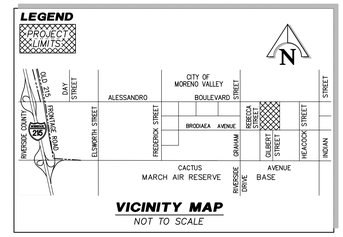


LEGEND

- SD — PROPOSED STORM DRAIN
- WQMP BOUNDARY
- PROPOSED CURB OPENING INLET W/ FILTER INSERT
- PROPOSED LANDSCAPING AREA – *BMP SD-10 & SD-12
- CB — CATCH BASIN
- FLOW DIRECTION
- RCFC — RIVERSIDE COUNTY FLOOD CONTROL

WQMP BMP NOTES

1. BIORETENTION BASIN
2. INSTALL BIOCLEAN CURB INLET FILTER, SEE DETAIL HEREON
3. INSTALL BIOCLEAN GRATE INLET FILTER, SEE DETAIL HEREON



VICINITY MAP
NOT TO SCALE

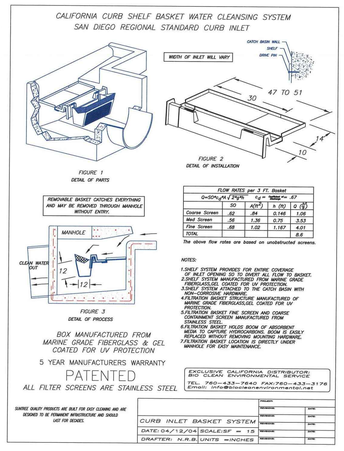
WQMP MANAGEMENT

NAME	AREA (SF)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	i	C	V_{BMP} (CF) DCV	BMP	BASIN BOTTOM AREA (SF)	BASIN EFFECTIVE DEPTH (FT)	$V_{PROVIDE}$ (CF)
DMA A	681,734	538,570	143,164	0.79	0.59	**21,702**	BIORETENTION BASIN	12,555	1.79	**22,473**

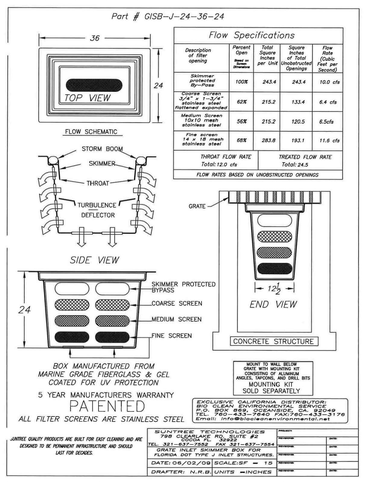
GROSS FLOOR AREA / GROSS FLOOR AREA
= 268,900 SF / 681,734 = 0.39

PER RIVERSIDE COUNTY WQMP GUIDE DOCUMENT TABLE 2-5
RECOMMENDED EFFECTIVE AREA = 10% OF NEW DEVELOPMENT
681,734 X 0.10 = 68,173 SF

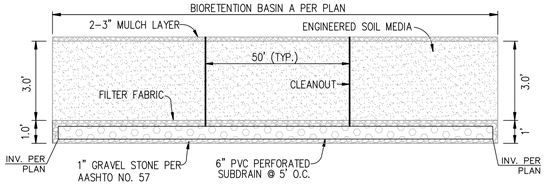
SINCE THE BIORETENTION VOLUME CAN BE FULLY MANAGED THE ONSITE DCV, EFFECTIVE AREA WILL BE FOR REFERENCE.



BIO-CLEAN CURB INLET FILTERS (2)
NOT TO SCALE



BIO-CLEAN GRATE FILTERS (3)
NOT TO SCALE



BIORETENTION BASIN DETAIL (1)
NOT TO SCALE

N

0 25 50 100 150
SCALE 1" = 50'

PRELIMINARY WATER QUALITY MANAGMENT PLAN
FOR
ALESSANDRO INDUSTRIAL CENTER
BRODIAEA AVENUE AND REBECCA STREET
CITY OF MORENO VALLEY

HUITT-ZOLLARS
HUITT-ZOLLARS, INC.
3990 CONCOURSE, SUITE 330 * ONTARIO, CALIFORNIA 91764 * (909) 941-7799

DESIGNED BY	D.W.
DRAWN BY	H-Z STAFF
CHECKED BY	J.M.
FIELD BOOK	
SHEET	1 OF 1 SHEETS
JOB NO.	R307012.01

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Appendix 2: Construction Plans

Grading and Drainage Plans

TO BE PROVIDED IN FINAL WQMP

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

GEOTECHNICAL ENGINEERING INVESTIGATION

PROPOSED BUSINESS PARK MORENO VALLEY
SEC ALESSANDRO BLVD. & REBECCA ST.
MORENO VALLEY, CALIFORNIA

CCI PROJECT NO. 1217-0318
JANUARY 9, 2017

PREPARED FOR:

MR. RYAN LIU
PAMA MANAGEMENT INC.
4900 SANTA ANITA AVE., STE. 2C
EL MONTE, CALIFORNIA

PREPARED BY:

CQUEST CONSULTANTS INC.
1342 N. BENSON AVE., UNIT B
UPLAND, CA 91786
PHONE | FAX: (909) 767-6300

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

TABLE OF CONTENTS

INTRODUCTION **1**

PURPOSE AND SCOPE **1**

PROPOSED CONSTRUCTION **2**

SITE LOCATION AND SITE DESCRIPTION **2**

GEOLOGIC SETTING **3**

FAULT RUPTURE HAZARD ZONES **3**

SEISMIC HAZARDS ZONES **3**

FIELD AND LABORATORY INVESTIGATIONS **4**

SOIL PROFILE AND SUBSURFACE CONDITIONS **4**

GROUNDWATER **5**

SOIL LIQUEFACTION **5**

CONCLUSIONS AND RECOMMENDATIONS **6**

Administrative Summary 7
Groundwater Influence 8
Site Preparation 8
Engineered Fill 10
Drainage and Landscaping 10
Temporary Excavation Stability 11
Utility Trench Backfill 11
Foundations 12
Floor Slabs and Exterior Flatwork 12
Lateral Earth Pressures and Retaining Walls 13
Seismic Parameters – 2007 CBC 14
Pavement Design 15
Infiltration Testing 17
Soil Cement Reactivity 18
Compacted Material Acceptance 18
Testing and Inspection 19

LIMITATIONS **19**

FIGURES ..... **Following Text**
LOGS OF BORINGS ..... **Appendix A**
GENERAL EARTHWORK SPECIFICATIONS ..... **Appendix B**
GENERAL PAVING SPECIFICATIONS ..... **Appendix C**
DESIGN MAPS SUMMARY REPORT ..... **Appendix D**

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

January 9, 2018

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED BUSINESS PARK MORENO VALLEY
SEC ALESSANDRO BOULEVARD & REBECCA STREET
MORENO VALLEY, CALIFORNIA

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

INTRODUCTION

This report presents the results of our Geotechnical Engineering Investigation for the proposed business park to be constructed at the subject site in the city of Moreno Valley, California. A storm water retention evaluation for the above-referenced project is also included in this report. Discussions regarding site conditions are presented herein, together with conclusions and recommendations pertaining to site preparation, Engineered Fill, utility trench backfill, drainage and landscaping, foundations, concrete floor slabs and exterior flatwork, retaining walls, soil cement reactivity, and pavement design.

A site plan showing the approximate boring locations is presented following the text of this report. A description of the field investigation, boring logs, and the boring log legend are presented in Appendix A. Appendix A contains a description of the laboratory testing phase of this study, along with the laboratory test results. Appendices B and C contain guides to earthwork and pavement specifications. If conflicts in the text of the report occur with the general specifications in the appendices, the recommendations in the text of the report have precedence.

PURPOSE AND SCOPE

This investigation was conducted to evaluate the soil and groundwater conditions at the site, to make geotechnical engineering recommendations for use in the design of specific construction elements, and to provide criteria for site preparation and Engineered Fill construction.

Our scope of services was outlined in our proposal dated November 30, 2017 and included the following:

- A site reconnaissance by a member of our engineering staff to evaluate the surface conditions at the project site.
- A field investigation consisting of drilling fourteen (14) borings to depths ranging from approximately ten (10) to fifty (50) feet below existing site grades for evaluation of the subsurface conditions at the project site.
- Performance of three (3) infiltration tests in order to determine approximate infiltration rates for the near surface soil conditions encountered.

- Performance of laboratory tests on representative soil samples obtained from the borings to evaluate the physical and index properties of the subsurface soils.

- Evaluation of the data obtained from the investigation and an engineering analysis to provide recommendations for use in the project design and preparation of construction specifications.

- Preparation of this report summarizing the results, conclusions, recommendations, and findings of our investigation.

Environmental services, such as a chemical analysis of soil and groundwater for possible environmental contaminates, were not in our scope of services.

PROPOSED CONSTRUCTION

We understand that design of the proposed development is currently underway and as such, structural load information and other final details pertaining to the proposed structure are unavailable. On a preliminary basis, it is understood that the proposed development will include construction of a new business park, and associated site improvements at the subject site. It is anticipated that the proposed development will include construction of eight (8) buildings ranging in size from approximately 18,500 to 46,000 square feet. The proposed buildings will be of concrete tilt-up construction and supported on shallow foundation systems. The proposed development is understood to include trash enclosures, Portland cement and asphalt pavements, and localized landscape and hardscape areas.

The anticipated finished grade elevation for the proposed structures are assumed to be relatively close to the existing site grades. As a result, only minor cuts and fills are anticipated at the site. In the event these structural or grading details are inconsistent with the final design criteria, the Soils Engineer should be notified so that we may update this writing as applicable.

SITE LOCATION AND SITE DESCRIPTION

The subject site is a roughly rectangular shaped parcel and encompasses approximately 15.7 acres. The site is located at the southeast corner of Alessandro Boulevard and Rebecca Street, in the city of Moreno Valley, California. The California Aqueduct easement runs along diagonally through the southwest corner of the subject site. An oil pipeline easement also runs along the mid portion from west to east and comes up to Alessandro Boulevard.

The subject site is bound to the north by Alessandro Boulevard and Alessandro Plaza shopping center beyond, to the east by vacant land, to the south by Brodiaea Avenue and tilt-up buildings beyond, and to the west by Rebecca Street and a combination of vacant land and tilt-up buildings beyond. The subject site is currently vacant and free from of any above grade structures. Ground cover at the site generally consists of exposed soil and localized weed growth throughout site. Sidewalks are located along the south and west perimeters of the subject site. Buried utilities are anticipated throughout and along the perimeter of the site, including but not limited to, the California Aqueduct, an oil pipeline, water and sewer lines. The site is relatively flat and level with no major changes in grade.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

GEOLOGIC SETTING

The site is located within the Peninsular Range Geomorphic Province, an area characterized by active northeast trending strike slip faults, including the San Jacinto to the northwest, and the Elsinore to the southwest. Locally the site is in the Perris Valley, an inland basin underlain by alluvium, and at depth, granitic rocks of the Southern California batholiths. The Perris Valley is situated just north of the Menifee Valley between the Santa Rosa Mountains and the San Jacinto Mountains to the east; and Santa Ana Mountains to the west and south. Groundwater is estimated to occur at a relatively great depth below existing ground surface.

The site is located in a seismically active area of Southern California. The nearest significant active faults are the San Jacinto and San Andreas fault zones, which are approximately 5.6 and 15.3 miles away from the subject site, respectively. The area in consideration shows no mapped faults on-site according to maps prepared by the California Geologic Survey and published by the International Conference of Building Officials (ICBO). No evidence of surface faulting was observed on the property during our reconnaissance.

FAULT RUPTURE HAZARD ZONES

The Alquist-Priolo Geologic Hazard Zones Act went into effect in March, 1973. Since that time, the Act has been amended 11 times (Hart, 2007). The purpose of the Act, as provided in California Geologic Survey (CGS) Special Publication 42 (SP 42), is to “prohibit the location of most structures for human occupancy across the traces of active faults and to mitigate thereby the hazard of fault-rupture." The Act was renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994, and at that time, the originally designated "Special Studies Zones" was renamed the "Earthquake Fault Zones."

The subject site is located on the Sunnymead Quadrangle, Earthquake Fault Zone Map. The nearest significant active fault is the San Andreas Fault Zone, which is located approximately 15.3 miles from the site. The area in consideration shows no mapped faults on-site according to maps prepared by the California Geologic Survey. No evidence of surface faulting was observed on the property during our reconnaissance.

SEISMIC HAZARD ZONES

In 1990, the California State Legislature passed the Seismic Hazard Mapping Act to protect public safety from the effects of strong shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes. The Act requires that the State Geologist delineate various seismic hazard zones on Seismic Hazard Zones Maps. Specifically, the maps identify areas where soil liquefaction and earthquake-induced landslides are most likely to occur. A site-specific geotechnical evaluation is required prior to permitting most urban developments within the mapped zones. The Act also requires sellers of real property within the zones to disclose this fact to potential buyers. A Seismic Hazard Zones Map has not been prepared to date for the vicinity of the subject site. As such, the vicinity of the subject site is not identified as an area designated by the State of California as a Seismic Hazard Zone.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

OTHER HAZARDS

Rockfall, Landslide, Slope Instability, and Debris Flow: The subject site is relatively flat and level. It is our understanding that there are no significant slopes proposed as part of the proposed development. Provided the recommendations presented in this report are implemented into the design and construction of the anticipated development, rockfalls, landslides, slope instability, and debris flows are not anticipated to pose a hazard to the subject site.

Seiches: Seiches are large waves generated within enclosed bodies of water. The site is not located in close proximity to any lakes or reservoirs. As such, seiches are not anticipated to pose a hazard to the subject site.

Tsunamis: Tsunamis are tidal waves generated by fault displacement or major ground movement. The site is several miles from the ocean. As such, tsunamis are not anticipated to pose a hazard to the subject site.

Hydroconsolidation: The near surface soils encountered at the subject site were found to be medium dense to very dense. Provided the recommendations in this report are incorporated into the design and construction of the proposed development, hydroconsolidation is not anticipated to be a significant concern for the subject site.

FIELD AND LABORATORY INVESTIGATION

Subsurface soil conditions were explored by drilling a total of fourteen (14) borings to depths ranging from approximately ten (10) to fifty (50) feet below existing site grade, using a truck-mounted drill rig. The approximate boring and bulk sample locations are shown on the site plan. During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency and to obtain information regarding the engineering properties of the subsurface soils. Soil samples were retained for laboratory testing. The soils encountered were continuously examined and visually classified in accordance with the Unified Soil Classification System. A more detailed description of the field investigation is presented in Appendix A.

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory testing program was formulated with emphasis on the evaluation of natural moisture, density, gradation, shear strength, consolidation potential, expansion potential, and moisture-density relationships of the materials encountered. In addition, chemical tests were performed to evaluate the corrosivity of the soils to buried concrete and metal. Details of the laboratory test program and results of the laboratory tests are summarized in Appendix A. This information, along with the field observations, was used to prepare the final boring logs in Appendix A.

SOIL PROFILE AND SUBSURFACE CONDITIONS

Based on our findings, the subsurface conditions encountered at the boring locations appear typical of those found in the geologic region of the site. In general, the subsurface soils consist of medium dense to very dense silty sands with varying amounts of clay content to the maximum depth explored, 50 feet below site grades.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Penetration resistance ranged from 20 to over 50 blows per foot. Representative samples of the near surface had internal angles of friction of 30 and 32 degrees and a cohesion value of 100 psf. Representative soil samples collected from the boring locations were tested and found to consolidate approximately 0.8 to 1.2 percent when saturated under a load of 2.0 kips per square foot.

For additional information about the soils encountered, please refer to the logs of borings in Appendix A.

GROUNDWATER

Test boring locations were checked for the presence of groundwater during and immediately following the drilling operations. Free groundwater was not encountered at any of the borings drilled as part of this investigation. In addition, based on previous drilling in the area and groundwater data for the site vicinity, the depth to groundwater is expected to be encountered at a depth in excess of fifty (50) feet below existing site grade.

It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use and climatic conditions, as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

SOIL LIQUEFACTION

Soil liquefaction is a state of soil particle suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as clean sand in which the strength is purely frictional. However, liquefaction has occurred in soils other than clean sand. Liquefaction usually occurs under vibratory conditions such as those induced by a seismic event.

To evaluate the liquefaction potential of the site, the following items were evaluated:

1) Soil type
2) Groundwater depth
3) Relative density
4) Initial confining pressure
5) Intensity and duration of groundshaking

The soils encountered within a depth of 50 feet at the project site predominately consist of medium dense to very dense silty sands. Groundwater was not encountered in any of the borings drilled at the subject site. In addition, a Liquefaction Hazard Map has not been prepared for the subject site.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Thus, the area of the subject is not identified as an area designated by the State of California as a Seismic Hazard Zone. Based on the encountered site conditions, liquefaction induced settlement is not considered a significant concern for the subject site.

EXPANSIVE SOIL

The near-surface sand soils encountered at the site have been identified through laboratory testing as having a very low expansion potential. Expansive soils have the potential to undergo volume change, or shrinkage and swelling, with changes in soil moisture. As expansive soils dry, the soil shrinks; when moisture is reintroduced into the soil, the soil swells.

SOIL CORROSIVITY

Corrosion tests were performed to evaluate the soil corrosivity to the buried structures. The tests consisted of sulfate content, chloride content, and resistivity and the results of the tests are included as follows:

Parameter	Results	Test Method
Resistivity	4,650 ohms-cm	CALTRANS
Sulfate	201 ppm	CA 417
Chloride	100 ppm	CA 422
pH	7.9	EPA 9045C

INFILTRATION

An estimated infiltration rate was determined using the results of open borehole percolation testing performed at the subject site. A total of three (3) percolation tests were performed at the subject site. Recommended infiltration rates were calculated using the reverse borehole method. The infiltration testing indicated that the near surface silty sand soil was found to have infiltration rates of approximately 0.32, 0.42, and 0.55 inch per hour. Detailed results of the infiltration testing are included in Appendix A in tabular format. The soil infiltration rates are based on tests conducted with clean water. The infiltration rates may vary with time as a result of soil clogging from water impurities. A factor of safety should be incorporated into the design of the infiltration system to compensate for these factors as determined appropriate by the designer. In addition, routine maintenance consisting of clearing the system of clogged soils and debris should be expected.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of our field and laboratory investigations, along with previous geotechnical experience in the project area, the following is a summary of our evaluations, conclusions, and recommendations.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Administrative Summary

In brief, the subject site and soil conditions, with the exception of the loose surficial soils, appear to be conducive to the development of the project.

General site clearing should include removal of vegetation; existing utilities; structures including foundations; basement walls and floors; existing stockpiled soil; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. In the event that previously unidentified debris pits or underground utilities are encountered, those objects should be removed in their entirety. Any abandoned underground utilities that are exposed and found to extend into adjacent properties should be capped.

Following stripping, fill removal, and demolition activities, it is recommended that at a minimum, the upper four (4) feet of exposed subgrade soils beneath the building pad areas be excavated, worked until uniform and free from large clods, moisture-conditioned to at least optimum moisture-content, and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. In addition, remedial grading should be performed to a minimum of two (2) feet below proposed foundation bearing grades. Within the pavement and exterior flatwork areas, the exposed subgrade should be excavated to a depth of twelve (12) inches, worked until uniform and free from large clods and moisture-conditioned to at least optimum moisture-content and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. Prior to backfilling, the bottom of the excavation should be proof-rolled and observed by a soil specialist to verify stability. This compaction effort should stabilize the upper soils and locate any unsuitable or pliant areas not found during our field investigation.

After completion of the recommended site preparation and over-excavation, the site should be suitable for shallow footing support. The proposed structure footings may be designed utilizing an allowable bearing pressure of 2,600 psf for dead-plus-live loads. Footings should have a minimum embedment of 18 inches.

Walls retaining horizontal backfill and capable of deflecting a minimum of 0.1 percent of its height at the top may be designed using an equivalent fluid active pressure of 40 pounds per square foot per foot of depth. Walls that are incapable of this deflection or walls that are fully constrained against deflection may be designed for an equivalent fluid at-rest pressure of 60 pounds per square foot per foot of depth. Expansive soils should not be used for backfill against walls. The wedge of non-expansive backfill material should extend from the bottom of each retaining wall outward and upward at a slope of 2:1 (horizontal to vertical) or flatter. The stated lateral earth pressures do not include the effects of hydrostatic water pressures generated by infiltrating surface water that may accumulate behind the retaining walls; or loads imposed by construction equipment, foundations, or roadways. All of the above earth pressures are unfactored and are, therefore, not inclusive of factors of safety.

A soil sample was obtained from the site and tested in accordance with State of California Materials Manual Test Designation 417. The sulfate concentration detected from the soil sample indicated a moderate sulfate exposure value as established by HUD/FHA and CBC. Therefore, it is recommended that concrete in contact with soil utilize Type II Cement and have a minimum compressive strength of 4,000 psi.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Groundwater Influence on Structures/Construction

During our field investigation, groundwater was not encountered in any of the borings drilled as part of this investigation. Based on the anticipated depth of construction, groundwater is not anticipated to impact the proposed construction.

However, if earthwork is performed during or soon after periods of precipitation, the subgrade soils may become saturated, "pump," or not respond to densification techniques. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material; or mixing the soil with an approved lime or cement product. Our firm should be consulted prior to implementing remedial measures to observe the unstable subgrade conditions and provide appropriate recommendations.

Site Preparation

General site clearing should include removal of vegetation; existing utilities; structures including foundations; basement walls and floors; existing stockpiled soil; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. In the event that previously unidentified debris pits or underground utilities are encountered, those objects should be removed in their entirety. Any abandoned underground utilities that are exposed and found to extend into adjacent properties should be capped.

To reduce post-construction soil movement, address near surface collapsible soil, provide uniform support for the proposed structure, and address disturbed soil anticipated as a result of demolition activities, overexcavation and recompaction within the proposed building footprint area should be performed to a minimum depth of four (4) feet below existing grades or two (2) feet below the bottom of the proposed footings, whichever is deeper. The actual depth of the overexcavation and recompaction should be determined by our field representative during construction. The overexcavation and recompaction should also extend laterally a minimum of five (5) feet beyond edges of the proposed footings and building appurtenances. Any undocumented fill encountered during grading should be removed and replaced with Engineered Fill.

Any fill soil encountered should be excavated and stockpiled so that the native soils can be properly prepared. Any clayey soils encountered at the site will not be suitable for reuse as Non-Expansive Engineered Fill. However, clayey soils will be suitable for reuse as General Engineered Fill, provided they are cleansed of excessive organics and debris, and are moisture-conditioned to a minimum of 2 percent above optimum moisture-content. Prior to fill placement a soil specialist should inspect the bottom of the excavation to verify no additional removal will be required.

Existing structures are located immediately adjacent and within the site. Associated with these structures are buried structures such as utilities, the California Aqueduct, and oil pipelines. Demolition activities should include proper removal of any buried structures. Any surface or buried structures, such as utilities or loosely backfilled excavations, encountered during construction should be properly removed and the resulting excavations backfilled with Engineered Fill. After demolition activities, it is recommended that these disturbed soils be removed and/or recompacted. Excavations, depressions, or soft and pliant areas extending below planned, finished subgrade levels should be cleaned to firm,

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

undisturbed soil and backfilled with Engineered Fill. In general, any septic tanks, debris pits, cesspools, or similar structures should be entirely removed.

Whenever excavation is made adjacent to existing streets, utilities and structures, there is the potential for movement. The adjacent structures and improvements should be inspected and documented to preclude claims for damage or settlement that are not associated with the construction of the planned development. A monitoring program should be established so excessive movement is detected early. The monitoring program should include optical surveying of the shoring and adjacent streets and buildings to detect any horizontal or vertical movement.

Any concrete footings encountered should be removed to an equivalent depth of at least three (3) feet below proposed footing elevations or as recommended by the Soils Engineer. Any other buried structures should be removed in accordance with the recommendations of the Soils Engineer. The resulting excavations should be backfilled with Engineered Fill.

Following stripping, fill removal, and demolition activities, it is recommended that at a minimum, the upper four (4) feet of exposed subgrade soils beneath the building pad areas be excavated, worked until uniform and free from large clods, moisture-conditioned to at least optimum moisture-content, and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. In addition, remedial grading should be performed to a minimum of two (2) feet below proposed foundation bearing grades. Within the pavement and exterior flatwork areas, the exposed subgrade should be excavated to a depth of twelve (12) inches, worked until uniform and free from large clods and moisture-conditioned to at least optimum moisture-content and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. Prior to backfilling, the bottom of the excavation should be proof-rolled and observed by a soils inspector to verify stability. This compaction effort should stabilize the upper soils and locate any unsuitable or pliant areas not found during our field investigation.

In areas where slab-on-grade construction will be utilized, it is recommended that the soil within proposed slab-on-grade and exterior flatwork areas consist of Non-Expansive Engineered Fill. The non-expansive fill material should be a well-graded silty sand or sandy silt soil. Imported Fill should be approved by the Soils Engineer prior to placement. The fill should be placed as specified as Engineered Fill.

The upper soils, during wet winter months, may become very moist due to the absorptive characteristics of the soil. Earthwork operations performed during winter months may encounter very moist unstable soils, which may require removal to grade a stable building foundation. Project site winterization consisting of placement of aggregate base and protecting exposed soils during the construction phase should be performed.

A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction and stability of the material. The Soils Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section and the Engineered Fill section.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Engineered Fill

The organic-free, on-site, upper native soils are predominately silty sands. These soils will be suitable for reuse as Engineered Fill, provided they are cleansed of excessive organics, debris, and fragments larger than 4 inches in maximum dimension.

The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since he has complete control of the project site at that time.

Imported Non-Expansive Fill should consist of a well-graded, slightly cohesive, fine silty sand or sandy silt soil, with relatively impervious characteristics when compacted. This material should be approved by the Soils Engineer prior to use and should typically possess the following characteristics:

Percent Passing No. 200 Sieve	20 to 50
Plasticity Index	10 maximum
UBC Standard 29-2 Expansion Index	15 maximum

Fill soils should be placed in lifts approximately 6 inches thick, moisture-conditioned to at least optimum moisture-content, and compacted to achieve at least 95 percent of the maximum dry density based on ASTM D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

Drainage and Landscaping

We understand that civil design practices typically include measures to address storm water quality issues. These often include the use of swales to allow for infiltration of the water into the site and to some extent bioremediation of the runoff water as it flows through the swale. Given the limited exposed surface area anticipated as part of the proposed development, little to no infiltration will occur after wetting of the site. The storm water system should be designed for 100 percent run-off over the entire site.

The ground surface should slope away from building pad and pavement areas toward appropriate drop inlets or other surface drainage devices. In accordance with Section 1803 of the 2016 California Building Code, it is recommended that the ground surface adjacent to foundations be sloped a minimum of 5 percent for a minimum distance of 10 feet away from structures, or to an approved alternative means of drainage conveyance. Swales used for conveyance of drainage and located within 10 feet of foundations should be sloped a minimum of 2 percent. Impervious surfaces, such as pavement and exterior concrete flatwork, within 10 feet of building foundations should be sloped a minimum of 2 percent away from the structure. Drainage gradients should be maintained to carry all surface water to collection facilities and off-site. These grades should be maintained for the life of the project.

Slots or weep holes should be placed in drop inlets or other surface drainage devices in pavement areas to allow free drainage of adjoining base course materials. Cutoff walls should be installed at

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

pavement edges adjacent to vehicular traffic areas. These walls should extend to a minimum depth of 12 inches below pavement subgrades to limit the amount of seepage water that can infiltrate the pavements. Where cutoff walls are undesirable, subgrade drains can be constructed to transport excess water away from planters to drainage interceptors. If cutoff walls can be successfully used at the site, construction of subgrade drains is considered unnecessary.

Temporary Excavation Stability

All excavations should comply with the current requirements of Occupational Safety and Health Administration (OSHA). All cuts greater than 4 feet in depth should be sloped or shored. Temporary excavations should be sloped at 1½:1 (horizontal to vertical) or flatter, up to a maximum depth of 8 feet, and at 2:1 (horizontal to vertical) for depths greater than 8 feet. Heavy construction equipment, building materials, excavated soil, and vehicular traffic should not be allowed within five feet of the top (edge) of the excavation. Where sloped excavations are not feasible due to site constraints, the excavations will require shoring. The design of the shoring system is normally the responsibility of the contractor or shoring designer, and therefore, is outside the scope of this report. The design of the temporary shoring should take into account lateral pressures exerted by the adjacent soil, and, where anticipated, surcharge loads due to adjacent buildings and any construction equipment or traffic expected to operate alongside the excavation. Shoring design and determination of surcharge loads is beyond the scope of this report and should be determined by the shoring designer.

The soil conditions encountered at the boring locations consisted of silty sand. These soil conditions are subject to sloughing and caving at excavations. In addition, the soil conditions present at the subject site are considered susceptible to erosion. Measures should be taken to prevent caving and erosion during construction activities.

The excavation/shoring recommendations provided herein are based on soil characteristics derived from our test borings within the area. Variations in soil conditions will likely be encountered during the excavations. Our Engineering firm should be afforded the opportunity to provide field review to evaluate the actual conditions and account for field condition variations, not otherwise anticipated in the preparation of this recommendation.

Utility Trench Backfill

Utility trenches should be excavated according to accepted engineering practice following OSHA (Occupational Safety and Health Administration) standards by a Contractor experienced in such work. The responsibility for the safety of open trenches should be borne by the Contractor. Traffic and vibration adjacent to trench walls should be minimized; cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced; especially during or following periods of precipitation.

Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. The utility trench backfill placed in pavement areas should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. Pipe bedding should be in accordance with pipe manufacturer's recommendations.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

The Contractor is responsible for removing all water-sensitive soils from the trench regardless of the backfill location and compaction requirements. The Contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

Foundations - Conventional

After completion of the recommended site preparation and over-excavation, the site should be suitable for shallow footing support. The proposed structure may be supported on a shallow foundation system bearing on a minimum of two (2) feet of Engineered Fill. Spread and continuous footings can be designed for the following maximum allowable soil bearing pressures:

Load	Allowable Loading
Dead Load Only	2,000 psf
Dead-Plus-Live Load	2,600 psf
Total Load, Including Wind or Seismic Loads	3,500 psf

The footings should have a minimum embedment depth of 18 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower. Footings should have a minimum width of 15 inches, regardless of load. Shallow foundation systems should be designed to tolerate the anticipated static and seismic settlement. The actual foundation design should be performed by the project structural engineer. Shallow foundation systems should be designed to tolerate the anticipated static and seismic settlement.

The footing excavations should not be allowed to dry out any time prior to pouring concrete. It is recommended that footings be reinforced by at least one No. 4 reinforcing bar in both top and bottom. The actual design of foundation design should be performed by the project structural engineer.

Resistance to lateral footing displacement can be computed using an allowable friction factor of 0.30 acting between the base of foundations and the supporting subgrade. Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 250 pounds per cubic foot acting against the appropriate vertical footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. A 1/3 increase in the value above may be used for short duration, wind, or seismic loads. All of the above earth pressures are unfactored and are, therefore, not inclusive of factors of safety.

The total static settlement is not expected to exceed 1 inch. Differential static settlement should be less than ½ inch. Most of the static settlement is expected to occur during construction, as the loads are applied. However, additional post-construction movement may occur if the foundation soils are flooded or saturated. The total and differential seismic-induced settlement is estimated to be less than ¾ inch and ½ inch, respectively. The anticipated seismic differential settlement is estimated over a distance of 30 feet.

Floor Slabs and Exterior Flatwork

Concrete slab-on-grade should be appropriate for this project. The interior floor slab should be a minimum of four (4) inches thick. In areas where it is desired to reduce floor dampness, such as office

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

areas, slab-on-grade construction should have a water vapor retarder incorporated into the floor slab design.

Concrete slab-on-grade floors should be underlain by a water vapor retarder. The water vapor retarder should be installed in accordance with ASTM Specification E1643-98. According to ASTM Guidelines, the water vapor retarder should consist of vapor retarder sheeting underlain by a minimum of 3 inches of compacted, clean, gravel of ¾-inch maximum size. To aid in concrete curing an optional 2 to 4 inches of granular fill may be placed on top of the vapor retarder. The granular fill should consist of damp clean sand with at least 10 to 30 percent of the sand passing the 100 sieve. The sand should be free of clay, silt, or organic material. Rock dust which is manufactured sand from rock crushing operations is typically suitable for the granular fill. This granular fill material should be compacted.

It is recommended that the concrete slabs be reinforced with at least No. 3 reinforcing bars, placed at 18 inches on center in each direction within the slabs middle third, to reduce crack separation and possible vertical offset at the cracks. Thicker floor slabs with increased concrete strength and reinforcement should be designed wherever heavy concentrated loads, heavy equipment, or machinery is anticipated.

The exterior floors should be poured separately in order to act independently of the walls and foundation system. Exterior finish grades should be sloped a minimum of 2 percent away from all interior slab areas to preclude ponding of water adjacent to the structures. All fills required to bring the building pads to grade should be Engineered Fills.

Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor can travel through the vapor membrane and penetrate the slab-on-grade. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To reduce moisture vapor intrusion, it is recommended that a vapor retarder be installed in accordance with ASTM guidelines. It is recommended that the utility trenches within the structure be compacted, as specified in our report, to reduce the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the building is recommended. Positive drainage should be established away from the structure and should be maintained throughout the life of the structure. Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed. In addition, ventilation of the structure (i.e. ventilation fans) is recommended to reduce the accumulation of interior moisture.

Lateral Earth Pressures and Retaining Walls

Walls retaining horizontal backfill and capable of deflecting a minimum of 0.1 percent of its height at the top may be designed using an equivalent fluid active pressure of 40 pounds per square foot per foot of depth. Walls that are incapable of this deflection or walls that are fully constrained against deflection may be designed for an equivalent fluid at-rest pressure of 60 pounds per square foot per foot of depth. Expansive soils should not be used for backfill against walls. The wedge of non-expansive backfill material should extend from the bottom of each retaining wall outward and upward at a slope of 2:1 (horizontal to vertical) or flatter. The stated lateral earth pressures do not include the

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

effects of hydrostatic water pressures generated by infiltrating surface water that may accumulate behind the retaining walls; or loads imposed by construction equipment, foundations, or roadways. All of the above earth pressures are unfactored and are, therefore, not inclusive of factors of safety.

During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall, or within a lateral distance equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

Retaining and/or below grade walls should be drained with either perforated pipe encased in free-draining gravel or a prefabricated drainage system. The gravel zone should have a minimum width of 12 inches wide and should extend upward to within 12 inches of the top of the wall. The upper 12 inches of backfill should consist of native soils, concrete pavement, asphaltic concrete pavement or other suitable backfill to minimize surface drainage into the wall drain system. The aggregate should conform to Class II permeable materials graded in accordance with the CalTrans Standard Specifications (May 2006). Prefabricated drainage systems, such as Miradrain®, Enkadrain®, or an equivalent substitute, are acceptable alternatives in lieu of gravel provided they are installed in accordance with the manufacturer's recommendations. If a prefabricated drainage system is proposed, our firm should review the system for final acceptance prior to installation.

Drainage pipes should be placed with perforations down and should discharge in a non-erosive manner away from foundations and other improvements. The pipes should be placed no higher than 6 inches above the heel of the wall in the center line of the drainage blanket and should have a minimum diameter of 4 inches. Collector pipes may be either slotted or perforated. Slots should be no wider than 1/8 inch in width, while perforations should be no more than ¼ inch in diameter. If retaining walls are less than 6 feet in height, the perforated pipe may be omitted in lieu of weep holes on 4 feet maximum spacing. The weep holes should consist of 4-inch diameter holes (concrete walls) or unmortared head joints (masonry walls) and not be higher than 18 inches above the lowest adjacent grade. Two 8-inch square overlapping patches of geotextile fabric (conforming to the CalTrans Standard Specifications for "edge drains") should be affixed to the rear wall opening of each weep hole to retard soil piping.

It is recommended that any uncertified fill material encountered within pavement areas, be removed and/or recompacted. The fill material should be moisture-conditioned to near optimum moisture-content and recompacted to a minimum of 95 percent of the maximum dry density based on ASTM Test Method D1557. As an alternative, the Owner may elect not to recompact the existing fill within paved areas. However, the Owner should be aware that the paved areas may settle which may require annual maintenance. At a minimum, it is recommended that the upper 12 inches of subgrade soil be moisture-conditioned as necessary and recompacted to a minimum of 95 percent of the maximum density based on ASTM Test Method D1557.

Seismic Parameters – 2016 California Building Code

The Site Class per Table 1613.5.2, of the 2016 California Building Code (2016 CBC) is based upon the site soil conditions. It is our opinion that Site Class D is most consistent with the subject site soil

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

conditions. For seismic design of the structures based on the seismic provisions of the 2016 CBC, we recommend the following parameters:

Seismic Item	Value	CBC Reference
Site Class	D	Table 1613.5.2
Site Coefficient Fa	1.000	Table 1613.5.3 (1)
Ss	1.503	Figure 1613.5 (3)
SMS	1.503	Section 1613.5.3
SDS	1.002	Section 1613.5.4
Site Coefficient Fv	1.500	Table 1613.5.3 (2)
S1	0.623	Figure 1613.5 (4)
SM1	0.935	Section 1613.5.3
SD1	0.623	Section 1613.5.4

PAVEMENT DESIGN

Based on the established standard practice of designing flexible pavements in accordance with State of California Department of Transportation (Caltrans) for projects within California, we have developed pavement sections in accordance with the procedure presented in Caltrans Standard Test Method 301. This pavement design procedure is based on the volume of traffic (Traffic Index) and the soil resistance "R" Value (R-Value) of subgrade soils. The AASHTO procedure was used to evaluate rigid pavement section requirements.

Asphalt Concrete (Flexible) Pavements

Based on a review of the boring logs, the near surface soil encountered at the subject site consists of mostly sand with an R-Value of 35. If site grading exposes soil other than that assumed, we should perform additional tests to confirm or revise the recommended pavement sections for actual field conditions. Various alternative pavement sections based on the Caltrans Flexible Pavement Design Method are presented below:

ASPHALT CONCRETE (FLEXIBLE) PAVEMENTS Subgrade R-value = 35			
Traffic Index	**Asphalt Concrete (inches)**	**Class 2 Aggregate Base (inches)**	**Depth of Compacted Subgrade (inches)**
5.0	2.5	6.0	12.0
6.0	3.0	7.0	12.0
7.0	4.0	8.0	12.0
8.0	4.5	10.0	12.0

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

We recommend that the subgrade soil be prepared as discussed in this report. The compacted subgrade should be non-yielding when proof-rolled with a loaded ten-wheel truck, such as a water truck or dump truck, prior to pavement construction. Subgrade preparation should extend a minimum of 3 feet laterally beyond the edge of pavement or back of curbs.

Pavement areas should be sloped and drainage gradients maintained to carry all surface water off the site. A cross slope of 2 percent is recommended in asphalt concrete pavement areas to provide good surface drainage and to reduce the potential for water to penetrate into the pavement structure.

Unless otherwise required by local jurisdictions, paving materials should comply with the materials specifications presented in the Caltrans Standard Specifications Section. Class 2 Aggregate Base should comply with the materials requirements for Class 2 Base found in Section 26.

Where high temperatures will be prevalent, elevated to extreme pavement temperature could result in softening of the asphaltic oil (asphalt binder), which in turn could result in increased potential for rutting, shoving or raveling of the pavement surface. This would be of particular concern where harsh tire action occurs, such as at braking and acceleration locations in the travel lanes and at parking stalls. The use of higher viscosity asphalt binder will increase the relative stiffness of the asphalt concrete mix over a given temperature range than that of a low viscosity binder. With the increased viscosity of the asphalt binder and stiffness of the mix, the material will be less susceptible to for rutting, shoving or raveling.

The mineral aggregate shall be Type B, ½-inch or ¾-inch maximum, medium grading, for the wearing course and ¾-inch maximum, medium grading for the base course, and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The asphalt concrete materials should comply with and be placed in accordance with the specifications presented in Section 39 of the Caltrans Standard Specifications, latest edition. Asphalt concrete should be compacted to a minimum of 95 percent of the maximum laboratory compacted (kneading compactor) unit weight.

ASTM Test procedures should be used to assess the percent relative compaction of soils, aggregate base and asphalt concrete. Aggregate and the upper 12 inches of subgrade should be compacted to at least 95 percent based on the Modified Proctor maximum compacted unit weight obtained in accordance with ASTM Test Method D1557-00. Compacted aggregate base should also be stable and unyielding when proof-rolled with a loaded ten-wheel water truck or dump truck.

Portland Cement Concrete (Rigid) Pavement

A minimum six-inch layer of compacted Class 2 Aggregate Base should be placed over the prepared subgrade prior to placement of the concrete pavements. With the addition of the aggregate base material, we recommend that a combined modulus of subgrade/base reaction value of 150 pounds per cubic inch be used in design where the rigid pavement is to be designed by a Structural Engineer.

Rigid pavement design procedures have been developed by various agencies, including AASHTO and the Portland Cement Association (PCA). We have evaluated the required pavement sections based on the procedure presented in "AASHTO Guide for Design of Pavement Structures 1993" traffic volumes.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

RIGID PAVEMENT			
Traffic Index	**Portland Cement Concrete (inches)**	**Class 2 Aggregate Base (inches)**	**Compacted Subgrade (inches)**
5.0	5.0	6.0	12
7.0	6.5	6.0	12

Please note that the concrete modulus of rupture is based on *flexural strength*, not compressive strength, and should be specified accordingly. A *flexural strength* of 550 psi should be specified accordingly. Our experience is that the compressive strength will have to be on the order of 3,800 to 4,500 psi in order to achieve the required flexural strength. Prior to the construction of any rigid pavement, we recommend that concrete mix histories with flexural strength data be obtained from the proposed supplier. In the absence of flexural strength history, we recommend that laboratory trial batching and testing be performed to allow for confirmation that the proposed concrete mix is capable of producing the required flexural strength.

The concrete pavements should be designed with both longitudinal and transverse joints. The saw-cut or formed joints should extend to a minimum depth of one-fourth of the pavement thickness plus ¼ inch. Joint spacing should not exceed 15 feet. Steel reinforcement of all rigid pavements is recommended to keep the joints tight and to control temperature cracking.

Keyed joints are recommended at all construction joints to transfer loads across the joints. Joints should be reinforced with a minimum of ½ inch diameter by 48-inch long deformed reinforcing steel dowel bars placed at mid-slab depth on 18-inch center-to-center spacing to keep the joints tight for load transfer. The joints should be filled with a flexible sealer. Expansion joints should be constructed only where the pavements abut structures or fixed objects.

Smooth bar dowels, with a diameter of d/8, where d equals the thickness of the concrete, at least 14 inches in length, placed at a spacing of 12 inches on center, may also be considered for construction joints to transfer loads across the joints. The dowels should be centered across the joints with one side of the dowel lubricated to reduce the bond strength between the dowel and the concrete and fitted with a plastic cap to allow for bar expansion.

Infiltration Testing

The shallow soil conditions present at the subject site were evaluated by drilling shallow borings in the vicinity of the anticipated infiltration areas. The borings drilled at the site indicated the subsurface soil conditions consisted of dense to very dense silty sand.

Infiltration rates were determined using the results of open borehole infiltration testing performed at the subject site. Infiltration testing performed on the near surface silty sand soil indicates infiltration rates of approximately 0.32, 0.42, and 0.55 inch per hour. Detailed results of the percolation test and infiltration rate are attached in tabular format. The soil percolation rates are based on tests conducted with clean water. The infiltration rates may vary with time as a result of soil clogging from water impurities. A factor of safety should be incorporated into the design of the percolation system to

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

compensate for these factors as determined appropriate by the designer. In addition, periodic maintenance consisting of clearing the bottom of the system of clogged soils should be expected.

It is recommended that the location of the infiltration systems not be closer than ten feet (10') as measured laterally from the edge of the adjacent property line, ten feet (10') from the outside edge of any foundation and five (5') from the edge of any right-of way to the outside edges of the infiltration system.

If the infiltration location is within ten feet (10') from the proposed foundation, it is recommended that this infiltration system should be impervious from the finished ground surface to a depth that will achieve a diagonal distance of a minimum of ten feet (10') below the bottom of the closest footing in the project.

Soil Cement Reactivity

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete (or stucco) and the soil. HUD/FHA and UBC have developed criteria for evaluation of sulfate levels and how they relate to cement reactivity with soil and/or water.

A soil sample was obtained from the site and tested in accordance with State of California Materials Manual Test Designation 417. The sulfate concentration detected from the soil sample indicated a moderate sulfate exposure value as established by HUD/FHA and CBC. Therefore, it is recommended that concrete in contact with soil utilize Type II Cement and have a minimum compressive strength of 4,000 psi.

Electrical resistivity testing of the soils indicates that the onsite soils may have a moderate potential for metal loss from electrochemical corrosion process. A qualified corrosion engineer may be consulted regarding mitigation of the corrosion effects of the onsite soils on underground metal utilities.

Compacted Material Acceptance

Compaction specifications are not the only criteria for acceptance of the site grading or other such activities. However, the compaction test is the most universally recognized test method for assessing the performance of the Grading Contractor. The numerical test results from the compaction test cannot be solely used to predict the engineering performance of the compacted material. Therefore, the acceptance of compacted materials will also be dependent upon the stability of that material. The Soils Engineer has the option of rejecting any compacted material regardless of the degree of compaction if that material is considered to be unstable or if future instability is suspected. A specific example of rejection of fill material passing the required percent compaction is a fill which has been compacted with an in-situ moisture-content significantly less than optimum moisture. This type of dry fill (brittle fill) is susceptible to future settlement if it becomes saturated or flooded.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Testing and Inspection

A representative of our Engineering Firm should be present at the site during the earthwork activities to confirm that actual subsurface conditions are consistent with the exploratory fieldwork. This activity is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction testing and stability of the material. This representative can also verify that the intent of these recommendations is incorporated into the project design and construction. CQuest Consultants Inc. will not be responsible for grades or staking, since this is the responsibility of the Prime Contractor.

LIMITATIONS

Soils Engineering is one of the newest divisions of Civil Engineering. This branch of Civil Engineering is constantly improving as new technologies and understanding of earth sciences advance. Although your site was analyzed using the most appropriate and most current techniques and methods, undoubtedly there will be substantial future improvements in this branch of engineering. In addition to advancements in the field of Soils Engineering, physical changes in the site, either due to excavation or fill placement, new agency regulations, or possible changes in the proposed structure after the soils report is completed may require the soils report to be professionally reviewed. In light of this, the owner should be aware that there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that 2 years be considered a reasonable time for the usefulness of this report.

Foundation and earthwork construction is characterized by the presence of a calculated risk that soil and groundwater conditions have been fully revealed by the original foundation investigation. This risk is derived from the practical necessity of basing interpretations and design conclusions on limited sampling of the earth. The recommendations made in this report are based on the assumption that soil conditions do not vary significantly from those disclosed during our field investigation. If any variations or undesirable conditions are encountered during construction, the Soils Engineer should be notified so that supplemental recommendations may be made.

The conclusions of this report are based on the information provided regarding the proposed construction. If the proposed construction is relocated or redesigned, the conclusions in this report may not be valid. The Soils Engineer should be notified of any changes so the recommendations may be reviewed and re-evaluated.

This report is a Geotechnical Engineering Investigation with the purpose of evaluating the soil conditions in terms of foundation design. The scope of our services did not include any Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere; or the presence of wetlands. Any statements, or absence of statements, in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potentially hazardous and/or toxic assessment.

The geotechnical engineering information presented herein is based upon professional interpretation utilizing standard engineering practices and a degree of conservatism deemed proper for this project. It is not warranted that such information and interpretation cannot be superseded by future

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

geotechnical engineering developments. We emphasize that this report is valid for the project outlined above and should not be used for any other sites.

Respectfully submitted,
CQuest Consultants Inc.

Charles A. Haran, PE
Project Engineer

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

FIGURES

VICINITY MAP **PROPOSED BUSINESS PARK** **ALESSANDRO BLVD & REBECCA ST** **MORENO VALLEY, CALIFORNIA**	**Date:** November 2017	**Project No:** 1217-0318	CQuestConsultantsInc. ENGINEERING, TESTING, AND INSPECTION
	Scale: NTS	**Client:** PAMA Management Inc.	

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

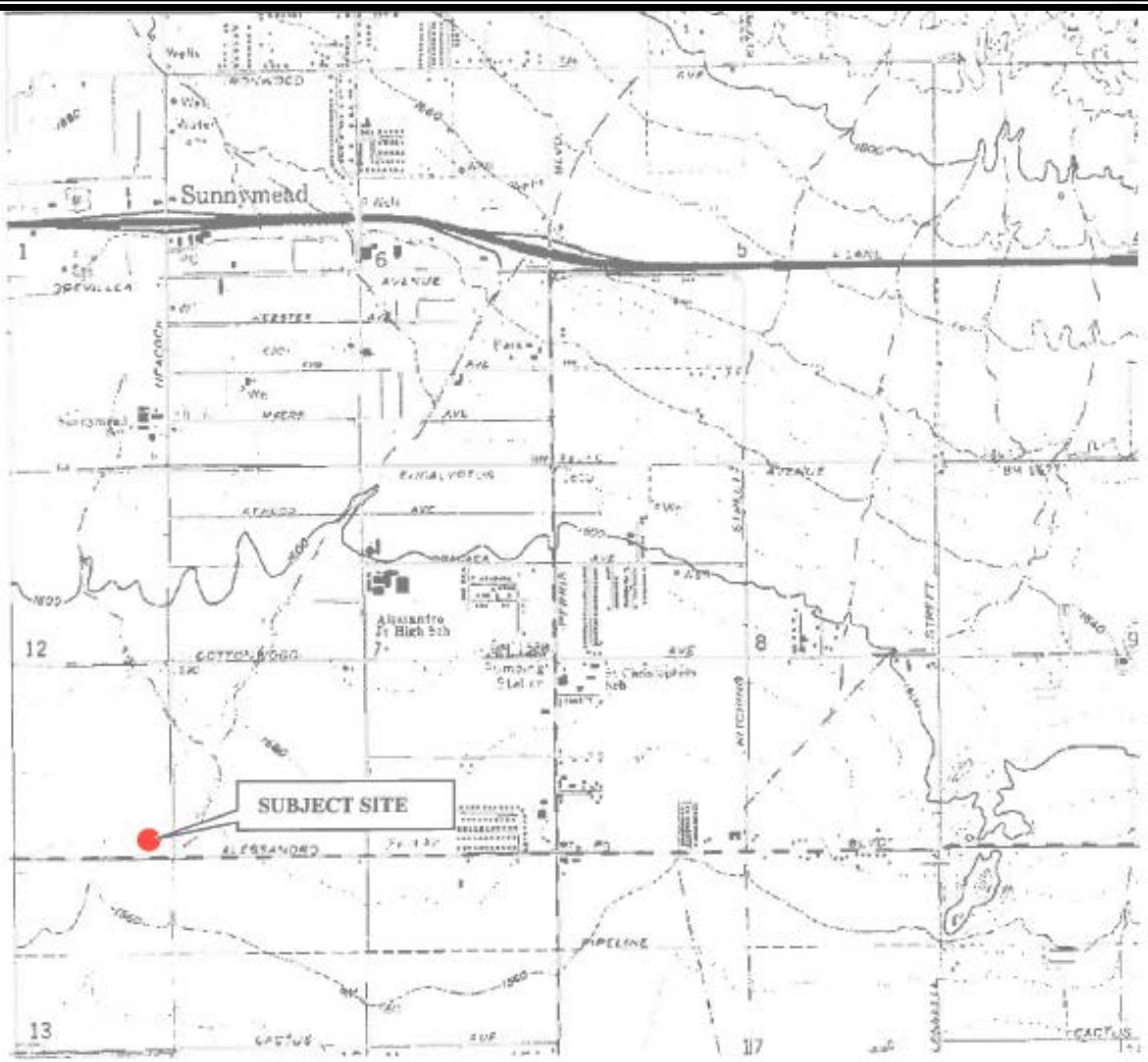
EXPLORATORY BORING LOCATIONS

LEGEND

- APPROXIMATE BORING LOCATION
- APPROXIMATE INFILTRATION TEST LOCATION

Scale: NTS	**Date:** November 2017	**SITE PLAN**	CQuestConsultantsInc. ENGINEERING, TESTING, AND INSPECTION
Project No: 1217-0318	**Client:** PAMA Management Inc.		

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)



MAP EXPLANATION

Potentially Active Faults

Faults considered to have been active during Quaternary time: solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed, query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Aerial photo lineaments (not field checked) based on youthful geomorphic and other features believed to be the results of Quaternary faulting.

Special Studies Zone Boundaries

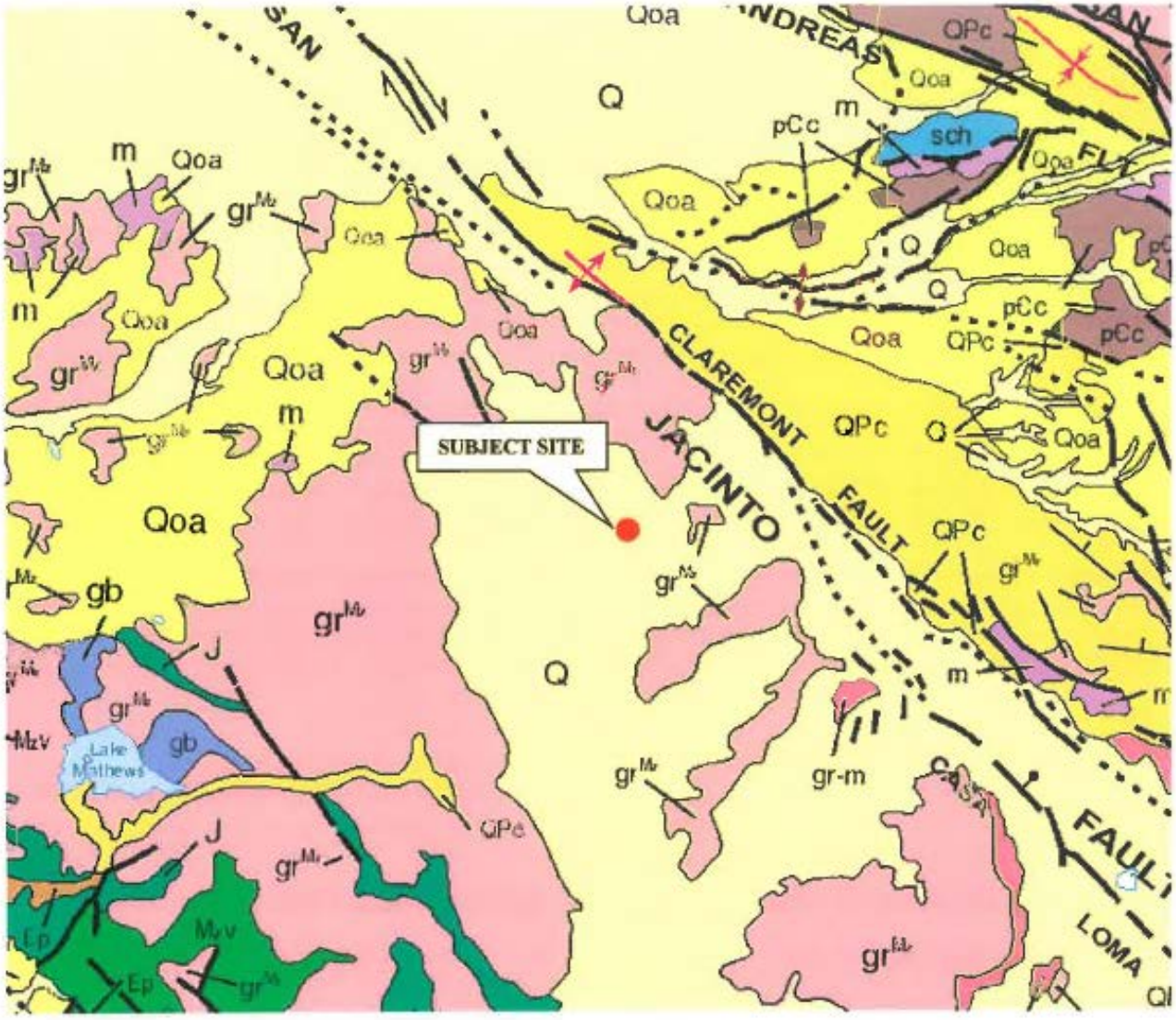
These are delineated as straight-line segments that connect consecutively numbered turning points so as to define one or more special studies zone segments.

Seaward projection of zone boundary

Source: State of California Seismic Hazards Map, Sunnymead Quadrangle

FAULT ZONE MAP **PROPOSED BUSINESS PARK** **ALESSANDRO BLVD & REBECCA ST** **MORENO VALLEY, CA**	**Date:** November 2017	**Project No:** 1217-0318	CQuestConsultantsInc. ENGINEERING, TESTING, AND INSPECTION
	Scale: NTS	**Client:** PAMA Management Inc.	

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)



Q — Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated

Source: CGS Geologic Map of California, 2010

N

GEOLOGIC MAP **PROPOSED BUSINESS PARK** **ALESSANDRO BLVD & REBECCA ST** **MORENO VALLEY, CA**	**Date:** November 2017	**Project No:** 1217-0318	CQuestConsultantsInc. ENGINEERING, TESTING, AND INSPECTION
	Scale: NTS	**Client:** PAMA Management Inc.	

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

APPENDIX A

APPENDIX A

FIELD AND LABORATORY INVESTIGATIONS

Field Investigation

The field investigation consisted of a surface reconnaissance and a subsurface exploratory program. A total of fourteen (14) - 8½-inch diameter exploratory borings were advanced using hollow stem auger drilling equipment. The boring locations are shown on the attached site plan.

The soils encountered at the boring locations were logged in the field during the exploration and with supplementary laboratory test data are described in accordance with the Unified Soil Classification System.

Modified standard penetration tests and standard penetration tests were performed at selected depths. This test represents the resistance to driving a 2½-inch and 1½-inch diameter split barrel sampler, respectively. The driving energy was provided by a hammer weighing 140 pounds falling 30 inches. Relatively undisturbed soil samples were obtained while performing this test. Bag samples of the disturbed soil were obtained from the auger cuttings. The modified standard penetration tests are identified in the sample type on the boring logs with a full shaded in block. The standard penetration tests are identified in the sample type on the boring logs with one-half of the block shaded. All samples were returned to our laboratory for evaluation.

Laboratory Investigation

The laboratory investigation was programmed to determine the physical and mechanical properties of the foundation soil underlying the site. Test results were used as criteria for determining the engineering suitability of the surface and subsurface materials encountered.

In-situ moisture-content, dry density, consolidation, direct shear, and sieve analysis tests were completed for the undisturbed samples representative of the subsurface material. Expansion index and R-Value tests were completed for select bag samples obtained from the auger cuttings. These tests, supplemented by visual observation, comprised the basis for our evaluation of the site material.

The logs of the exploratory borings and laboratory determinations are presented in this Appendix.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

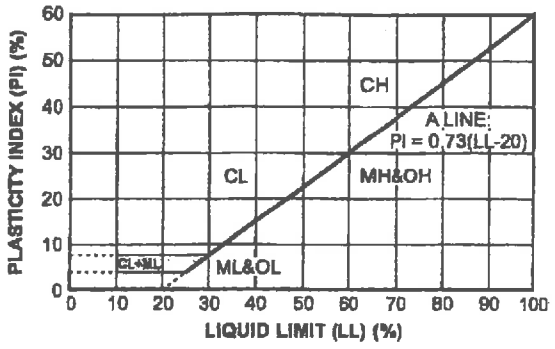
UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART			
COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

CONSISTENCY CLASSIFICATION	
Description	**Blows per Foot**
Granular Soils	
Very Loose	< 5
Loose	5 – 15
Medium Dense	16 – 40
Dense	41 – 65
Very Dense	> 65
Cohesive Soils	
Very Soft	< 3
Soft	3 – 5
Firm	6 – 10
Stiff	11 – 20
Very Stiff	21 – 40
Hard	> 40

GRAIN SIZE CLASSIFICATION		
Grain Type	*Standard Sieve Size*	*Grain Size in Millimeters*
Boulders	Above 12 inches	Above 305
Cobbles	12 to 13 inches	305 to 76.2
Gravel	3 inches to No. 4	76.2 to 4.76
Coarse-grained	3 to ¾ inches	76.2 to 19.1
Fine-grained	¾ inches to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
Coarse-grained	No. 4 to No. 10	4.76 to 2.00
Medium-grained	No. 10 to No. 40	2.00 to 0.042
Fine-grained	No. 40 to No. 200	0.042 to 0.074
Silt and Clay	Below No. 200	Below 0.074

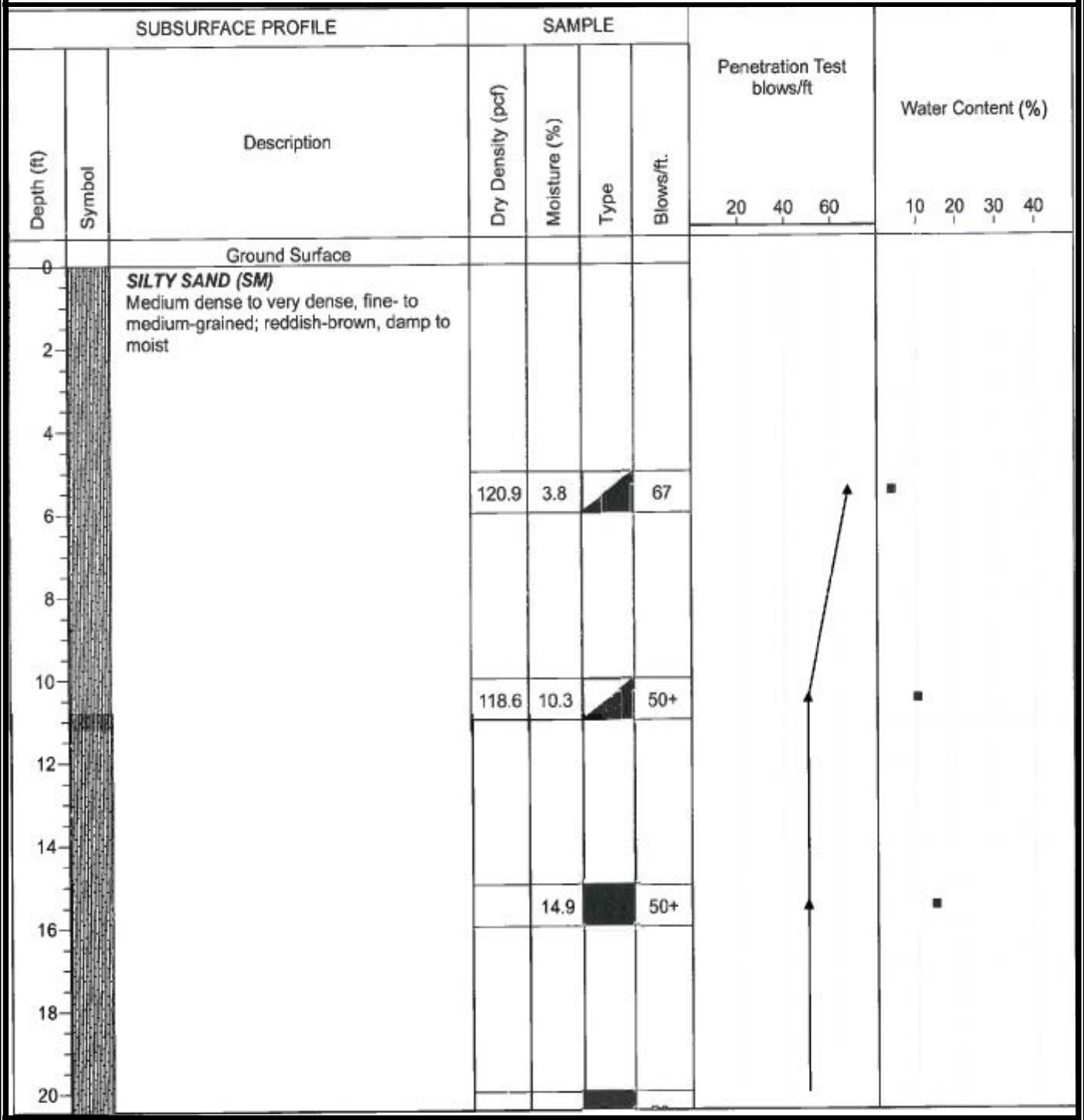
PLASTICITY CHART



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-1

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-1
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



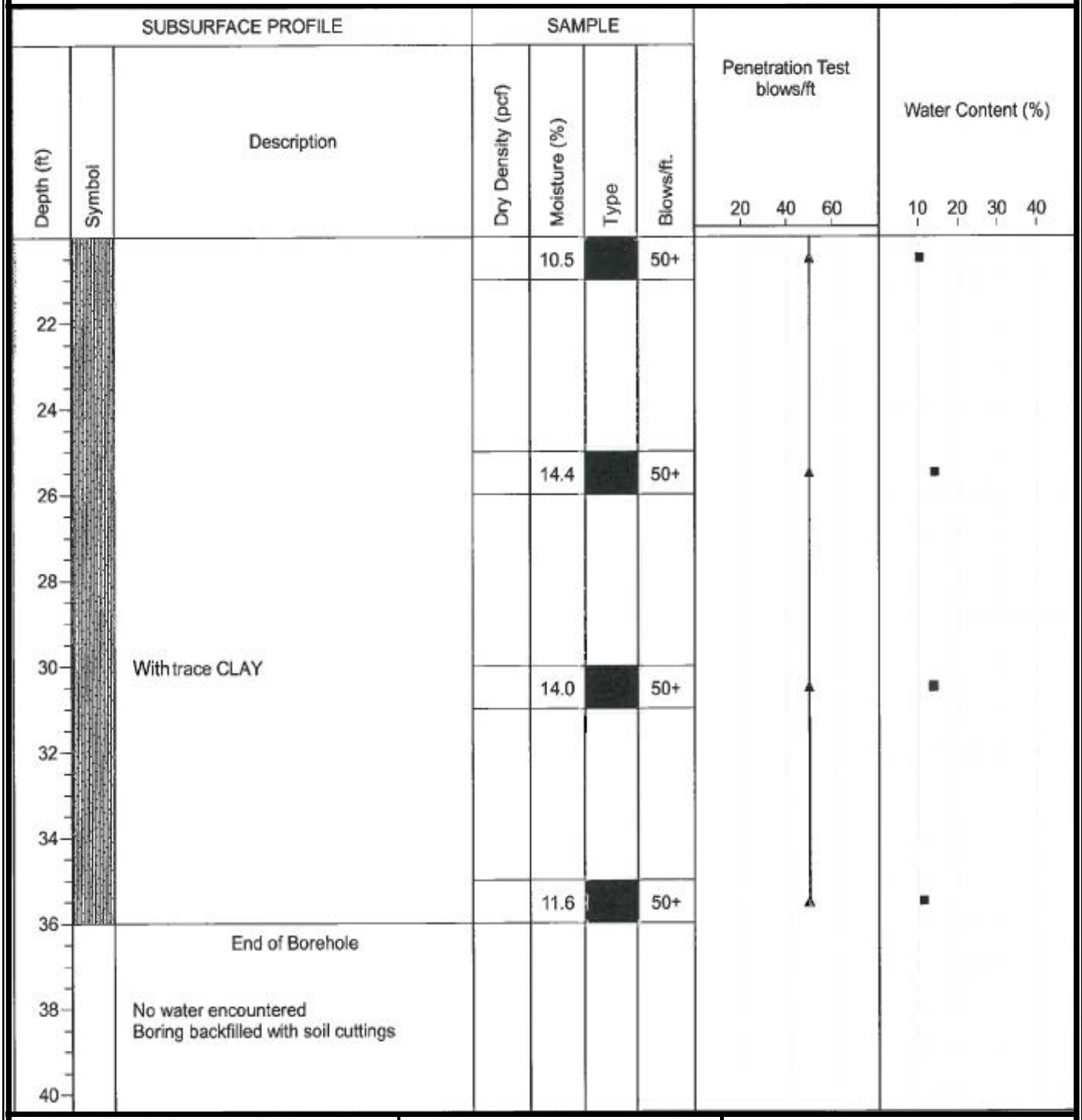
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	36 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-1

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-1
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



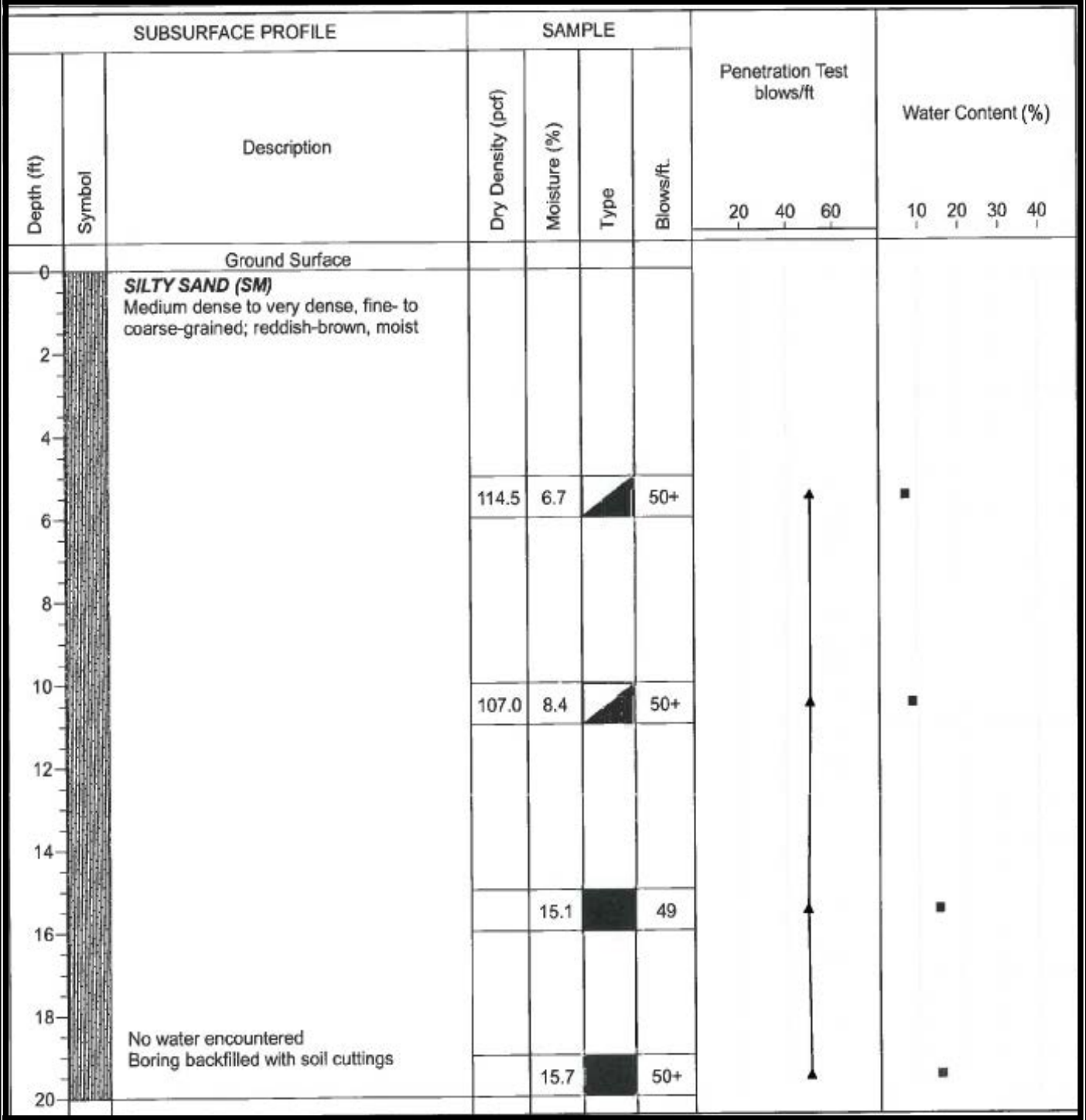
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	36 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-2

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-2
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



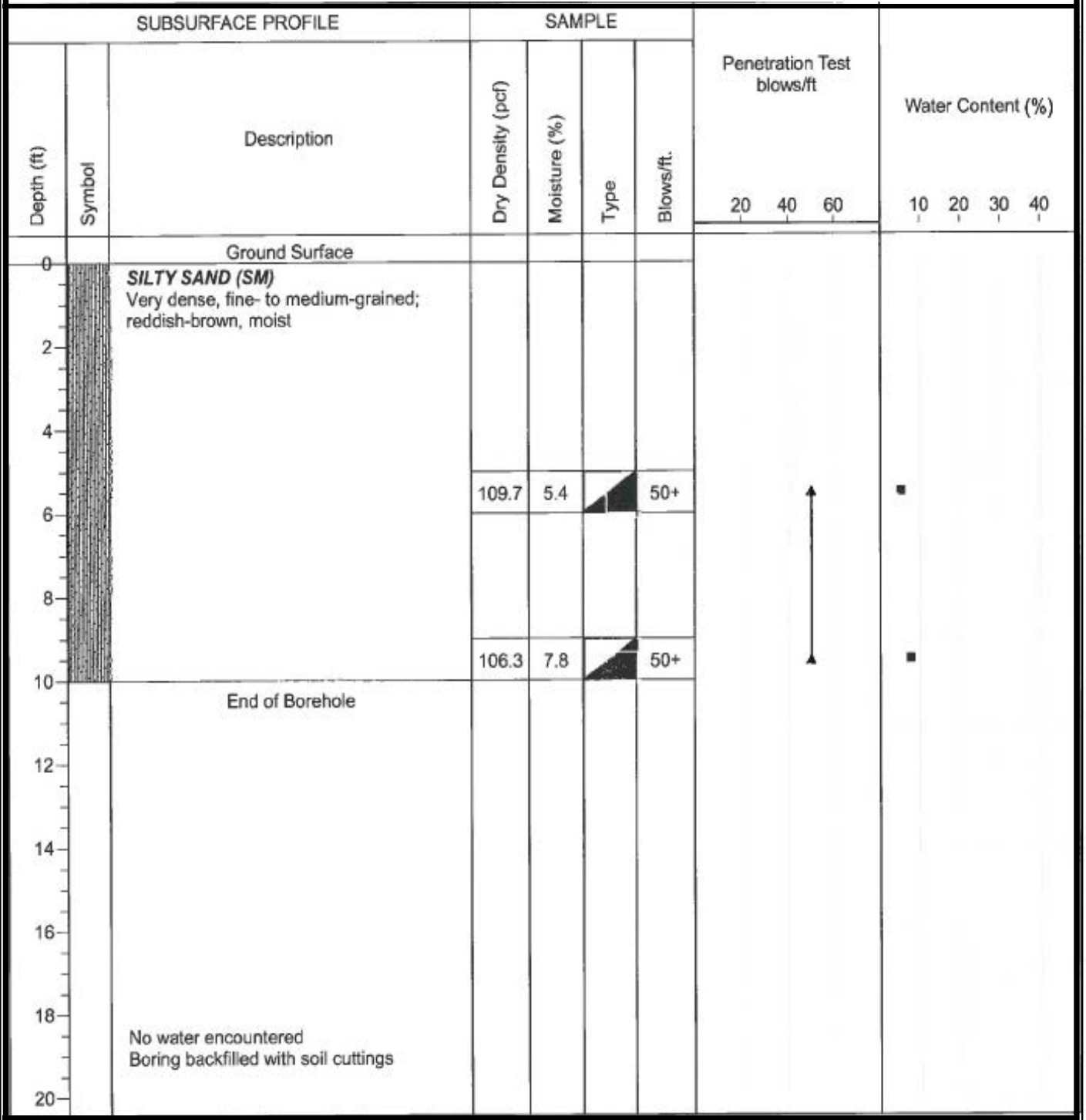
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-3

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-3
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



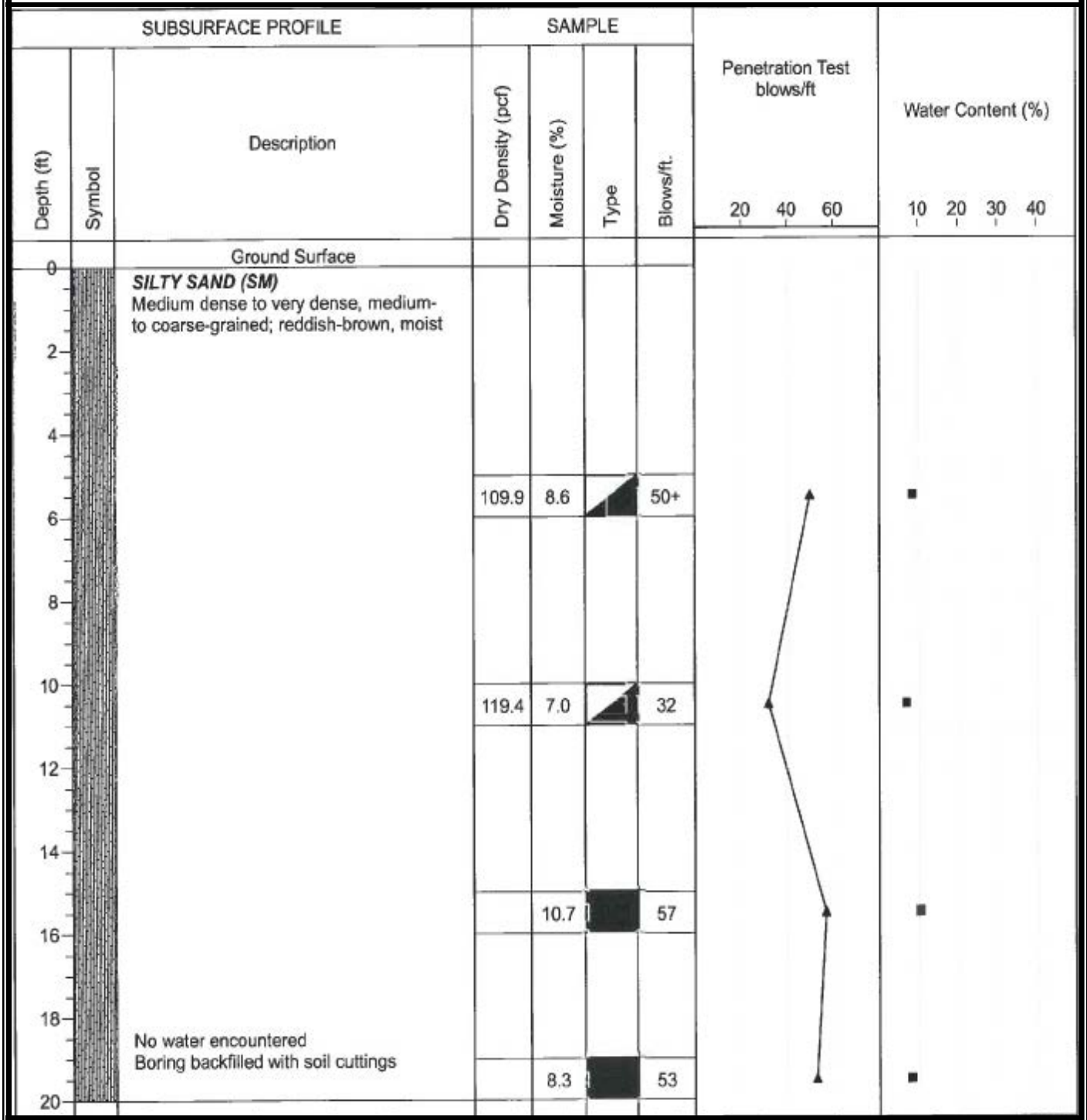
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-4

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-4
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



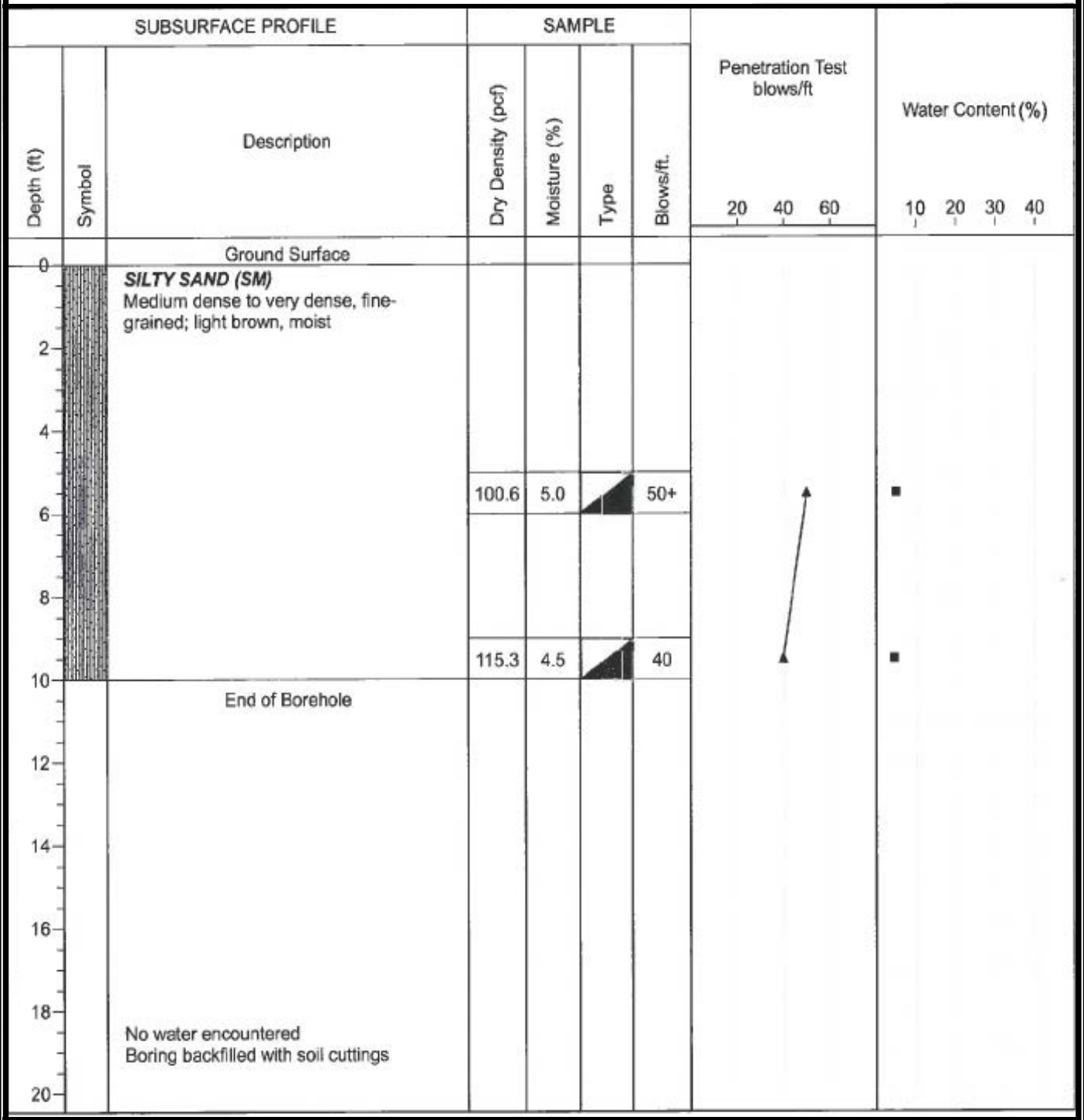
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-5

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-5
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



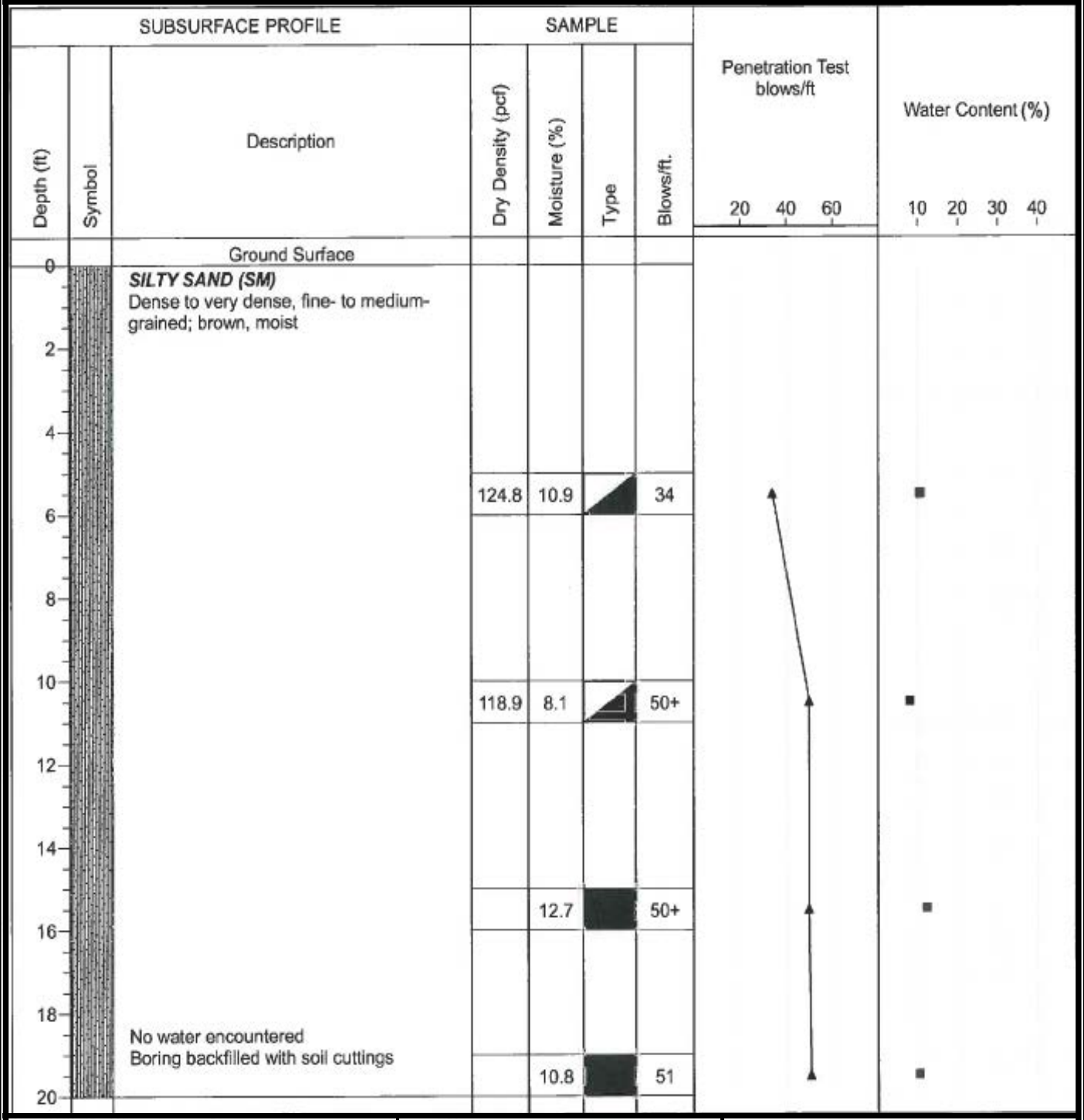
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-6

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-6
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



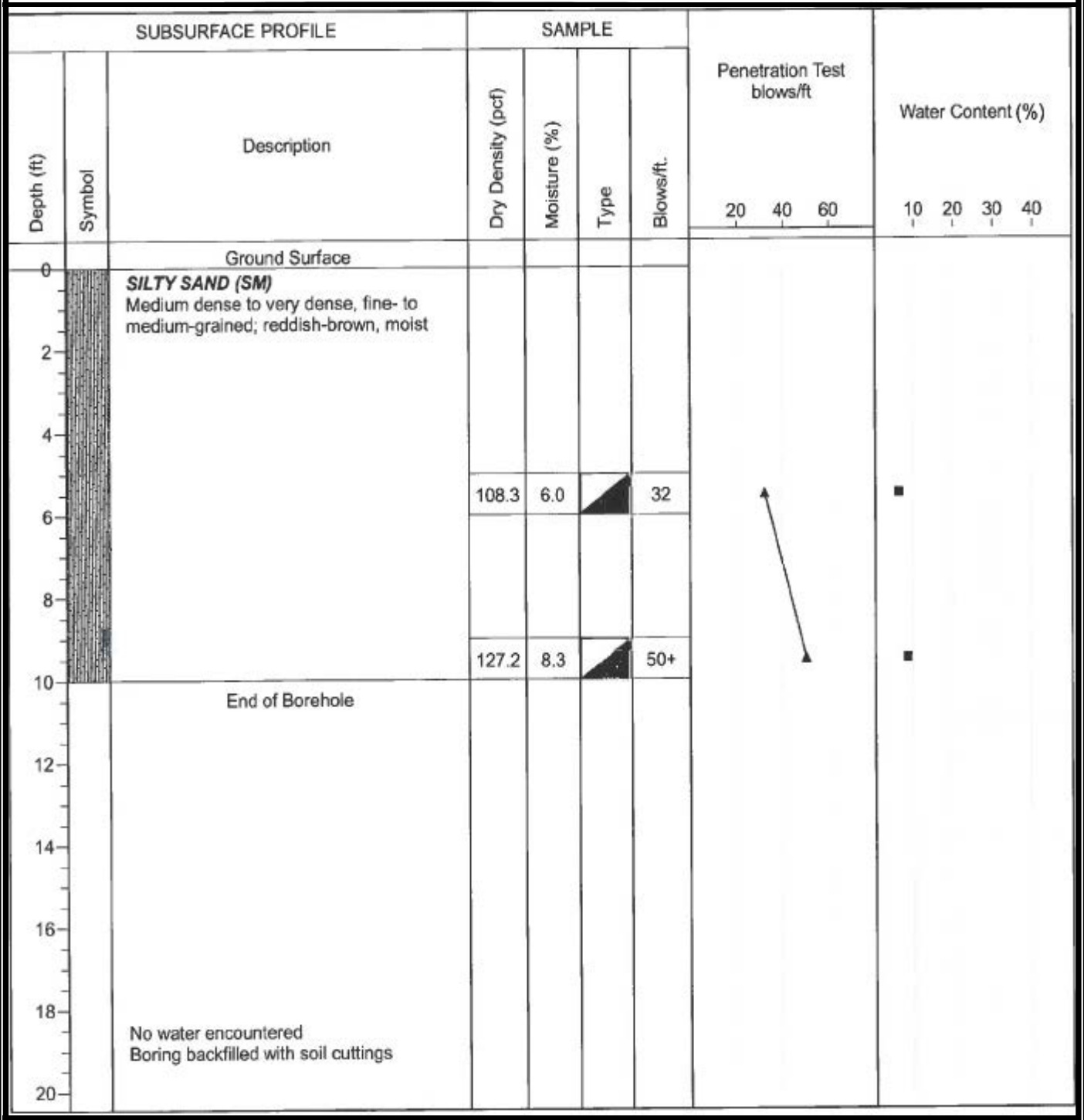
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-7

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-7
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



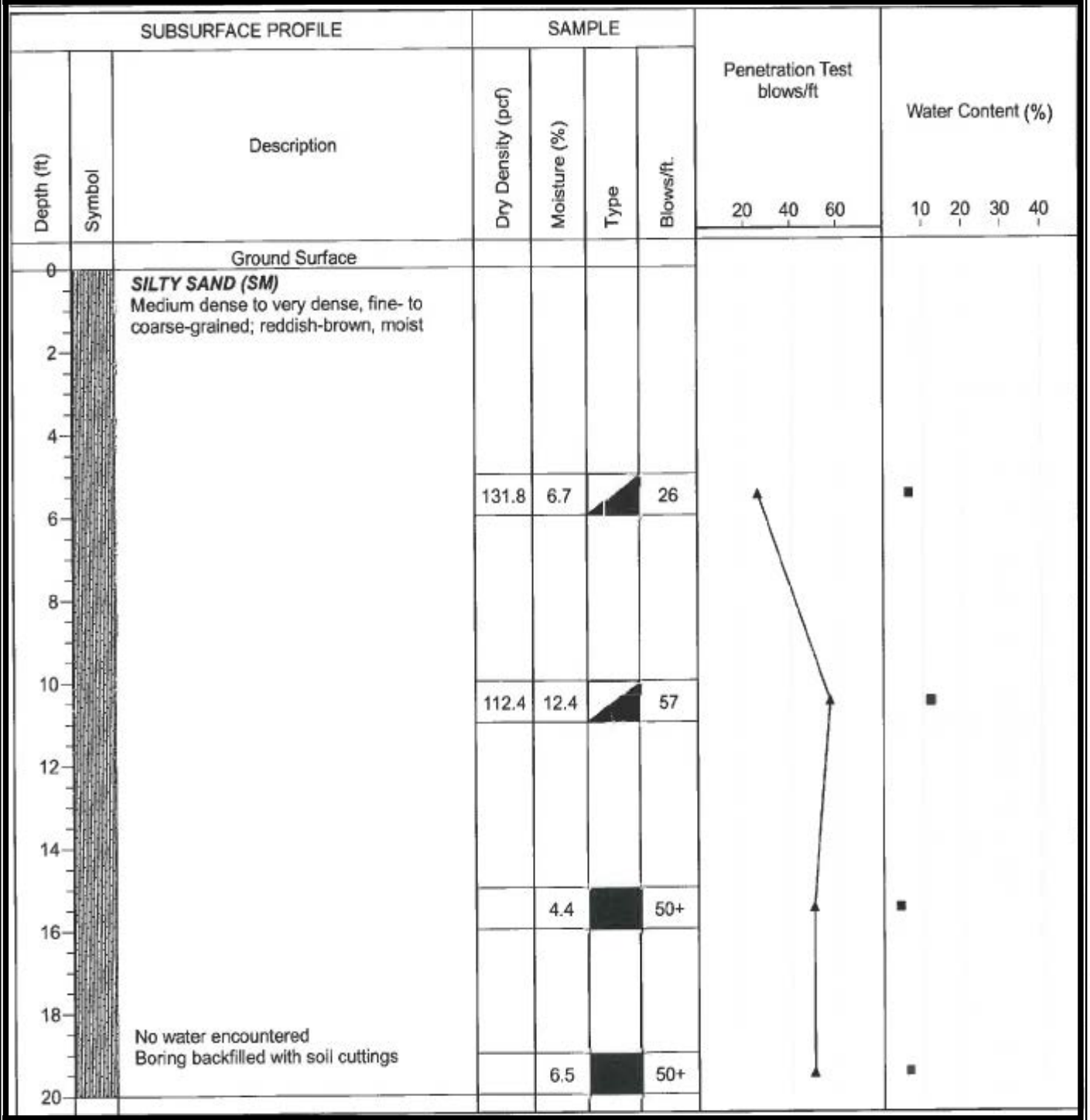
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-8

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-8
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered **Initial:** N/A	**At Completion:**	N/A



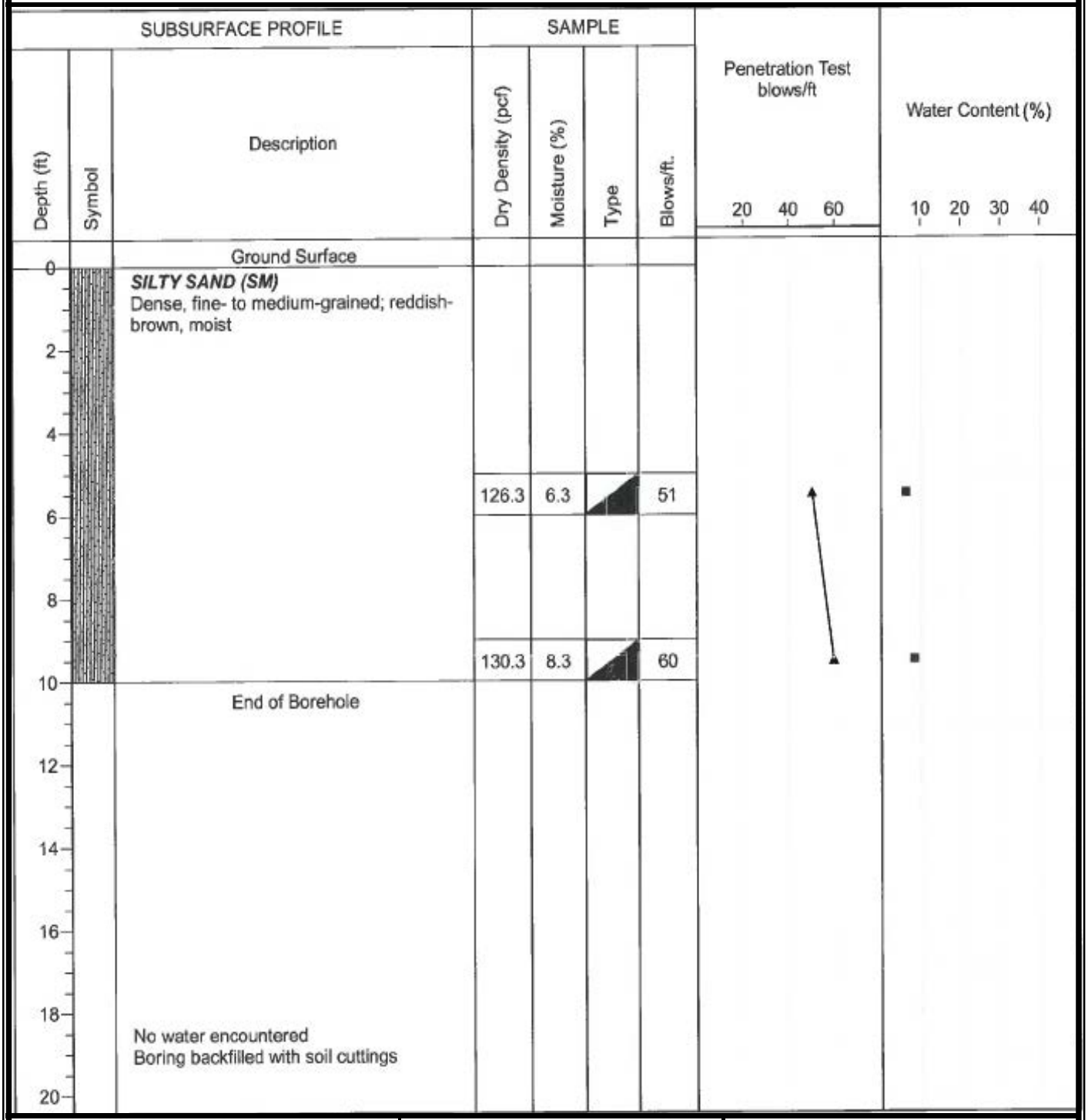
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-9

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-9
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered **Initial:** N/A	**At Completion:**	N/A



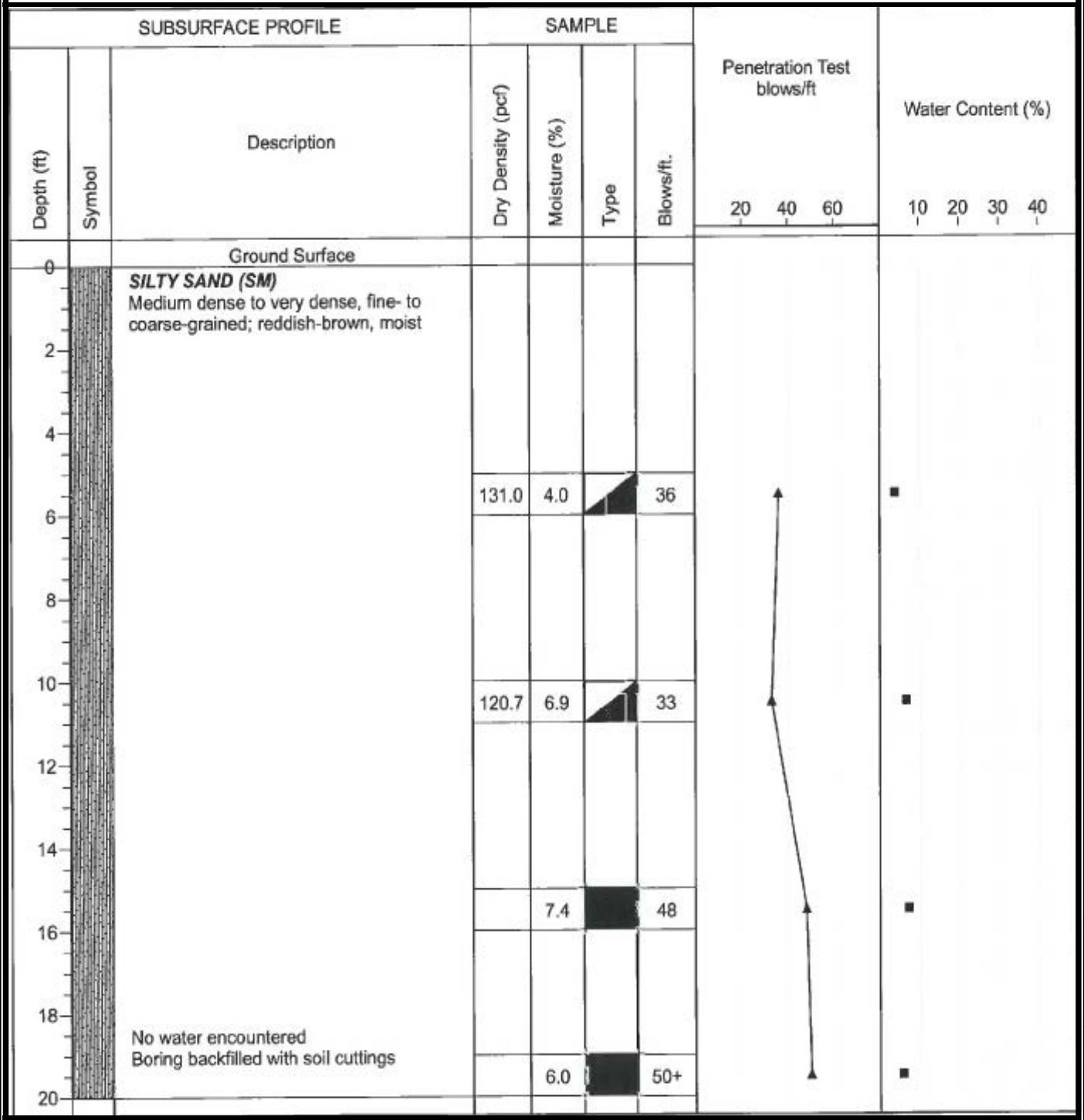
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-10

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-10
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



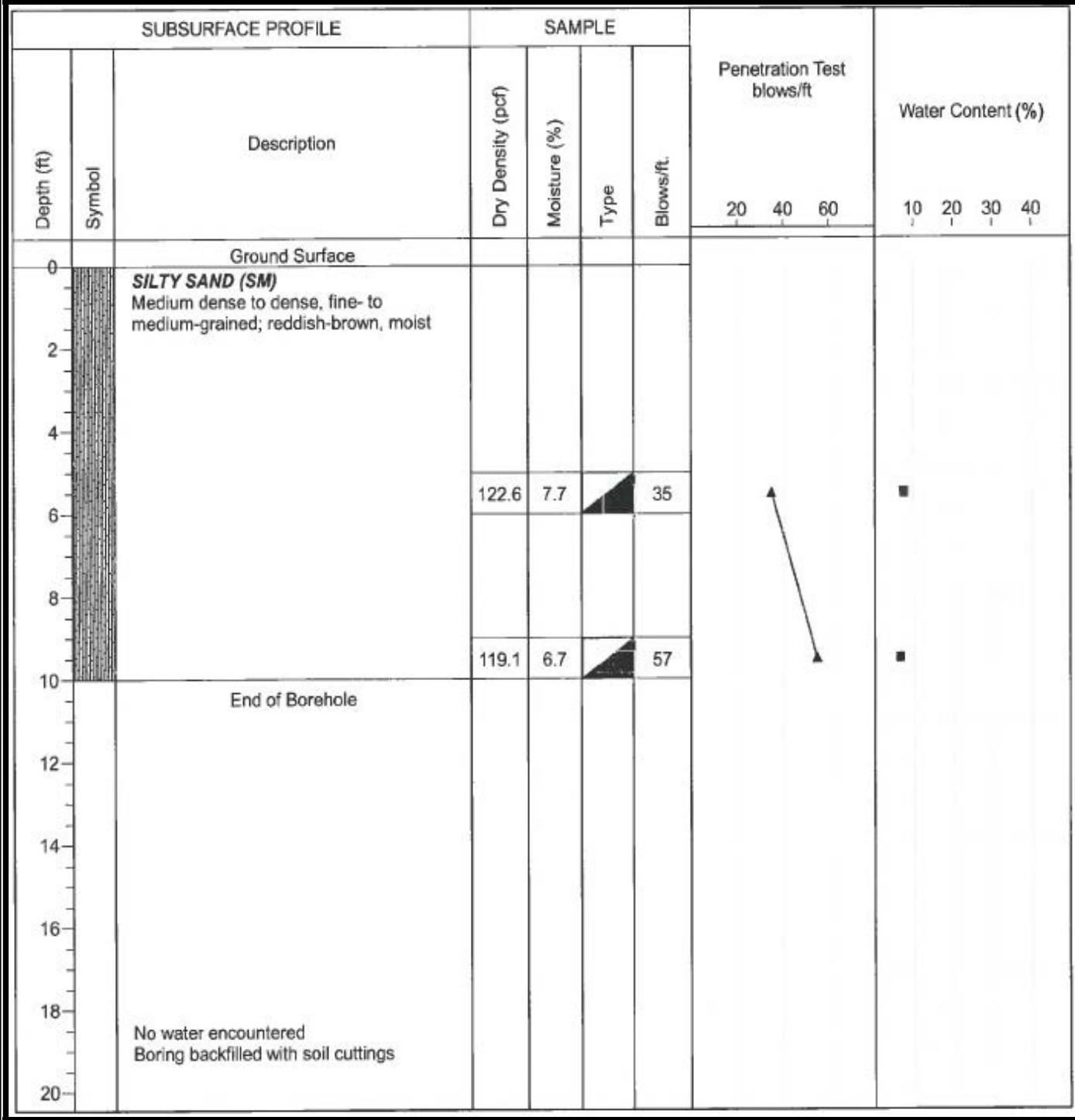
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-11

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-11
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



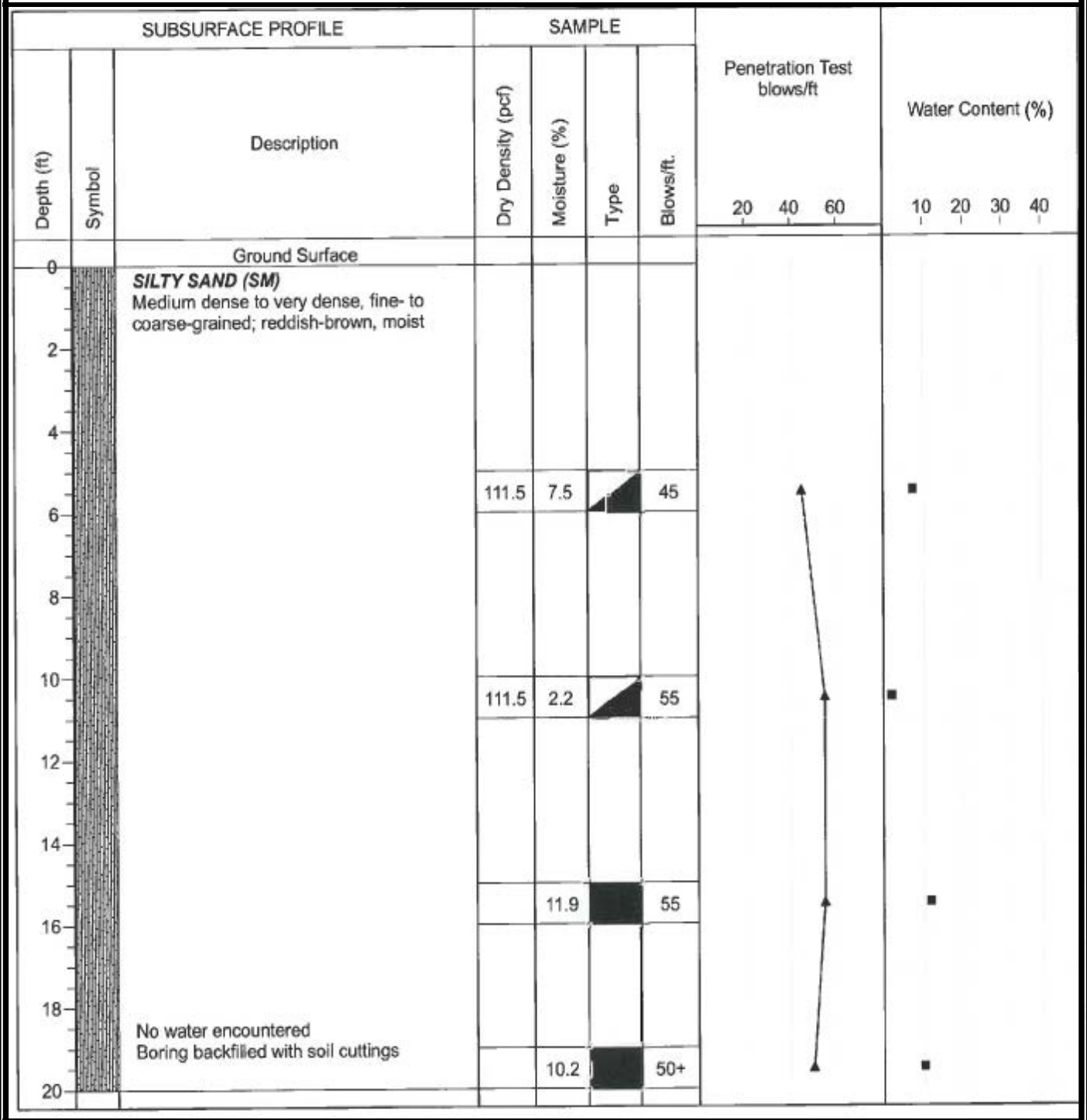
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-12

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-12
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



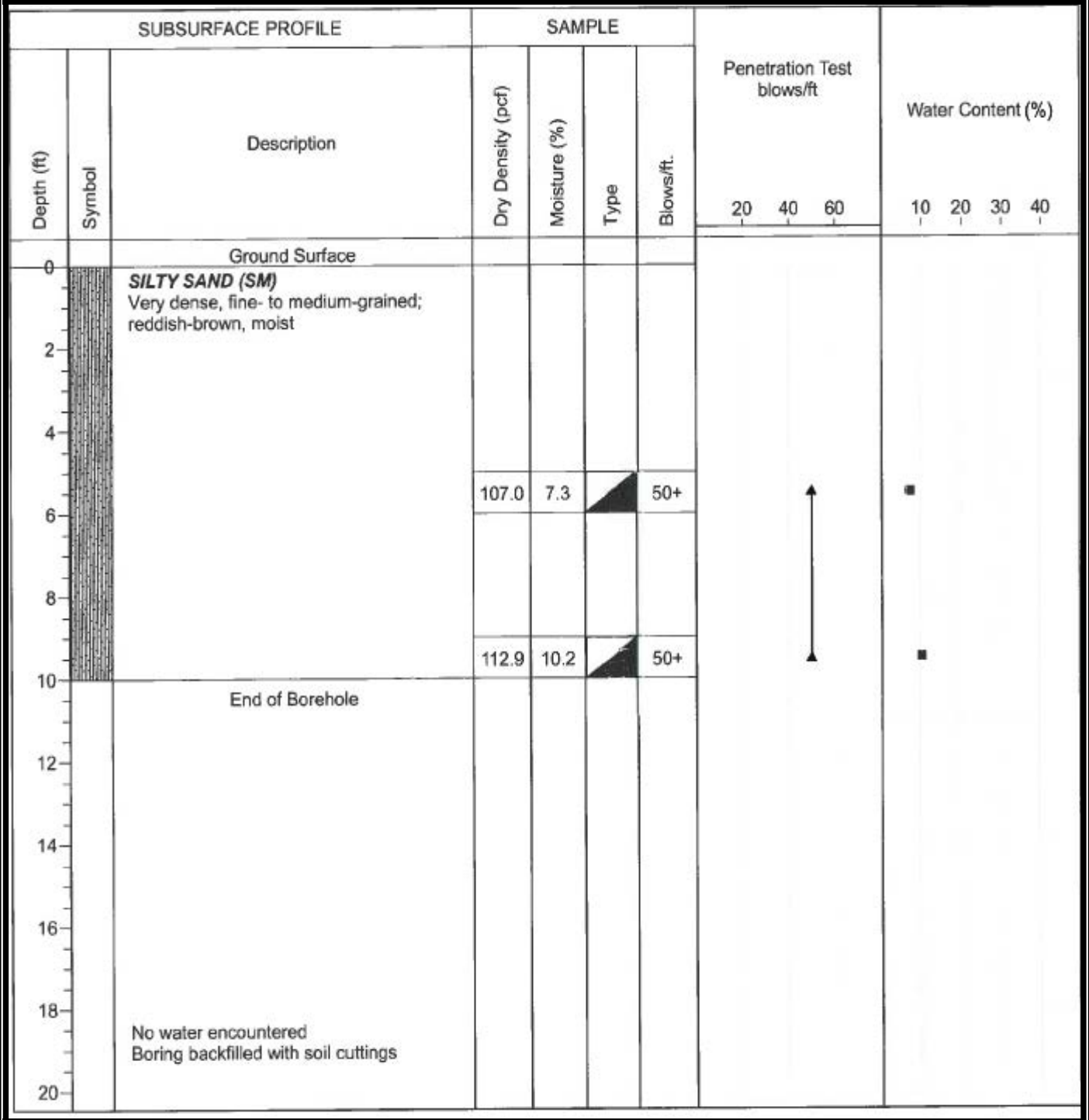
Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-13

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-13
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



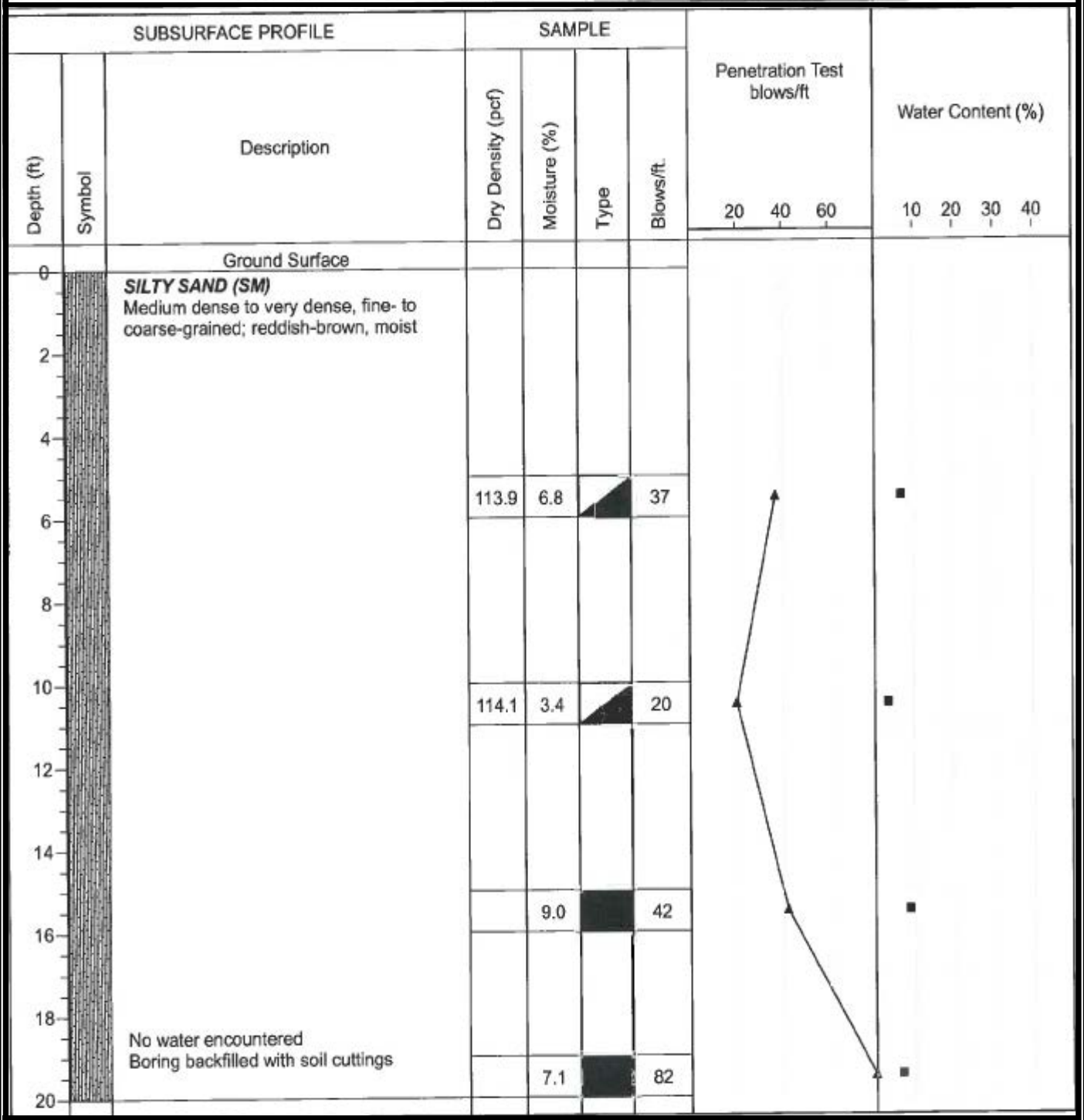
Drill Method:	Hollow Stem			**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75			**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration			**Elevation:**	10 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

BORING LOG B-14

Project:	Proposed Business Park	**Project No.:**	1217-0318
Client:	PAMA Management Group	**Figure No.:**	A-14
Location:	Alessandro Blvd. & Rebecca St., Moreno Valley, CA	**Logged By:**	MW
Depth to Water>	Not Encountered	**Initial:** N/A	**At Completion:** N/A



Drill Method:	Hollow Stem	**Drill Date:**	Dec. 8, 2017
Drill Rig:	CME 75	**Hole Size:**	5 ½ Inches
Driller:	Baja Exploration	**Elevation:**	20 Feet

CQuestConsultantsInc.
ENGINEERING, TESTING, AND INSPECTION

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Sieve Analysis

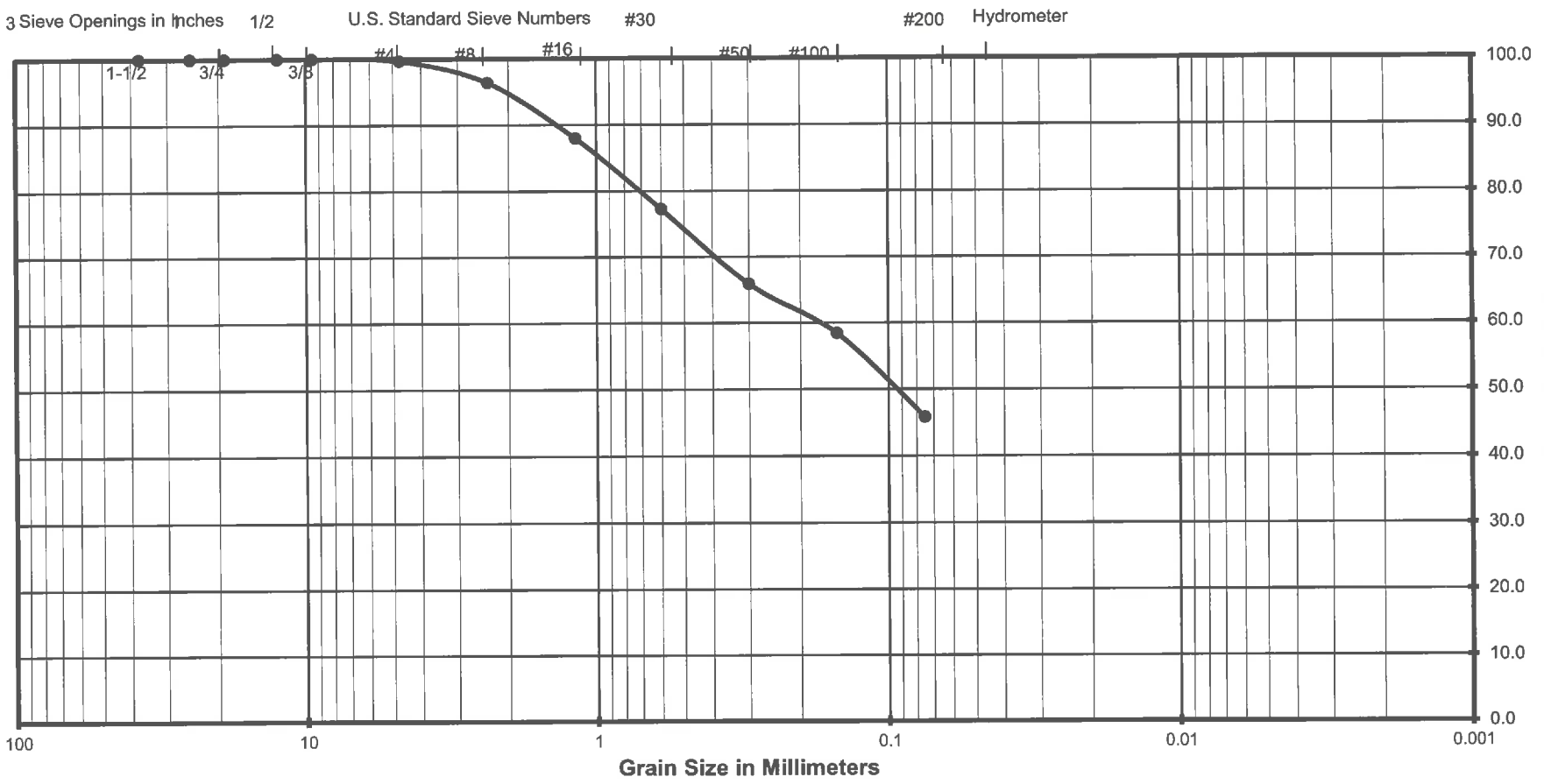
Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 5'
Soil Classification	: SM

Wet Weight	:	550.70
Dry Weight	:	550.70
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	1.9	0.3	0.3	99.7
#8	2.36	18.2	3.3	3.6	96.4
#16	1.18	46.3	8.4	12.1	87.9
#30	0.60	58.7	10.7	22.7	77.3
#50	0.30	62.9	11.4	34.1	65.9
#100	0.15	41.2	7.5	41.6	58.4
#200	0.08	68.9	12.5	54.1	45.9

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 5'

Attachment: Water Quality Management Plan (3285 : PAMA Busi

Sieve Analysis

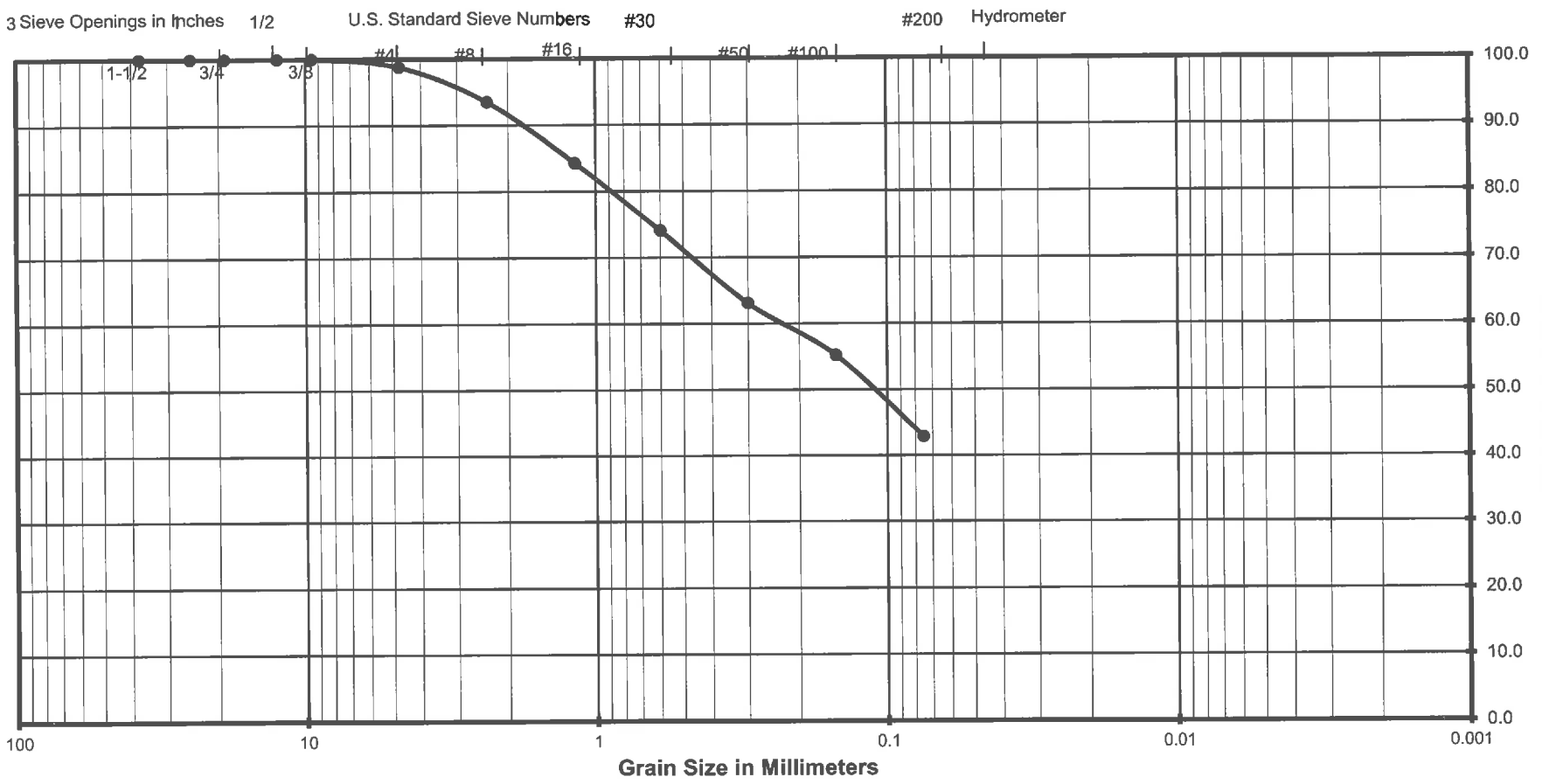
Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 10'
Soil Classification	: SM

Wet Weight	:	544.50
Dry Weight	:	544.50
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	6.7	1.2	1.2	98.8
#8	2.36	28.9	5.3	6.5	93.5
#16	1.18	50.2	9.2	15.8	84.2
#30	0.60	55.4	10.2	25.9	74.1
#50	0.30	59.9	11.0	36.9	63.1
#100	0.15	42.8	7.9	44.8	55.2
#200	0.08	67.1	12.3	57.1	42.9

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Grain Size Analysis



(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 10'

Packet Pg. 1003

Attachment: Water Quality Management Plan (3285 : PAMA Bu

Sieve Analysis

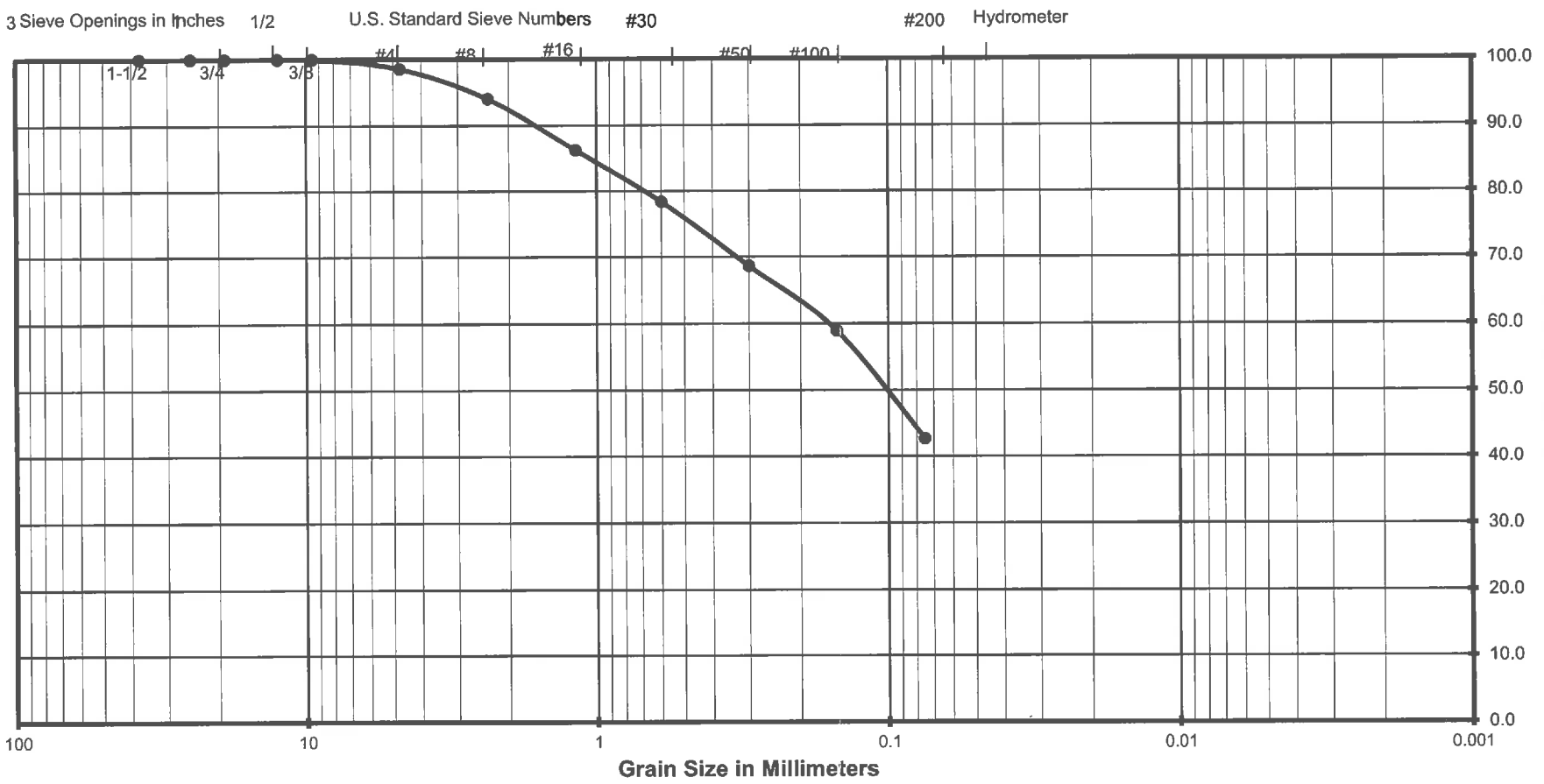
Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 15'
Soil Classification	: SM

Wet Weight	:	508.70
Dry Weight	:	508.70
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	7.2	1.4	1.4	98.6
#8	2.36	23.2	4.6	6.0	94.0
#16	1.18	39.8	7.8	13.8	86.2
#30	0.60	39.9	7.8	21.6	78.4
#50	0.30	49.7	9.8	31.4	68.6
#100	0.15	49.2	9.7	41.1	58.9
#200	0.08	82.6	16.2	57.3	42.7

Attachment: Water Quality Management Plan (3285 : PAMA B

Grain Size Analysis



(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 15'

Attachment: Water Quality Management Plan (3285 : PAMA Busi

Sieve Analysis

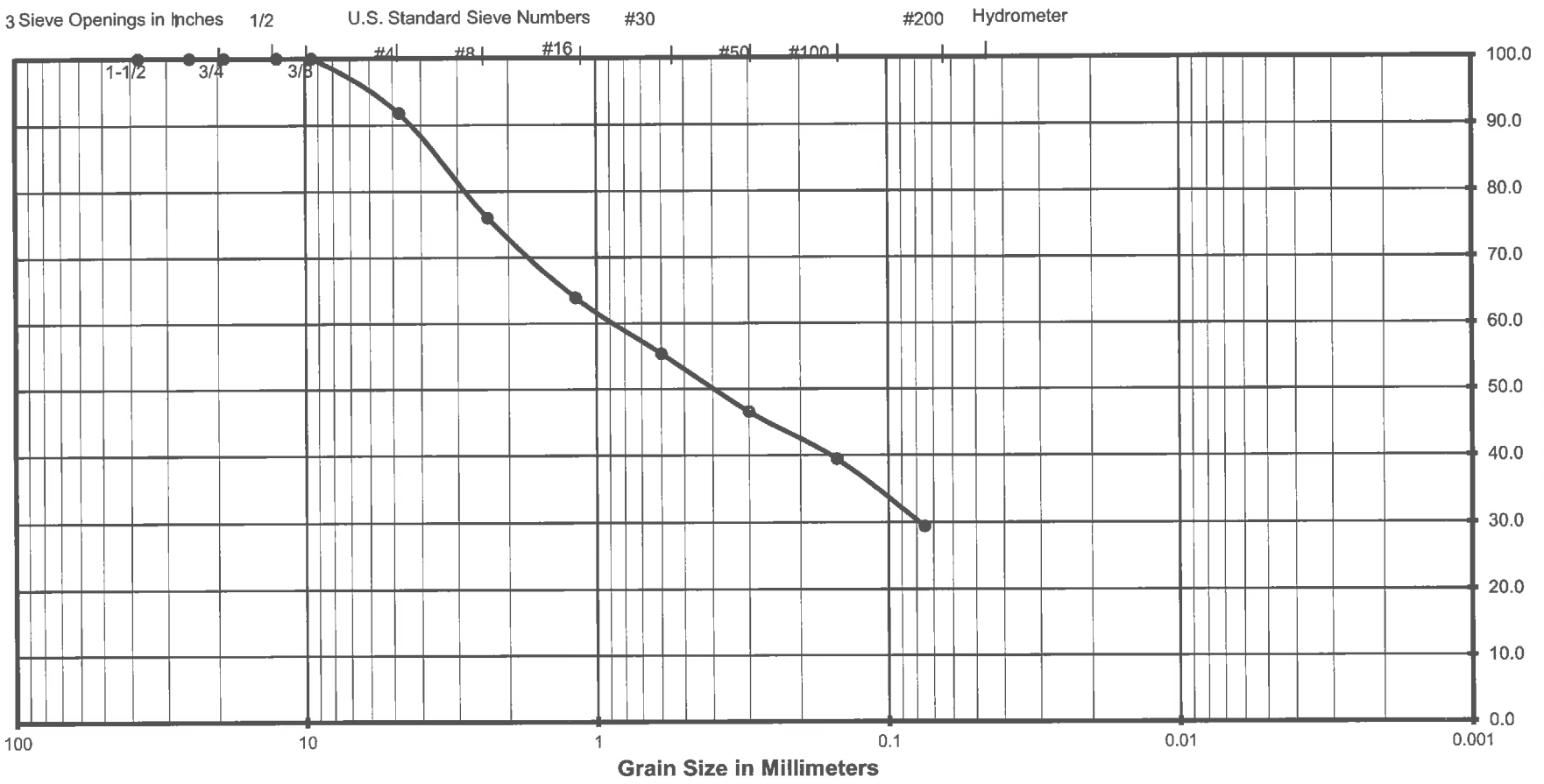
Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 20'
Soil Classification	: SM

Wet Weight	:	530.10
Dry Weight	:	530.10
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	43.6	8.2	8.2	91.8
#8	2.36	83.6	15.8	24.0	76.0
#16	1.18	64.3	12.1	36.1	63.9
#30	0.60	45.0	8.5	44.6	55.4
#50	0.30	46.7	8.8	53.4	46.6
#100	0.15	37.7	7.1	60.5	39.5
#200	0.08	53.4	10.1	70.6	29.4

Attachment: Water Quality Management Plan (3285 : PAMA B

Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 20'

Attachment: Water Quality Management Plan (3285 : PAMA Bu

Sieve Analysis

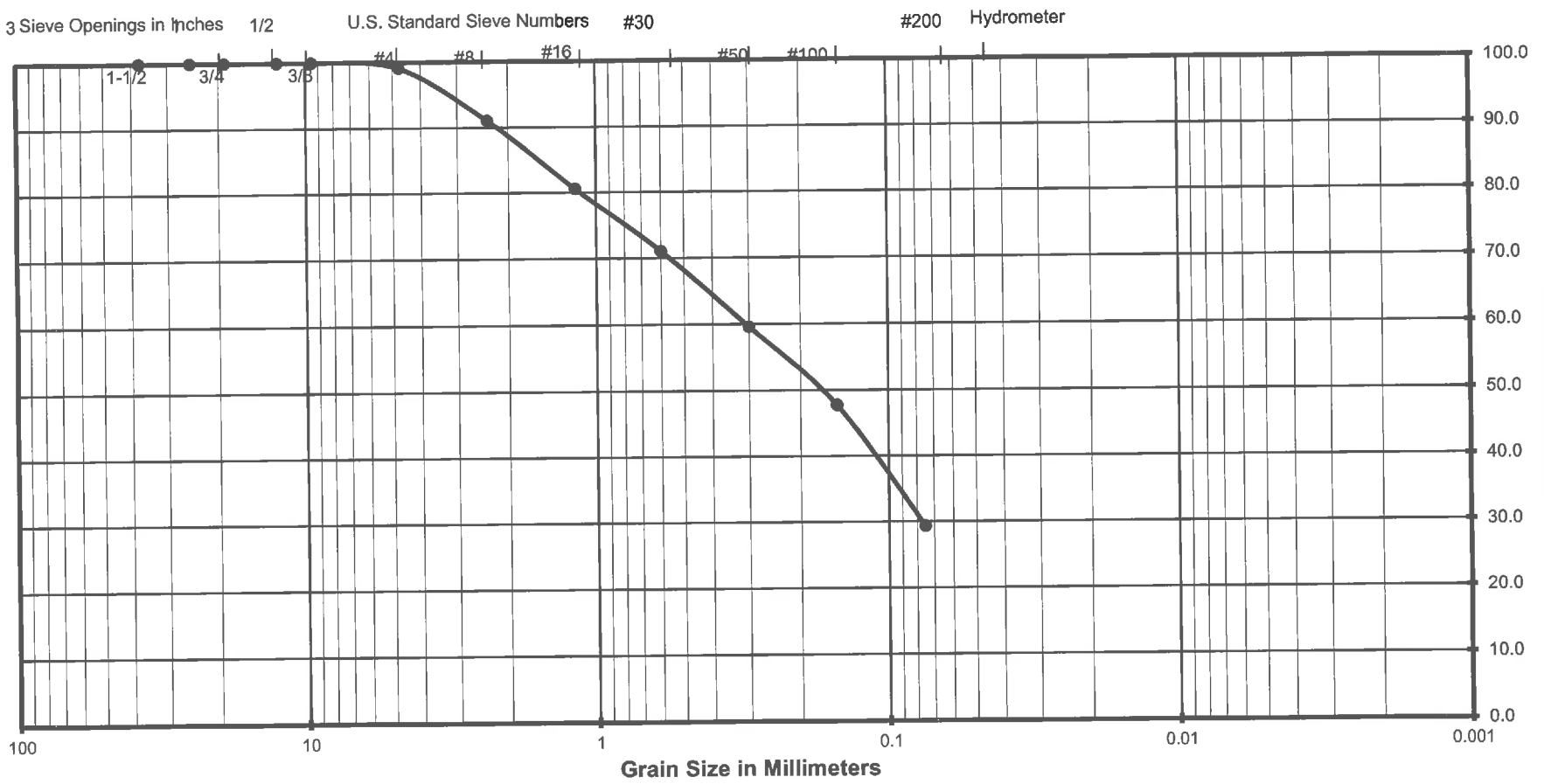
Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 25'
Soil Classification	: SM

Wet Weight	:	508.00
Dry Weight	:	508.00
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	4.6	0.9	0.9	99.1
#8	2.36	40.9	8.1	9.0	91.0
#16	1.18	53.5	10.5	19.5	80.5
#30	0.60	48.2	9.5	29.0	71.0
#50	0.30	58.1	11.4	40.4	59.6
#100	0.15	60.1	11.8	52.2	47.8
#200	0.08	93.6	18.4	70.7	29.3

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 25'

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

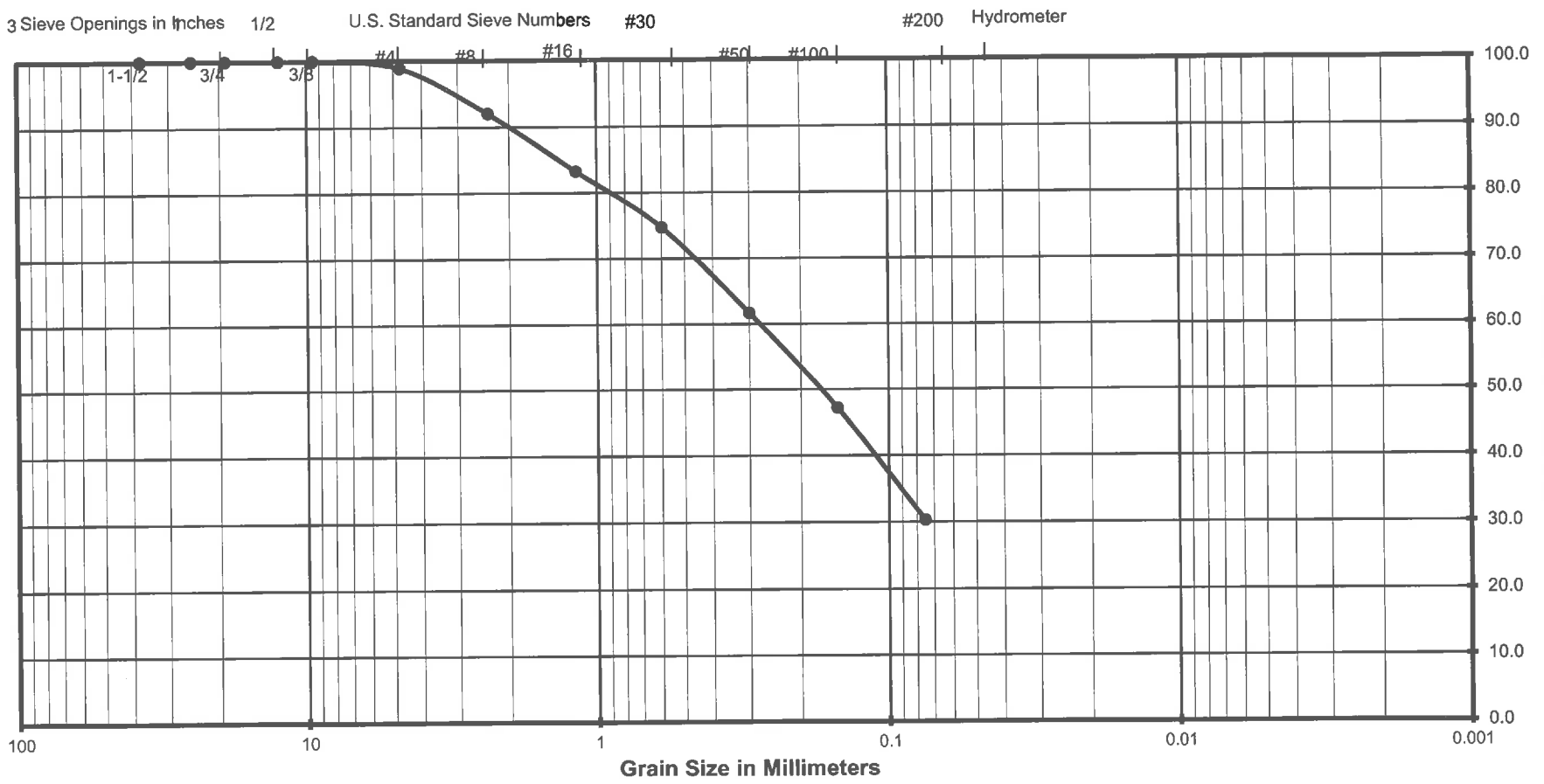
Sieve Analysis

Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 30'
Soil Classification	: SM

Wet Weight	:	512.60
Dry Weight	:	512.60
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50				100.0
#4	4.75	5.6	1.1	1.1	98.9
#8	2.36	35.3	6.9	8.0	92.0
#16	1.18	45.1	8.8	16.8	83.2
#30	0.60	43.5	8.5	25.3	74.7
#50	0.30	67.1	13.1	38.4	61.6
#100	0.15	74.0	14.4	52.8	47.2
#200	0.08	86.8	16.9	69.7	30.3

Grain Size Analysis



(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 30'

Attachment: Water Quality Management Plan (3285 : PAMA Bu

Sieve Analysis

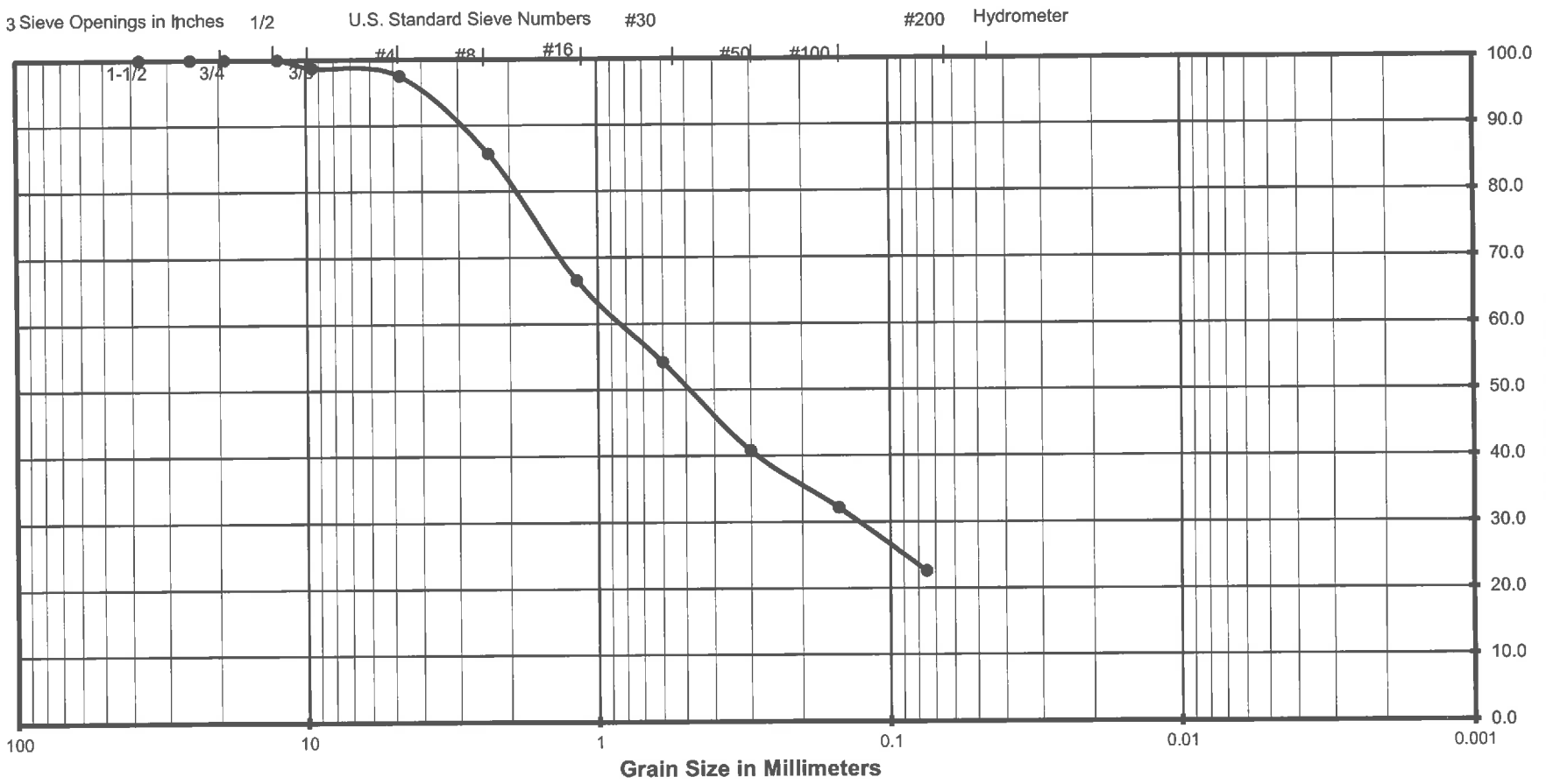
Project Name	: Business Park Moreno Valley
Date	: 12/28/2017
Sample Location	: B-1 @ 35'
Soil Classification	: SM

Wet Weight	:	398.10
Dry Weight	:	398.10
Moisture Content	:	0%

Sieves Size/Number	Sieve Size, mm	Retained Weight	Retained. %	Cum % Retained	Cum. % Passing.
1-1/2"	37.50				100.0
1"	25.00				100.0
3/4"	19.00				100.0
1/2"	12.50				100.0
3/8"	9.50	5.0	1.3	1.3	98.7
#4	4.75	4.9	1.2	2.5	97.5
#8	2.36	47.4	11.9	14.4	85.6
#16	1.18	75.8	19.0	33.4	66.6
#30	0.60	49.3	12.4	45.8	54.2
#50	0.30	53.4	13.4	59.2	40.8
#100	0.15	34.3	8.6	67.8	32.2
#200	0.08	38.2	9.6	77.4	22.6

Attachment: Water Quality Management Plan (3285 : PAMA Bu

Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

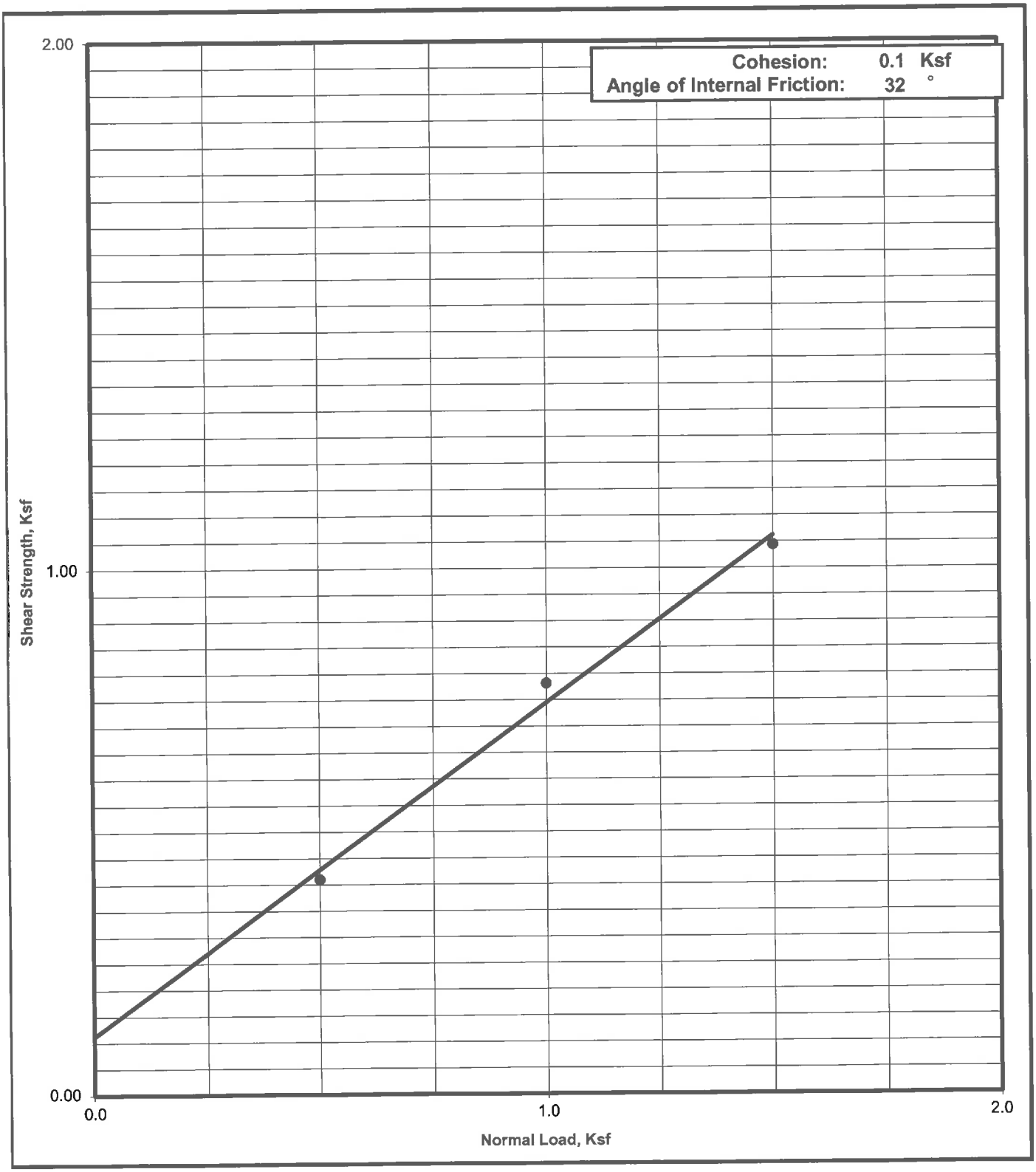
(Unified Soils Classification)

Project Name	Business Park Moreno Valley
Soil Classification	SM
Sample Number	B-1 @ 35'

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

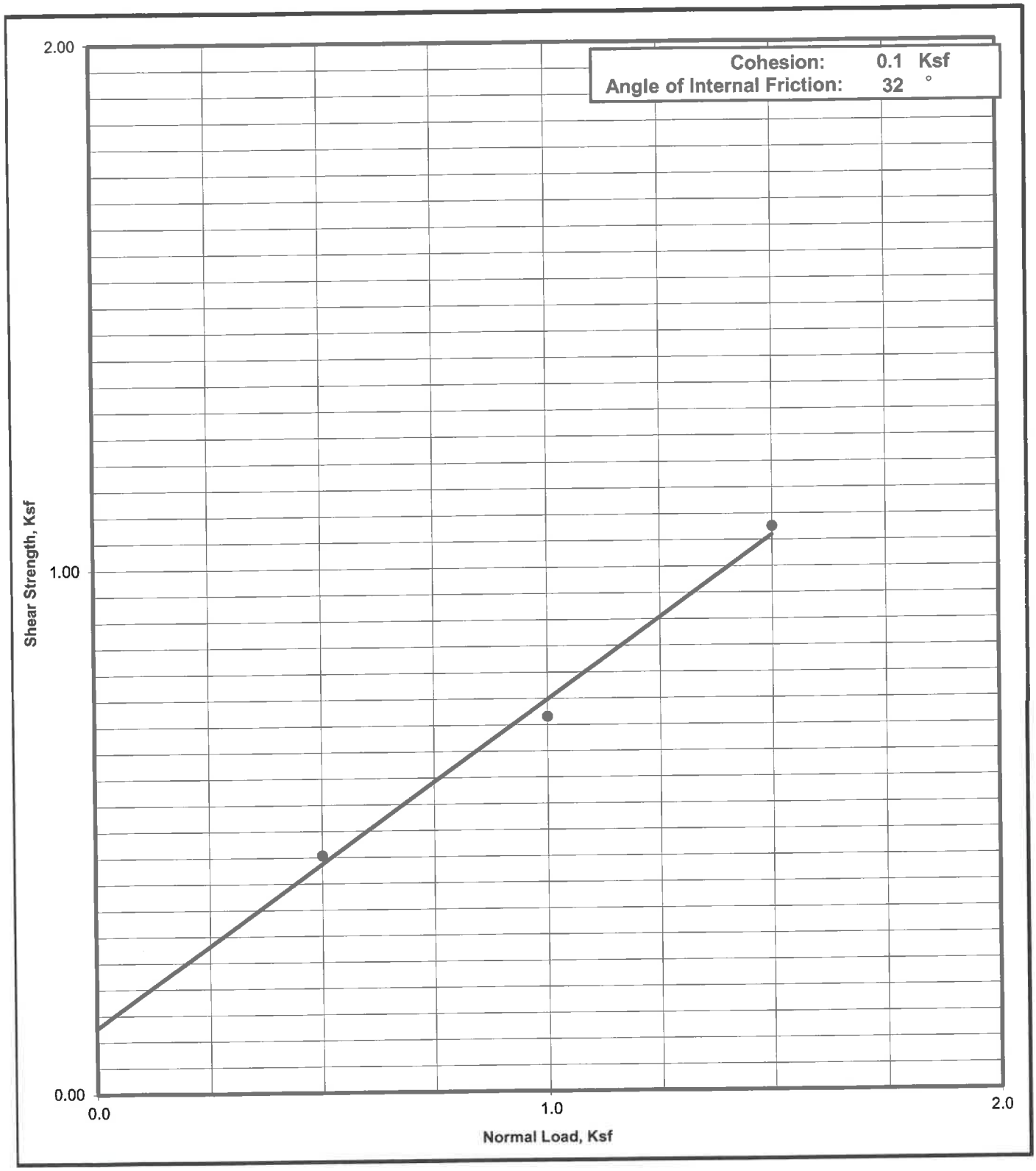
Project Number	Boring No. & Depth	Soil Type	Date
1217-0318	B-3 @ 5'	SM	12/28/2017



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

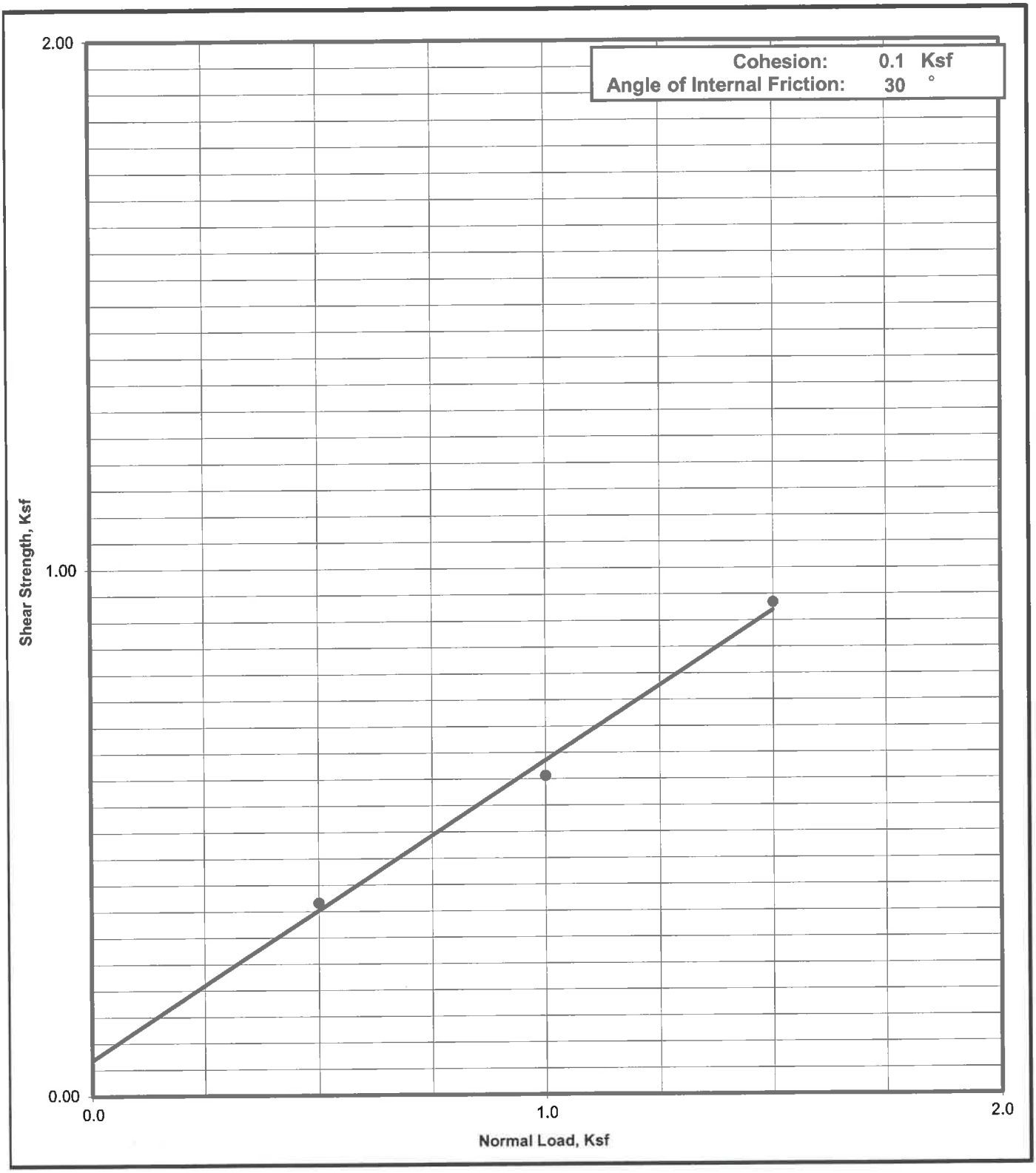
Project Number	Boring No. & Depth	Soil Type	Date
1217-0318	B-8 @ 5'	SM	12/28/2017



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

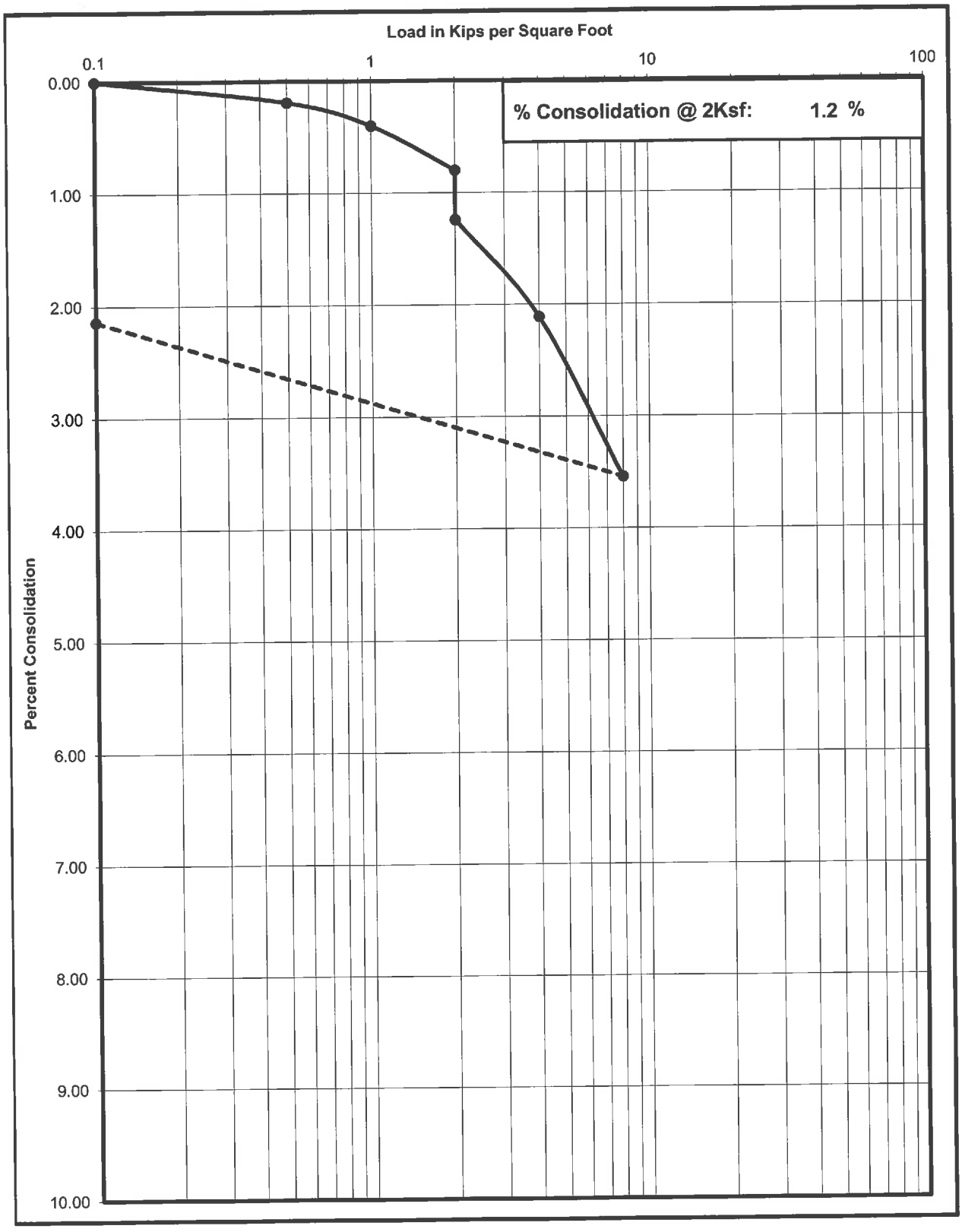
Project Number	Boring No. & Depth	Soil Type	Date
1217-0318	B-11 @ 5'	SM	12/28/2017



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Consolidation Test

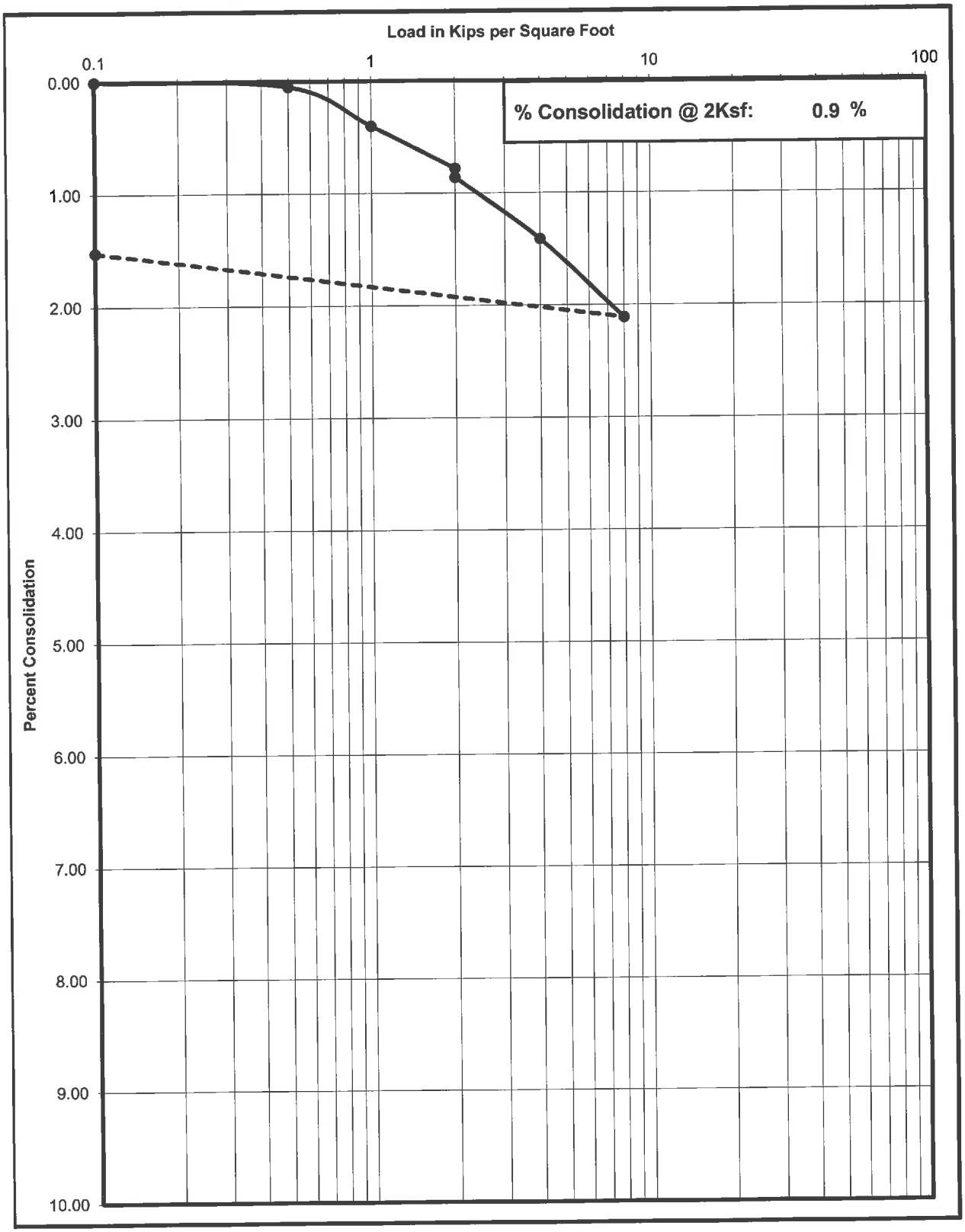
Project No	Boring No. & Depth	Date	Soil Classification
1217-0318	B-2 @ 5'	#########	SM



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Consolidation Test

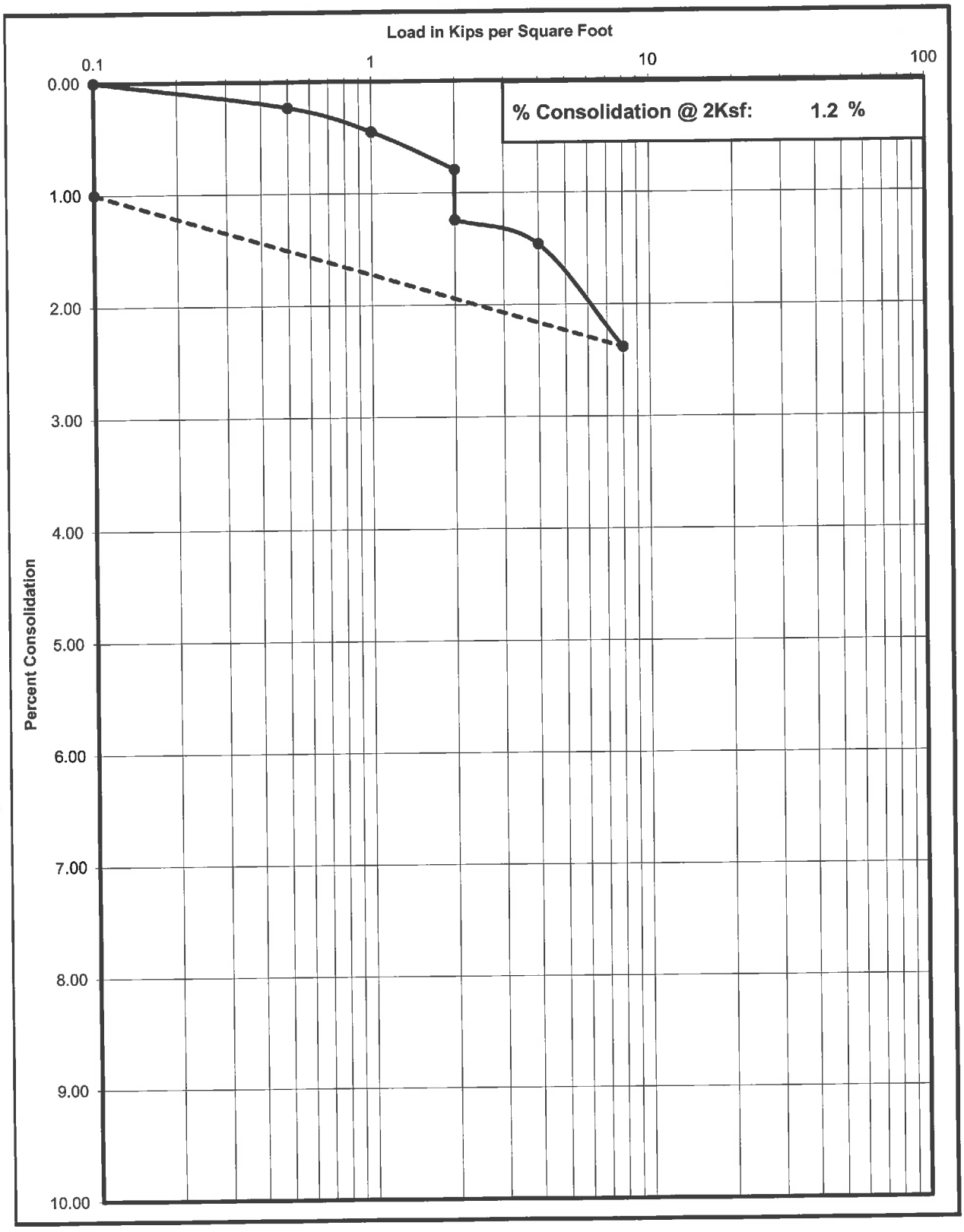
Project No	Boring No. & Depth	Date	Soil Classification
1217-0318	B-2 @ 10'	#########	SM



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Consolidation Test

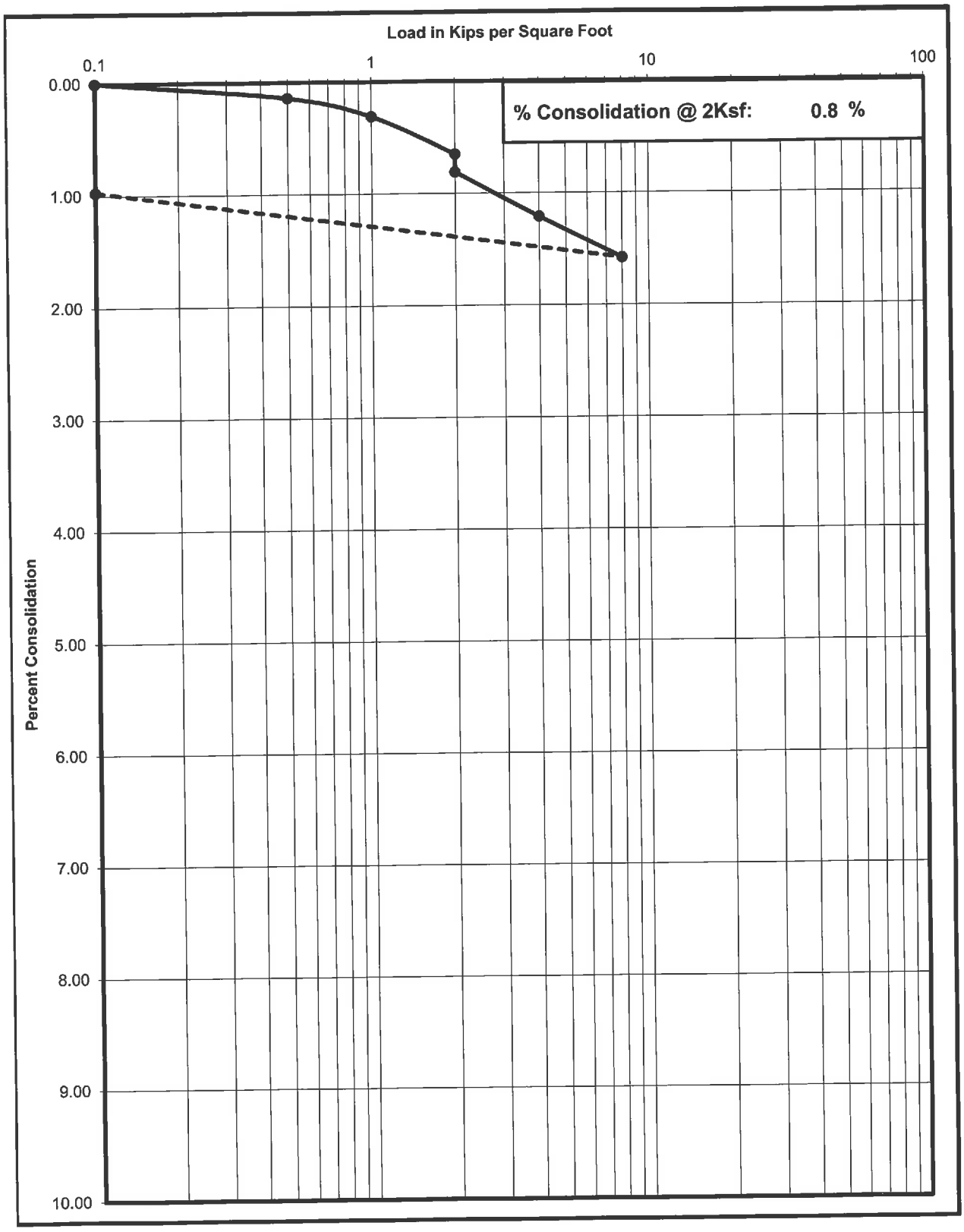
Project No	Boring No. & Depth	Date	Soil Classification
1217-0318	B-10 @ 5'	########	SM



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
1217-0318	B-10 @ 10'	#########	SM

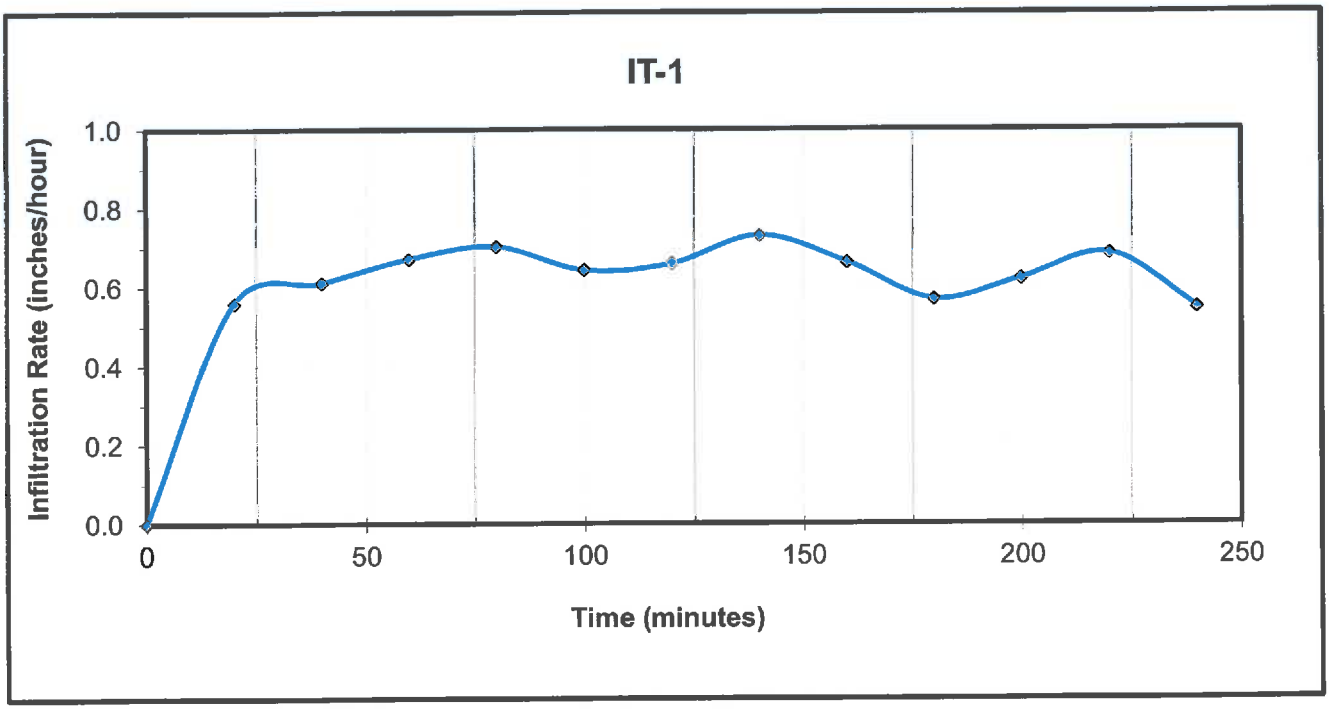


Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

RESULTS OF INFILTRATION TESTS - REVERSE BOREHOLE

Project #	1217-0318				Date	12/8/2017
Project Name	Business Park Moreno Valley					
Project Address	Moreno Valley, CA					
Test No:	IT-1	Total Depth (in.)		60	Test Size (in)	9
Depth To Water	>50'	Soil Classification		SM		

Reading	Elasped Time(min.)	Incremental Time (min.)	Initial Depth To Water(in.)	Final Depth To Water(in.)	Incremental Fall of Water(in.)	Incremental Infiltration Rate (in/hr)
Start	0	0.00		8.0	--	--
1	20.00	20.00	8.0	12.0	4.00	0.56
2	40.00	20.00	12.0	16.0	4.00	0.61
3	60.00	20.00	16.0	20.0	4.00	0.67
4	80.00	20.00	20.0	23.8	3.80	0.70
5	100.00	20.00	23.8	27.0	3.20	0.64
6	120.00	20.00	27.0	30.0	3.00	0.66
7	140.00	20.00	30.0	33.0	3.00	0.73
8	160.00	20.00	33.0	35.5	2.50	0.66
9	180.00	20.00	35.5	37.5	2.00	0.57
10	200.00	20.00	37.5	39.5	2.00	0.62
11	220.00	20.00	39.5	41.5	2.00	0.68
12	240.00	20.00	41.5	43.0	1.50	0.55
	Infiltration Rate in Inches per Hour					0.55

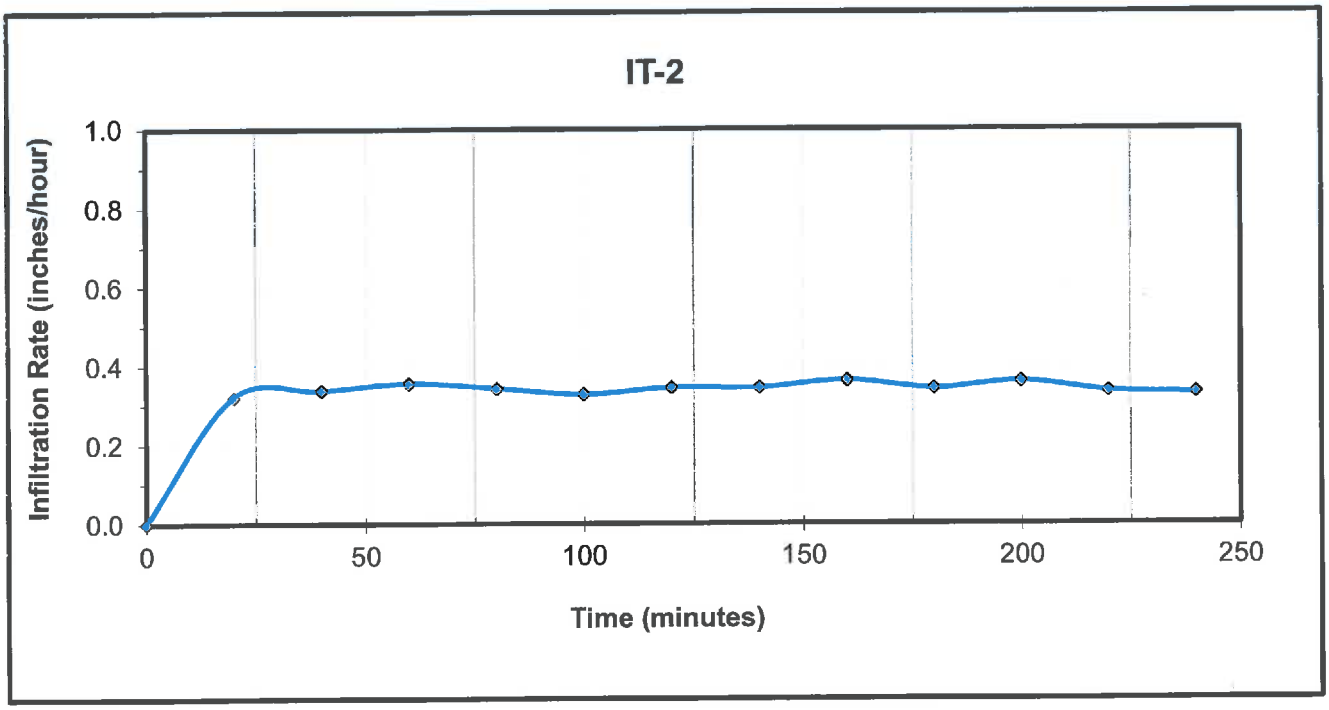


Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

RESULTS OF INFILTRATION TESTS - REVERSE BOREHOLE

Project #	1217-0318				Date	12/8/2017
Project Name	Business Park Moreno Valley					
Project Address	Moreno Valley, CA					
Test No:	IT-2	Total Depth (in.)		60	Test Size (in)	9
Depth To Water	>50'	Soil Classification		SM		

Reading	Elasped Time(min.)	Incremental Time (min.)	Initial Depth To Water(in.)	Final Depth To Water(in.)	Incremental Fall of Water(in.)	Incremental Infiltration Rate (in/hr)
Start	0	0.00		6.0	--	--
1	20.00	20.00	6.0	8.5	2.50	0.32
2	40.00	20.00	8.5	11.0	2.50	0.34
3	60.00	20.00	11.0	13.5	2.50	0.36
4	80.00	20.00	13.5	15.8	2.30	0.34
5	100.00	20.00	15.8	17.9	2.10	0.33
6	120.00	20.00	17.9	20.0	2.10	0.34
7	140.00	20.00	20.0	22.0	2.00	0.34
8	160.00	20.00	22.0	24.0	2.00	0.36
9	180.00	20.00	24.0	25.8	1.80	0.34
10	200.00	20.00	25.8	27.6	1.80	0.36
11	220.00	20.00	27.6	29.2	1.60	0.33
12	240.00	20.00	29.3	30.8	1.50	0.33
	Infiltration Rate in Inches per Hour					0.32

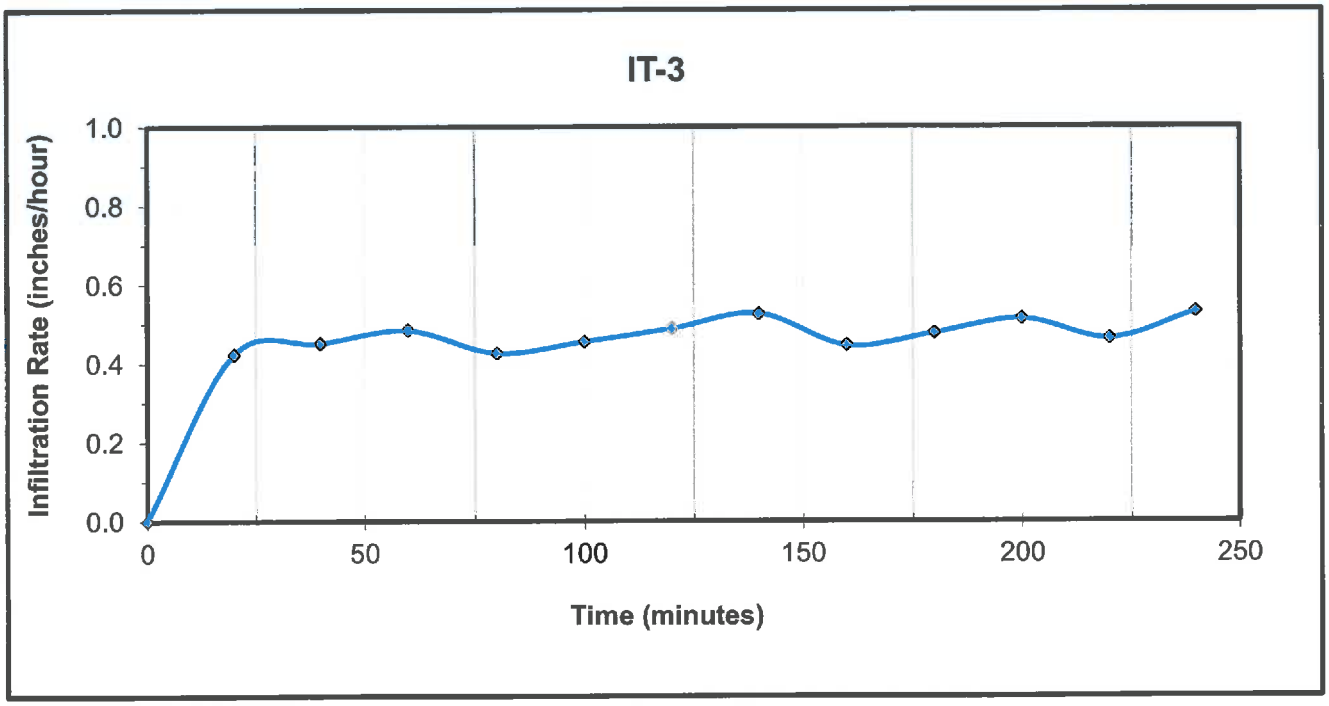


Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

RESULTS OF INFILTRATION TESTS - REVERSE BOREHOLE

Project #	1217-0318				**Date**	12/8/2017
Project Name	Business Park Moreno Valley					
Project Address	Moreno Valley, CA					
Test No:	IT-3	**Total Depth (in.)**		60	**Test Size (in)**	9
Depth To Water	>50'	**Soil Classification**		SM		

Reading	Elasped Time(min.)	Incremental Time (min.)	Initial Depth To Water(in.)	Final Depth To Water(in.)	Incremental Fall of Water(in.)	Incremental Infiltration Rate (in/hr)
Start	0	0.00		10.0	--	--
1	20.00	20.00	10.0	13.0	3.00	0.42
2	40.00	20.00	13.0	16.0	3.00	0.45
3	60.00	20.00	16.0	19.0	3.00	0.49
4	80.00	20.00	19.0	21.5	2.50	0.43
5	100.00	20.00	21.5	24.0	2.50	0.46
6	120.00	20.00	24.0	26.5	2.50	0.49
7	140.00	20.00	26.5	29.0	2.50	0.53
8	160.00	20.00	29.0	31.0	2.00	0.45
9	180.00	20.00	31.0	33.0	2.00	0.48
10	200.00	20.00	33.0	35.0	2.00	0.51
11	220.00	20.00	35.0	36.7	1.70	0.46
12	240.00	20.00	36.7	38.5	1.80	0.53
	Infiltration Rate in Inches per Hour					0.42



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

ANAHEIM TEST LAB, INC

3008 ORANGE AVENUE
SANTA ANA, CALIFORNIA 92707
PHONE (714) 549-7267

CQuest Consultants Inc.
1342 N. Benson Ave., Unit B
Upland, California 91786

DATE: 12/15/17

P.O. NO: Verbal

LAB NO: C-1300

SPECIFICATION: 417/422/643

MATERIAL: Soil

Project No: 11217091
Business Park
Moreno Valley
B-1 @ 0-5'

ANALYTICAL REPORT

CORROSION SERIES
SUMMARY OF DATA

pH	SOLUBLE SULFATES per CA. 417 ppm	SOLUBLE CHLORIDES per CA. 422 ppm	MIN. RESISTIVITY per CA. 643 ohm-cm
7.9	201	100	4,650

RESPECTFULLY SUBMITTED

WES BRIDGER CHEMIST

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

APPENDIX B

APPENDIX B

EARTHWORK SPECIFICATIONS

GENERAL

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including but not limited to the furnishing of all labor, tools, and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans, and disposal of excess materials.

PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of our firm, hereinafter known as the Soils Engineer and/or Testing Agency. Attainment of design grades when achieved shall be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary readjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

TECHNICAL REQUIREMENTS: All compacted materials shall be densified to a density not less than 95 percent relative compaction based on ASTM Test Method D1557 or CAL-216, as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be as determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the soil report.

The Contractor shall make his own interpretation of the data contained in said report, and the Contractor shall not be relieved of liability under the Contract documents for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or windblown materials attributable to his work.

SITE PREPARATION

Site preparation shall consist of site clearing and grubbing and the preparations of foundation materials for receiving fill.

CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter, and all other matter determined by the Soils Engineer to be deleterious or otherwise unsuitable. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed building areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots larger than 1 inch. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations should not be permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

SUBGRADE PREPARATION: Surfaces to receive Engineered Fill, building or slab loads shall be prepared as outlined above, excavated/scarified to a depth of 12 inches, moisture-conditioned as necessary, and compacted to 95 percent relative compaction.

Loose soil areas, areas of uncertified fill, and/or areas of disturbed soils shall be moisture-conditioned as necessary and recompacted to 95 percent relative compaction. All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas which are to receive fill materials shall be approved by the Soils Engineer prior to the placement of any of the fill material.

EXCAVATION: All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. However, compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer.

Both cut and fill areas shall be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture-content and density of previously placed fill are as specified.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

APPENDIX C

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

APPENDIX C

PAVEMENT SPECIFICATIONS

1. DEFINITIONS - The term "pavement" shall include asphaltic concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term “Standard Specifications”: hereinafter referred to is the May 2006 Standard Specifications of the State of California, Department of Transportation, and the "Materials Manual" is the Materials Manual of Testing and Control Procedures, State of California, Department of Public Works, Division of Highways. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as defined in the applicable tests outlined in the Materials Manual.

2. SCOPE OF WORK - This portion of the work shall include all labor, materials, tools, and equipment necessary for, and reasonably incidental to the completion of the pavement shown on the plans and as herein specified, except work specifically noted as "Work Not Included."

3. PREPARATION OF THE SUBGRADE - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 95 percent. The finished subgrades shall be tested and approved by the Soils Engineer prior to the placement of additional pavement courses.

4. UNTREATED AGGREGATE BASE - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class II material, 1½ inches maximum size. The aggregate base material shall be spread and compacted in accordance with Section 26 of the Standard Specifications. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Soils Engineer prior to the placement of successive layers. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent.

5. AGGREGATE SUBBASE - The aggregate subbase shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material shall conform to the requirements of Section 25 of the Standard Specifications for Class II material. The aggregate subbase material shall be compacted to a minimum relative compaction of 95 percent, and it shall be spread and compacted in accordance with Section 25 of the Standard Specifications. Each layer of aggregate subbase shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

6. ASPHALTIC CONCRETE SURFACING - Asphaltic concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades and dimensions shown on the plans. The viscosity grade of the asphalt shall be PG 64-10. The mineral aggregate shall be Type B, ½ inch maximum size, medium grading and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning and mixing of the materials shall conform to Section 39.

The prime coat, spreading and compacting equipment and spreading and compacting mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50º F. The surfacing shall be rolled with a combination of steel wheel and pneumatic rollers, as described in Section 39-6. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.

7. FOG SEAL COAT - The fog seal (mixing type asphaltic emulsion) shall conform to and be applied in accordance with the requirements of Section 37.

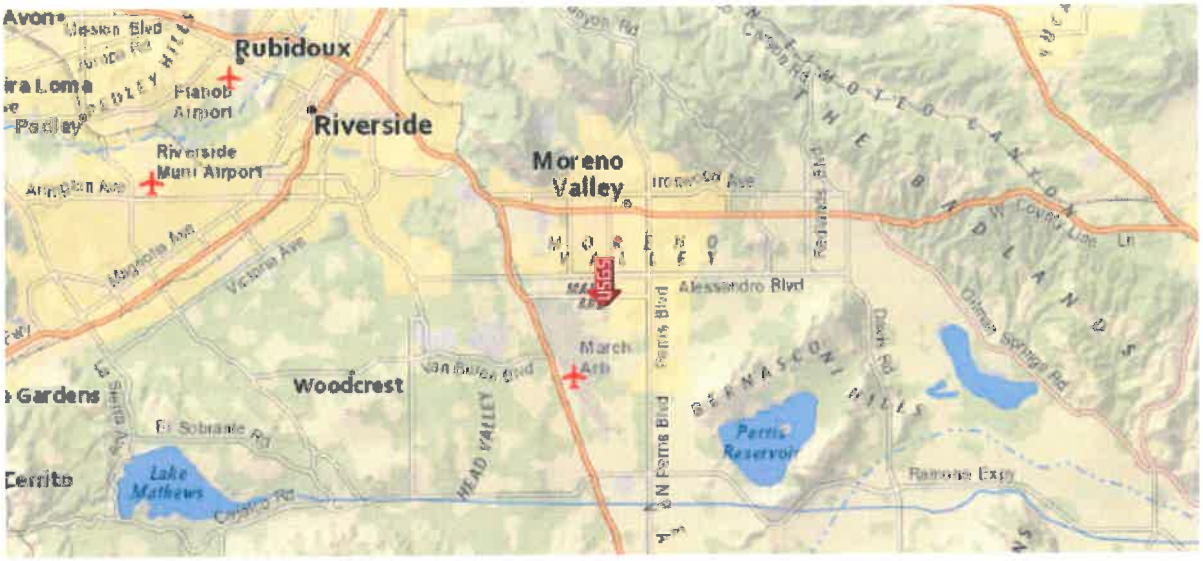
Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

APPENDIX D

USGS Design Maps Summary Report

User-Specified Input

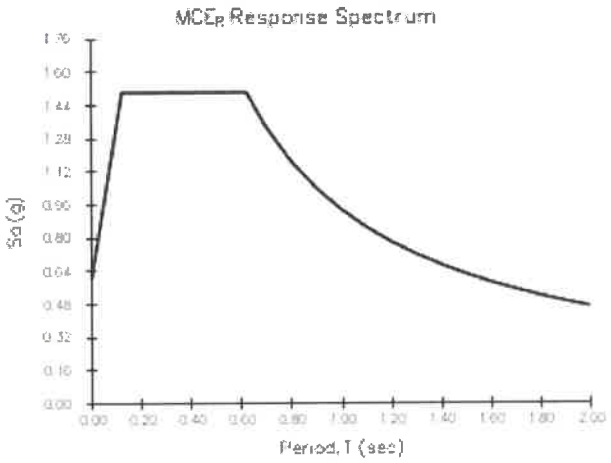
Report Title	Business Park Moreno Valley Tue January 2, 2018 17:35:47 UTC
Building Code Reference Document	ASCE 7-10 Standard (which utilizes USGS hazard data available in 2008)
Site Coordinates	33.91537°N, 117.24693°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

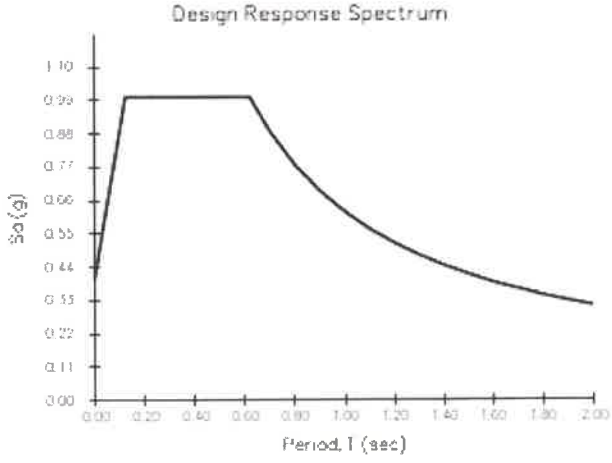


USGS-Provided Output

S_S =	1.503 g	S_{MS} =	1.503 g	S_{DS} =	1.002 g
S_1 =	0.623 g	S_{M1} =	0.935 g	S_{D1} =	0.623 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

USGS Design Maps Detailed Report

ASCE 7-10 Standard (33.91537°N, 117.24693°W)

Site Class D – "Stiff Soil", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_s) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1] $S_s = 1.503$ g

From Figure 22-2 [2] $S_1 = 0.623$ g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\bar{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section 11.4.3 — Site Coefficients and Risk-Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4-1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \le 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \ge 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_S

For Site Class = D and S_S = 1.503 g, F_a = 1.000

Table 11.4-2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1-s Period				
	$S_1 \le 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \ge 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.623 g, F_v = 1.500

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Equation (11.4–1): $S_{MS} = F_a S_S = 1.000 \times 1.503 = 1.503$ g

Equation (11.4–2): $S_{M1} = F_v S_1 = 1.500 \times 0.623 = 0.935$ g

Section 11.4.4 — Design Spectral Acceleration Parameters

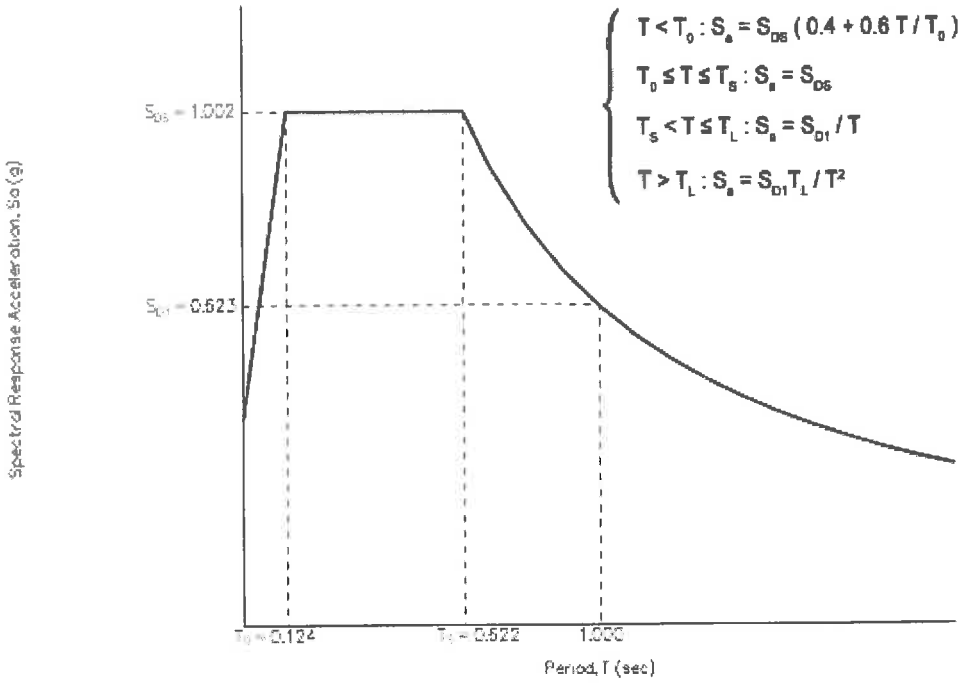
Equation (11.4–3): $S_{DS} = ⅔ S_{MS} = ⅔ \times 1.503 = 1.002$ g

Equation (11.4–4): $S_{D1} = ⅔ S_{M1} = ⅔ \times 0.935 = 0.623$ g

Section 11.4.5 — Design Response Spectrum

From Figure 22-12 [3] $T_L = 8$ seconds

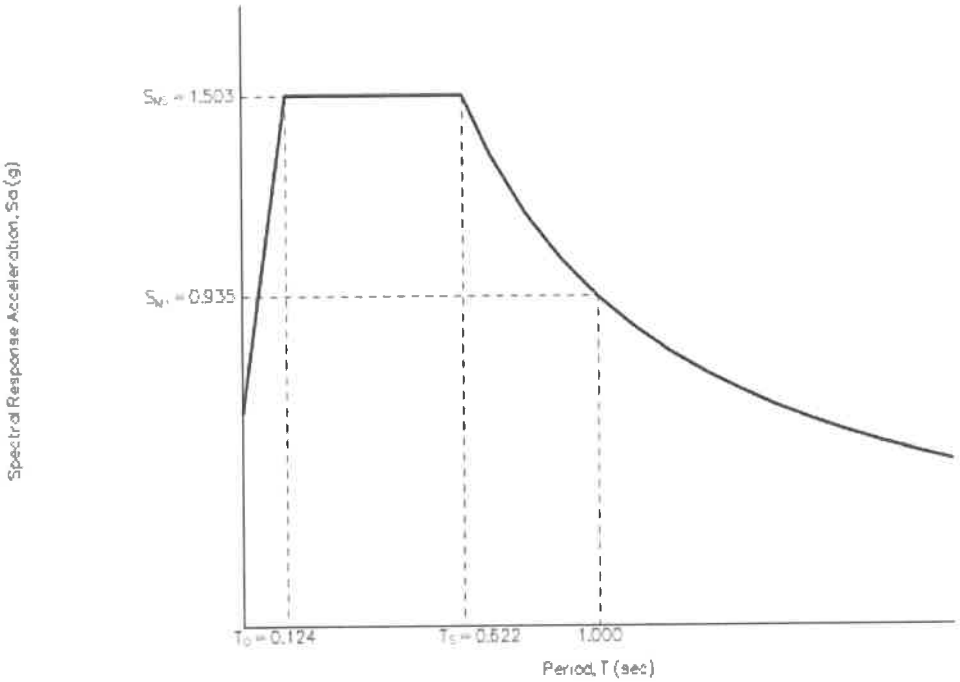
Figure 11.4–1: Design Response Spectrum



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7 [4] PGA = 0.575

Equation (11.8–1): $PGA_M = F_{PGA}PGA = 1.000 \times 0.575 = 0.575$ g

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of PGA

For Site Class = D and PGA = 0.575 g, F_{PGA} = 1.000

Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17 [5] C_{RS} = 1.045

From Figure 22-18 [6] C_{R1} = 1.014

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \le S_{DS} < 0.33g$	B	B	C
$0.33g \le S_{DS} < 0.50g$	C	C	D
$0.50g \le S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 1.002 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \le S_{D1} < 0.133g$	B	B	C
$0.133g \le S_{D1} < 0.20g$	C	C	D
$0.20g \le S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.623 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = D

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

(N/A)

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Reference page 59 form Riverside County WQMP Guidance

TABLE 3-4. LID BMP Applicability

LID BMP Hierarchy	A	B	C	D
	K_{SAT}> 1.6"/hr., and no restrictions on infiltration	Are Harvest and Use BMPs feasible?	0.3"/hr. < K_{SAT} < 1.6"/hr., or unpredictable or unknown	K_{SAT} < 0.3"/hr.
LID Infiltration BMPs*	✓			
Harvest and Use BMPs		✓		✓
LID Bioretention	✓		✓	✓
LID Biotreatment				✓

Notes for Table 3-5:

***See also** Figure 3-6 for guidance in selecting appropriate BMPs*

***Column A:** Selections from this column may be used in locations where the infiltration rate of underlying soils is at least 1.6" per hour and no restrictions on infiltration apply to these locations.*

***Column B:** Harvest and Use BMPs may be used where it can be shown that there is sufficient demand for harvested water and where LID Infiltration BMPs are not feasible.*

***Column C:** Selections in this column may be used in locations where the measured infiltration rate of underlying soils is between 0.3" and 1.6" per hour or where, in accordance with recommendations of a licensed geotechnical engineer, the post-development saturated hydraulic conductivity is uncertain or unknown or cannot be reliably predicted because of soil disturbance or fill, anisotropic soil characteristics, presence of clay lenses, or other factors.*

***Column D:** Selections in this column may be used in locations where the infiltration rate of underlying soils is 0.3" per hour or less. See Chapter 2 for more information.*

** Permeable Pavement, when designed with a maximum of a 2:1 ratio of impervious area to pervious pavement areas, or less, is considered a self-retaining area, and is not considered an LID BMP for the purposes of this table. This table focuses on the 'special case' included in the discussion of 'areas draining to self-retaining areas' above, where a project proponent can choose to design the pervious pavement as a LID BMP in accordance with an approved design, such as the LID BMP Design handbook, and in return drain additional impervious area onto the pervious pavement beyond the 2:1 ratio.*

3.4.2.a. Laying out your LID BMPs

Finding the right location for LID BMPs on your site involves a careful and creative integration of several factors:

- ✓ To make the most efficient use of the site and to maximize aesthetic value, **integrate BMPs with site landscaping**. Many local zoning codes may require landscape setbacks or buffers, or may specify that a minimum portion of the site be landscaped. It may be possible to locate some or all of your site's Stormwater BMPs within this same area, or within utility easements or other non-buildable areas.

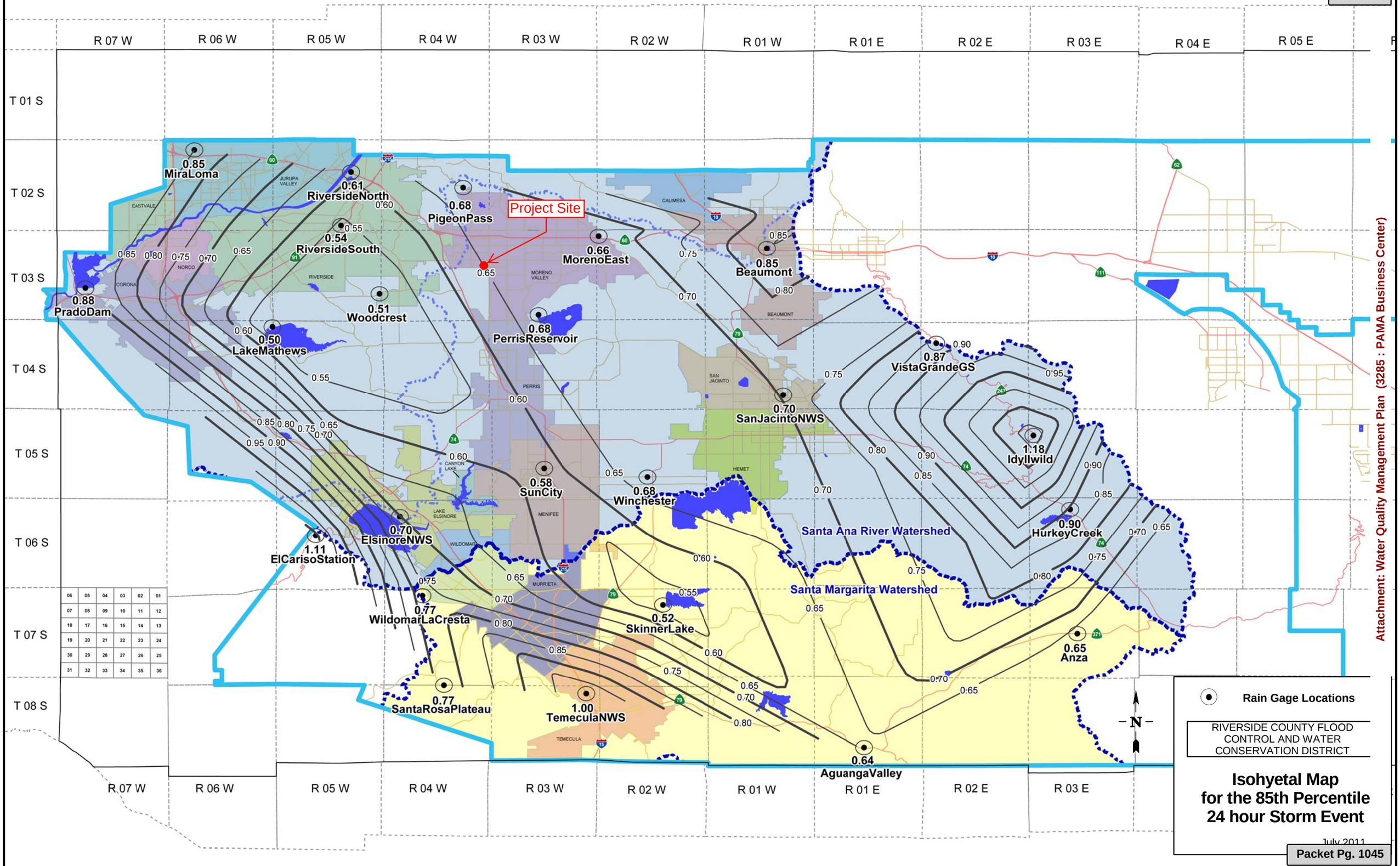
- ✓ Bioretention BMPs must be **level or nearly level** all the way around. When configured in a linear fashion (similar to swales) bioretention BMPs may be gently sloped end to end, but opposite sides must be at the same

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)



Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Huitt-Zollars, Inc	Date	1/18/2018
Designed by	Lauren Togneri	Case No	
Company Project Number/Name	R307012.01 - PAMA Industrial		

BMP Identification

BMP NAME / ID: DMA A

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.65 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
DMA A	*681,734*	*Mixed Surface Types*	*0.79*	*0.59*	*400647.9*			
	681734		*Total*		*400647.9*	*0.65*	*21701.8*	*22,473*

Notes:

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Bioretention Facility Design Procedure

1) Enter the area tributary, A_T, to the Bioretention Facility.

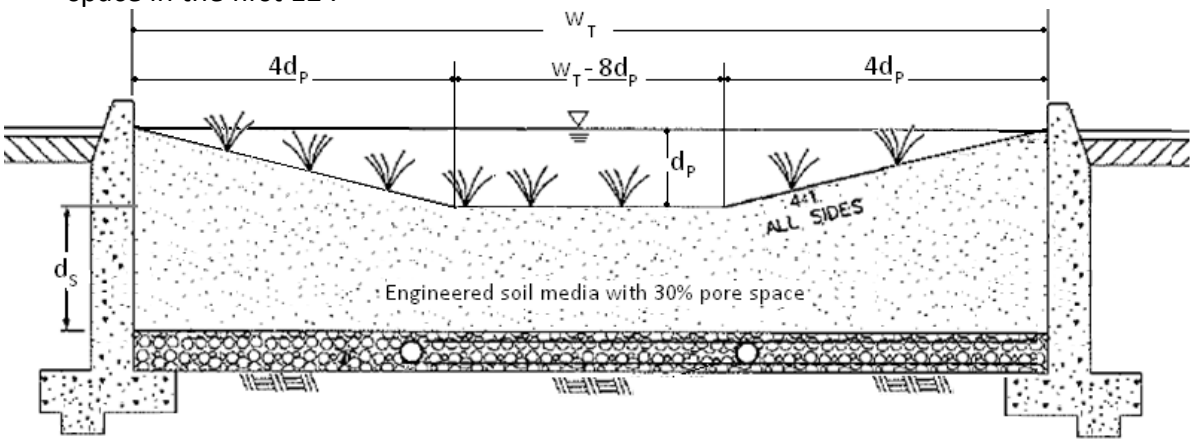
2) Enter the Design Volume, $V_{BMP,}$ determined from Section 2.1 of this Handbook.

3) Select the type of design used. There are two types of Bioretention Facility designs: the standard design used for most project sites that include side slopes, and the modified design used when the BMP is located perpendicular to the parking spaces or with planter boxes that do not use side slopes.

4) Enter the depth of the engineered soil media, d_S. The minimum depth for the engineered soil media can be 18' in limited cases, but it is recommended to use 24' or a preferred 36' to provide an adequate root zone for the chosen plant palette. Engineered soil media deeper than 36' will only get credit for the pore space in the first 36'.

5) Enter the top width of the Bioretention Facility.

6) Calculate the total effective depth, d_E, within the Bioretention Facility. The maximum allowable pore space of the soil media is 30% while the maximum allowable pore space for the gravel layer is 40%. Gravel layer deeper than 12' will only get credit for the pore space in the first 12'.



a. For the design with side slopes the following equation shall be used to determine the total effective depth. Where, d_P is the depth of ponding within the basin.

$$d_E(ft) = \frac{0.3 \times \left[\left(w_T(ft) \times d_S(ft)\right) + 4\left(d_P(ft)\right)^2\right] + 0.4 \times 1(ft) + d_P(ft)\left[4d_P(ft) + \left(w_T(ft) - 8d_P(ft)\right)\right]}{w_T(ft)}$$

This above equation can be simplified if the maximum ponding depth of 0.5' is used. The equation below is used on the worksheet to find the minimum area required for the Bioretention Facility:

$$d_E(ft) = (0.3 \times d_S(ft) + 0.4 \text{ x } 1(ft)) - \left(\frac{0.7\ (ft^2)}{w_T(ft)}\right) + 0.5(ft)$$

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

b. For the design without side slopes the following equation shall be used to determine the total effective depth:

$$d_E(ft) = d_P(ft) + [(0.3) \times d_S(ft) + (0.4) \times 1(ft)]$$

The equation below, using the maximum ponding depth of 0.5', is used on the worksheet to find the minimum area required for the Bioretention Facility:

$$d_E(ft) = 0.5\ (ft) + [(0.3) \times d_S(ft) + (0.4) \times 1(ft)]$$

7) Calculate the minimum surface area, A_M, required for the Bioretention Facility. This does not include the curb surrounding the Bioretention Facility or side slopes.

$$A_M(ft^2) = \frac{V_{BMP}(ft^3)}{d_E\ (ft)}$$

8) Enter the proposed surface area. This area shall not be less than the minimum required surface area.

9) Verify that side slopes are no steeper than 4:1 in the standard design, and are not required in the modified design.

10) Provide the diameter, minimum 6 inches, of the perforated underdrain used in the Bioretention Facility. See Appendix B for specific information regarding perforated pipes.

11) Provide the slope of the site around the Bioretention Facility, if used. The maximum slope is 3 percent for a standard design.

12) Provide the check dam spacing, if the site around the Bioretention Facility is sloped.

13) Describe the vegetation used within the Bioretention Facility.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Bioretention Facility - Design Procedure	BMP ID For DMA A	Legend:	Required Entries / Calculated Cells

Company Name:	Huitt-Zollars, Inc	Date:	1/15/2018
Designed by:	Lauren Togneri	County/City Case No.:	PAMA

Design Volume

Enter the area tributary to this feature	A_T=	15.65	acres
Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	21,702	ft^3

Type of Bioretention Facility Design

(●) Side slopes required (parallel to parking spaces or adjacent to walkways)

( ) No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer	d_S =	3.0	ft
Top Width of Bioretention Facility, excluding curb	w_T =	87.0	ft
Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$	d_E =	1.79	ft
Minimum Surface Area, A_m $A_M\,(ft^2) = \frac{V_{BMP}\,(ft^3)}{d_E\,(ft)}$	A_M =	12,111	ft^2
Proposed Surface Area	A=	12,555	ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility	z =	4	:1
Diameter of Underdrain		6	inches
Longitudinal Slope of Site (3% maximum)		0	%
6" Check Dam Spacing		0	feet
Describe Vegetation:			

Notes:

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

TO BE PROVIDED IN FINAL WQMP

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

JURUPA VALLEY
EASTVALE
NORCO
CORONA
RIVERSIDE
MORENO VALLEY
CALIMESA
BEAUMONT
BANNING
MYSTIC LAKE
SAN JACINTO
HEMET
PERRIS
MENIFEE
CANYON LAKE
LAKE ELSINORE
WILDOMAR
MURRIETA
LAKE MATHEWS
PRADO DAM
PROJECT SITE
ZONE 1
ZONE 2
ZONE 3
ZONE 4
ZONE 5
ZONE 7

Legend

Stream Type
- Not Susceptible Stream Channels
- Potentially Susceptible Stream Channels
- Large River (Not Susceptible)
- Santa Ana River
- Adequate Sump

Watershed Areas
- Not Applicable Area
- Applicable Area
- Applicable Area Watershed Boundaries

- Flood Control and Water Conservation District Boundary
- Study Area
- County Boundary

0 1 2 3 4 Miles

HCOC Applicability Map

Hydromodification Susceptibility Documentation Report and Mapping
Riverside County Flood Control and Water Conservation District

Map 2

Map Document: (M:\Models\2019\SDP\PCHCD_HydromodModule_Large_5000.mxd mxd - RH) - 10/2/19

Attachment: Water Quality Management Plan (2285 : PMA (Business Center))

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section G of the WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
■ A. **On-site storm drain inlets**	■ **Locations of inlets.**	■ **Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.**	■ **Maintain and periodically repaint or replace inlet markings.** ■ **Provide stormwater pollution prevention information to new site owners, lessees, or operators.** ■ **See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** ■ **Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."**
❑ B. **Interior floor drains and elevator shaft sump pumps**		❑ **State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.**	❑ **Inspect and maintain drains to preven blockages and overflow.**
❑ C. **Interior parking garages**		❑ **State that parking garage floor drains will be plumbed to the sanitary sewer.**	❑ **Inspect and maintain drains to preven blockages and overflow.**

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ D1. **Need for future indoor & structural pest control**		❑ **Note building design features that discourage entry of pests.**	❑ **Provide Integrated Pest Management information to owners, lessees, and operators.**
❑ D2. **Landscape/ Outdoor Pesticide Use**	❑ **Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.** ❑ **Show self-retaining landscape areas, if any.** ❑ **Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)**	**State that final landscape plans will accomplish all of the following.** ❑ **Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.** ❑ **Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.** ❑ **Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.** ❑ **Consider using pest-resistant plants, especially adjacent to hardscape.** **To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.**	❑ **Maintain landscaping using minimum or no pesticides.** ❑ **See applicable operational BMPs in "What you should know for…..Landscape and Gardening"** at http://rcflood.org/stormwater/**Error! Hyperlink reference not valid.** ❑ **Provide IPM information to new owners, lessees and operators.**

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ E. **Pools, spas, ponds, decorative fountains, and other water features.**	❑ **Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)**	**If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.**	❑ **See applicable operational BMPs in** "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
❑ F. **Food service**	❑ **For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment.** ❑ **On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.**	❑ **Describe the location and features of the designated cleaning area.** ❑ **Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.**	❑ **See the brochure, "**The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ **Provide this brochure to new site owners, lessees, and operators.**
❑ G. **Refuse areas**	❑ **Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas.** ❑ **If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area.** ❑ **Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.**	❑ **State how site refuse will be handled and provide supporting detail to what is shown on plans.** ❑ **State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.**	❑ **State how the following will be implemented:** **Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ H. **Industrial processes.**	❑ **Show process area.**	❑ **If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."**	❑ **See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at http://rcflood.org/stormwater/

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ I. **Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)**	❑ **Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area.** ❑ **Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults.** ❑ **Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.**	**Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.** **Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for:** ▪ **Hazardous Waste Generation** ▪ **Hazardous Materials Release Response and Inventory** ▪ **California Accidental Release (CalARP)** ▪ **Aboveground Storage Tank** ▪ **Uniform Fire Code Article 80 Section 103(b) & (c) 1991** ▪ **Underground Storage Tank** www.cchealth.org/groups/hazmat/	❑ **See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ J. **Vehicle and Equipment Cleaning**	❑ **Show on drawings as appropriate:** **(1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.** **(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use).** **(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.** **(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.**	❑ **If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.**	**Describe operational measures to implement the following (if applicable):** ❑ **Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system.** Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ ❑ **Car dealerships and similar may rinse cars with water only.**

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ K. **Vehicle/Equipment Repair and Maintenance**	❑ **Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater.** ❑ **Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas.** ❑ **Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.**	❑ **State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.** ❑ **State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.** ❑ **State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.**	**In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:** ❑ **No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains.** ❑ **No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately.** ❑ **No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.** Refer to "Automotive Maintenance & Ca Care Best Management Practices for Aut Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ L. **Fuel Dispensing Areas**	❑ **Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable.** ❑ **Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.**		❑ **The property owner shall dry sweep the fueling area routinely.** ❑ **See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

[6] The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
■ M. **Loading Docks**	■ **Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer.** ■ **Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation.** ■ **Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.**		■ **Move loaded and unloaded items indoors as soon as possible.** ■ **See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
■ N. **Fire Sprinkler Test Water**		■ **Provide a means to drain fire sprinkler test water to the sanitary sewer.**	■ **See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**
O. **Miscellaneous Drain or Wash Water or Other Sources** ❑ **Boiler drain lines** ❑ **Condensate drain lines** ❑ **Rooftop equipment** ❑ **Drainage sumps** ❑ **Roofing, gutters, and trim.** ❑ **Other sources**		❑ **Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.** ❑ **Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.** ❑ **Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.** ❑ **Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.** ❑ **Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.** **Include controls for other sources as specified by local reviewer.**	

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
■ P. **Plazas, sidewalks, and parking lots.**			■ **Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain**

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

TO BE PROVIDED IN FINAL WQMP

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

BMP FACT SHEET TO BE PROVIDED IN FINAL WQMP

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Help Protect Our Waterways!

Use these guidelines for Outdoor Cleaning Activities and Wash Water Disposal

Did you know that disposing of pollutants into the street, gutter, storm drain or body of water is *PROHIBITED* by law and can result in stiff penalties?

Best Management Practices

Waste wash water from Mechanics, Plumbers, Window/Power Washers, Carpet Cleaners, Car Washing and Mobile Detailing activities may contain significant quantities of motor oil, grease, chemicals, dirt, detergents, brake pad dust, litter and other materials.

Best Management Practices, or BMPs as they are known, are guides to prevent pollutants from entering the storm drains. ***Each of us*** can do our part to keep stormwater clean by using the suggested BMPs below:

Simple solutions for both light and heavy duty jobs:

Do...consider dry cleaning methods first such as a mop, broom, rag or wire brush. Always keep a spill response kit on site.

Do...prepare the work area before power cleaning by using sand bags, rubber mats, vacuum booms, containment pads or temporary berms to keep wash water away from the gutters and storm drains.

Do...use vacuums or other machines to remove and collect loose debris or litter before applying water.

Do...obtain the property owner's permission to dispose of ***small amounts*** of power washing waste water on to landscaped, gravel or unpaved surfaces.

Do...check your local sanitary sewer agency's policies on wash water disposal regulations before disposing of wash water into the sewer. (See list on reverse side)

Do...be aware that if discharging to landscape areas, soapy wash water may damage landscaping. Residual wash water may remain on paved surfaces to evaporate. Sweep up solid residuals and dispose of properly. Vacuum booms are another option for capturing and collecting wash water.

Do...check to see if local ordinances prevent certain activities.

Do not let...wash or waste water from sidewalk, plaza or building cleaning go into a street or storm drain.

Report illegal storm drain disposal
Call Toll Free
1-800-506-2555

Using Cleaning Agents

Try using biodegradable/phosphate-free products. They are easier on the environment, but don't confuse them with being toxic free. Soapy water entering the storm drain system can impact the delicate aquatic environment.

When cleaning surfaces with a ***high-pressure washer*** or ***steam cleaner***, additional precautions should be taken to prevent the discharge of pollutants into the storm drain system. These two methods of surface cleaning can loosen additional material that can contaminate local waterways.

Think Water Conservation

Minimize water use by using high pressure, low volume nozzles. Be sure to check all hoses for leaks. Water is a precious resource, don't let it flow freely and be sure to shut it off in between uses.

Screening Wash Water

Conduct thorough dry cleanup before washing exterior surfaces, such as buildings and decks ***with loose paint***, sidewalks or plaza areas. Keep debris from entering the storm drain after cleaning by first passing the wash water through a "20 mesh" or finer screen to catch the solid materials, then dispose of the mesh in a refuse container. Do not let the remaining wash water enter a street, gutter or storm drain.

Drain Inlet Protection & Collection of Wash Water

- Prior to any washing, block all storm drains with an impervious barrier such as sandbags or berms, or seal the storm drain with plugs or other appropriate materials.
- Create a containment area with berms and traps or take advantage of a low spot to keep wash water contained.
- Wash vehicles and equipment on grassy or gravel areas so that the wash water can seep into the ground.
- Pump or vacuum up all wash water in the contained area.

Concrete/Coring/Saw Cutting and Drilling Projects

Protect any down-gradient inlets by using dry activity techniques whenever possible. If water is used, minimize the amount of water used during the coring/drilling or saw cutting process. Place a barrier of sandbags and/or absorbent berms to protect the storm drain inlet or watercourse. Use a shovel or wet vacuum to remove the residue from the pavement. Do not wash residue or particulate matter into a storm drain inlet or watercourse.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Helpful telephone numbers and links:

Riverside County Stormwater Protection Partners

Flood Control District	(951) 955-1200
County of Riverside	(951) 955-1000
City of Banning	(951) 922-3105
City of Beaumont	(951) 769-8520
City of Calimesa	(909) 795-9801
City of Canyon Lake	(951) 244-2955
Cathedral City	(760) 770-0327
City of Coachella	(760) 398-4978
City of Corona	(951) 736-2447
City of Desert Hot Springs	(760) 329-6411
City of Eastvale	(951) 361-0900
City of Hemet	(951) 765-2300
City of Indian Wells	(760) 346-2489
City of Indio	(760) 391-4000
City of Lake Elsinore	(951) 674-3124
City of La Quinta	(760) 777-7000
City of Menifee	(951) 672-6777
City of Moreno Valley	(951) 413-3000
City of Murrieta	(951) 304-2489
City of Norco	(951) 270-5607
City of Palm Desert	(760) 346-0611
City of Palm Springs	(760) 323-8299
City of Perris	(951) 943-6100
City of Rancho Mirage	(760) 324-4511
City of Riverside	(951) 361-0900
City of San Jacinto	(951) 654-7337
City of Temecula	(951) 694-6444
City of Wildomar	(951) 677-7751

REPORT ILLEGAL STORM DRAIN DISPOSAL
1-800-506-2555 or e-mail us at
fcnpdes@rcflood.org

- Riverside County Flood Control and Water Conservation District
  www.rcflood.org

Online resources include:

- California Storm Water Quality Association
  www.casqa.org
- State Water Resources Control Board
  www.waterboards.ca.gov
- Power Washers of North America
  www.thepwna.org

Stormwater Pollution

What you should know for...

Outdoor Cleaning Activities and Professional Mobile Service Providers

Storm drain pollution prevention information for:

- Car Washing / Mobile Detailers
- Window and Carpet Cleaners
- Power Washers
- Waterproofers / Street Sweepers
- Equipment cleaners or degreasers and all mobile service providers

Do you know where street flows actually go?

Storm drains are NOT connected to sanitary sewer systems and treatment plants!

The primary purpose of storm drains is to carry *rain* water away from developed areas to prevent flooding. Pollutants discharged to storm drains are transported directly into rivers, lakes and streams. Soaps, degreasers, automotive fluids, litter and a host of materials are washed off buildings, sidewalks, plazas and parking areas. Vehicles and equipment must be properly managed to prevent the pollution of local waterways.

Unintentional spills by mobile service operators can flow into storm drains and pollute our waterways. **Avoid mishaps.** *Always* have a **Spill Response Kit** on hand to clean up unintentional spills. Only emergency **Mechanical** repairs should be done in City streets, using drip pans for spills. **Plumbing** should be done on private property. Always store chemicals in a leak-proof container and keep covered when not in use. **Window/Power Washing** waste water shouldn't be released into the streets, but should be disposed of in a sanitary sewer, landscaped area or in the soil. Soiled **Carpet Cleaning** wash water should be filtered before being discharged into the sanitary sewer. Dispose of all filter debris properly. **Car Washing/Detailing** operators should wash cars on private property and use a regulated hose nozzle for water flow control and runoff prevention. Capture and dispose of waste water and chemicals properly. Remember, storm drains are for receiving rain water runoff only.

REPORT ILLEGAL STORM DRAIN DISPOSAL 1-800-506-2555

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

After the Storm

What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

Why is stormwater runoff a problem?

Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

A Citizen's Guide to Understanding Stormwater

EPA 833-B-03-002

January 2003

THE YEAR OF CLEAN WATER

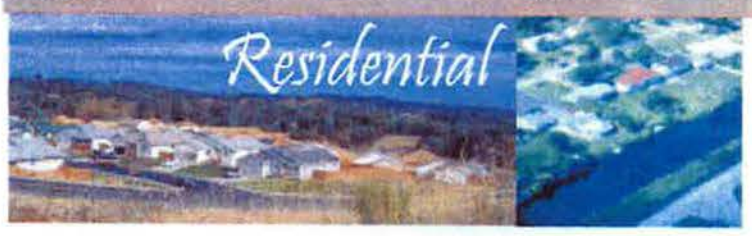
EPA United States Environmental Protection Agency

WHEN IT RAINS IT DRAINS

or visit
www.epa.gov/npdes/stormwater
www.epa.gov/nps

For more information contact:

Stormwater Pollution Solutions



Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

Septic systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Auto care

Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Pet waste

Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be washed into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

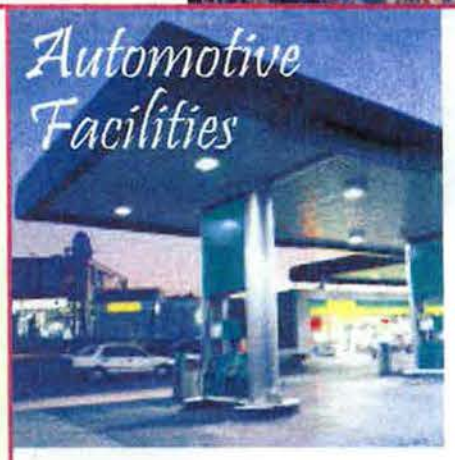
- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.

Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.

- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.



Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

STORMWATER POLLUTION FROM CONSTRUCTION ACTIVITIES

The two most common sources of stormwater pollution problems associated with construction activities are ***erosion*** and ***sedimentation***. Failure to maintain adequate erosion and sediment controls at construction sites often results in sediment discharges into the storm drain system, creating multiple problems once it enters local waterways.

Construction vehicles and heavy equipment can also track significant amounts of mud and sediment onto adjacent streets. Additionally, wind may transport construction materials and wastes into streets storm drains, or directly into our local waterways.

Resources

State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento CA 95814
(916) 341-5455
www.swrcb.ca.gov/stormwtr/

Colorado River Basin Regional Water
Quality Control Board - Region 7
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
(760) 346-7491
www.swrcb.ca.gov/~rwqcb7/

Santa Ana Regional Water
Quality Control Board - Region 8
3737 Main Street, Suite 500
Riverside, CA 92501-3348
(909) 782-4130
www.swrcb.ca.gov/~rwqcb8/

San Diego Regional Water
Quality Control Board - Region 9
9771 Clairemont Mesa Blvd., Suite A
San Diego, CA 92124
(858) 467-2952
www.swrcb.ca.gov/~rwqcb9/

StormWater Pollution . . . What You Should know

Riverside County has two drainage systems - sewers and storm drains. The storm drain system was designed to reduce flooding by carrying excess rainwater away from streets and developed areas. Since the storm drain system does not provide for water treatment, it also serves the *unintended* function of transporting pollutants directly to our local waterways.

Unlike sanitary sewers, storm drains are not connected to a wastewater treatment plant – they flow directly to our local streams, rivers and lakes.

Stormwater runoff is a part of the natural hydrologic process. However, land development and construction activities can significantly alter natural drainage processes and introduce pollutants into stormwater runoff. Polluted stormwater runoff from construction sites has been identified as a major source of water pollution in California. It jeopardizes the quality of our local waterways and can pose a serious threat to the health of our aquatic ecosystems.

The Cities and County of Riverside StormWater/CleanWater Protection Program

Because preventing pollution is much easier and less costly than cleaning up "after the fact," the Cities and County of Riverside StormWater/CleanWater Protection Program informs residents and businesses on pollution prevention activities. This pamphlet describes various Best Management Practices (BMPs) that construction site operators can use to prevent stormwater pollution.

In accordance with applicable federal and state law, the Cities and County of Riverside have adopted ordinances for stormwater management and discharge control that **prohibit** the discharge of pollutants into the storm drain system or local surface waters. This includes discharges from construction sites containing sediment, concrete, mortar, paint, solvents, lubricants, vehicle fluids, fuel, pesticides, and construction debris.

PLEASE NOTE: The Federal, State and local regulations strictly prohibit the discharge of sediment and pollutants into the streets, the storm drain system or waterways. As an owner, operator or supervisor of a construction site, you may be held financially responsible for any environmental damage caused by your subcontractors or employees.

To report a hazardous materials spill, call:

Riverside County Hazardous Materials
Emergency Response Team
(909) 358-5055 8:00 a.m. – 5:00 p.m.
(909) 358-5245 after 5:00 p.m.

In an emergency call: **911**

For recycling and hazardous waste disposal, call:

(909) 358-5055

To report an illegal dumping or a clogged storm drain, call:

1-800-506-2555

To order additional brochures or to obtain information on other pollution prevention activities, please call (909) 955-1200 or visit the StormWater/CleanWater Protection Program website at:
www.co.riverside.ca.us/depts/flood/waterquality/npdes.asp

StormWater Pollution

What you should know for...

GENERAL CONSTRUCTION & SITE SUPERVISION

Best Management Practices (BMPs) for:

- Developers
- General Contractors
- Home Builders
- Construction Inspectors
- Anyone in the construction business

The StormWater/CleanWater Protection Program gratefully acknowledges the Santa Clara Valley Nonpoint Pollution Control Program, Alameda Countywide CleanWater Program and the City of Los Angeles Stormwater Management Division for information provided in this brochure.

What Should You Do?

Advance Planning to Prevent Pollution

- ❑ Remove existing vegetation only as needed.
- ❑ Schedule excavation, grading, and paving operations for dry weather periods, if possible.
- ❑ Designate a specific area of the construction site, well away from storm drain inlets or watercourses, for material storage and equipment maintenance.
- ❑ Develop and implement an effective combination of erosion and sediment controls for the construction site.
- ❑ Practice source reduction by ordering only the amount of materials that are needed to finish the project.
- ❑ Educate your employees and subcontractors about stormwater management requirements and their pollution prevention responsibilities.
- ❑ Control the amount of surface runoff at the construction site by impeding internally generated flows and using berms or drainage ditches to direct incoming offsite flows to go around the site. ***Note:*** *Consult local drainage policies for more information.*

BEST MANAGEMENT PRACTICES

The following Best Management Practices (BMPs) can significantly reduce pollutant discharges fro your construction site. Compliance with stormwater regulations can be as simple as minimizir stormwater contact with potential pollutants by providing covers and secondary containment f construction materials, designating areas away from storm drain systems for storing equipment ar materials and implementing good housekeeping practices at the construction site.

- ❑ Protect all storm drain inlets and streams located near the construction site to prevent sediment-laden water from entering the storm drain system.
- ❑ Limit access to and from the site. Stabilize construction entrances/exits to minimize the track out of dirt and mud onto adjacent streets. Conduct frequent street sweeping.
- ❑ Protect stockpiles and construction materials from winds and rain by storing them under a roof, secured impermeable tarp or plastic sheeting.
- ❑ Avoid storing or stockpiling materials near storm drain inlets, gullies or streams.
- ❑ Phase grading operations to limit disturbed areas and duration of exposure.
- ❑ Perform major maintenance and repairs of vehicles and equipment offsite.
- ❑ Wash out concrete mixers only in designated washout areas at the construction site.
- ❑ Set-up and operate small concrete mixers on tarps or heavy plastic drop cloths.
- ❑ Keep construction sites clean by removing trash, debris, wastes, etc. on a regular basis.
- ❑ Clean-up spills immediately using di clean-up methods (e.g., absorber materials such as cat litter, sand or rag for liquid spills; sweeping for dry spil such as cement, mortar or fertilizer) ar by removing the contaminated soil fro spills on dirt areas. .
- ❑ Prevent erosion by implementing any or combination of soil stabilization practice such as mulching, surface roughenin permanent or temporary seeding.
- ❑ Maintain all vehicles and equipment good working condition. Inspect frequent for leaks, and repair promptly.
- ❑ Practice proper waste disposal. Mar construction materials and waste including solvents, water-based pair vehicle fluids, broken asphalt ar concrete, wood, and cleared vegetatic can be recycled. Materials that cannot b recycled must be taken to an appropriat landfill or disposed of as hazardou waste.
- ❑ Cover open dumpsters with secured tarp or plastic sheeting. Never clean out dumpster by washing it down on th construction site.
- ❑ Arrange for an adequate debris dispos schedule to insure that dumpsters do n overflow.

GENERAL CONSTRUCTION ACTIVITIES STORMWATER PERMIT

(Construction Activities General Permit)

The State Water Resources Control Board (SWRCB) adopted a new Construction Activities General Permit (WQ Order No. 99-08DWQ) on August 19, 1999, superseding the now expired SWRCB statewide General Permit (WQ Order No. 92-08DWQ). This permit is administered and enforced by the SWRCB and the local Regional Water Quality Control Boards (RWQCB). The updated Construction Activities General Permit establishes a number of new stormwater management requirements for construction site operator.

NOTE: *Some construction activies stormwater permits are issued on a regional basis. Consult your local RWQCB to find out if your project requires coverage under any of these permits.*

Frequently Asked Questions:

Does my construction site require coverage under the Construction Activities General Permit?

Yes, if construction activity results in the disturbance of five or more acres of total land area or is part of a common plan of development that results in the disturbance of five or more acres.

How do I obtain coverage under the Construction Activities General Permit?

Obtain the permit package and submit the completed Notice of Intent (NOI) form to the SWRCB prior to grading or disturbing soil at the construction site. For ongoing construction activity involving a change of ownership, the new owner must submit a new NOI within 30 days of the date of change of ownership. The completed NOI along with the required fee should be mailed to the SWRCB.

What must I do to comply with the requirements of the Construction Activities General Permit?

- ● Implement BMPs for non-stormwater discharges year-round.
- ● Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) prior to commencing construction activities.
- ● Keep a copy of the SWPPP at the construction site for the entire duration of the project.
- ● Calculate the anticipated stormwater run-off.
- ● Implement an effective combination of erosion and sediment control on all soil disturbed areas.
- ● Conduct site inspections prior to anticipated storm events, every 24-hours during extended storm events, and after actual storm event.
- ● Perform repair and maintenance of BMPs as soon as possible after storm events depending upon worker safety.
- ● Update the SWPPP as needed, t manage pollutants or reflect changes site conditions.
- ● Include description of post constructio BMPs at the construction site, includir parties responsible for long-ter maintenance.

NOTE: *Please refer to the Constructio Activities General Permit for detaile information. You may contact the SWRCI your local RWQCB, or visit the SWRC website at www.swrcb.ca.gov/stormwtr/ obtain a State Construction Activitie Stormwater General Permit packet.*

How long is this Construction Activities General Permit in effect?

The Permit coverage stays in effect untilyc submit a Notice of Termination (NOT) to th SWRCB. For the purpose of submitting NOT, all soil disturbing activities have to b completed and one of the three followir criteria has to be met:

1. Change of ownership;
2. A uniform vegetative cover with 7 percent coverage has been establishe or,
3. Equivalent stabilization measures suc as the use of reinforced channel liner soil cement, fiber matrices, geotextiles, etc., have been employed.

For Information:

For more information on the General Industrial Storm Water Permit contact:

State Water Resources Control Board (SWRCB)
(916) 657-1146 or www.swrcb.ca.gov/ or, at your Regional Water Quality Control Board (RWQCB).

Santa Ana Region (8)
California Tower
3737 Main Street, Ste. 500
Riverside, CA 92501-3339
(909) 782-4130

San Diego Region (9)
9771 Clairemont Mesa Blvd., Ste. A
San Diego, CA 92124
(619) 467-2952

Colorado River Basin Region (7)
73-720 Fred Waring Dr., Ste. 100
Palm Desert, CA 92260
(760) 346-7491

SPILL RESPONSE AGENCY:
HAZ-MAT: (909) 358-5055
HAZARDOUS WASTE DISPOSAL: (909) 358-5055
RECYCLING INFORMATION: 1-800-366-SAVE
TO REPORT ILLEGAL DUMPING OR A CLOGGED STORM DRAIN: 1-800-506-2555

To order additional brochures or to obtain information on other pollution prevention activities, call:
(909) 955-1111.

StormWater
CleanWater
PROTECTION PROGRAM

Riverside County gratefully acknowledges the State Water Quality Control Board and the American Public Works Association, Storm Water Quality Task Force for the information provided in this brochure.

DID YOU KNOW . . .

YOUR FACILITY MAY NEED A STORM WATER PERMIT?

Many industrial facilities and manufacturing operations must obtain coverage under the Industrial Activities Storm Water General Permit

FIND OUT IF YOUR FACILITY MUST OBTAIN A PERMIT

StormWater Pollution . . . What you should know

Riverside County has two drainage systems - sanitary sewers and storm drains The storm drain system is designed to help prevent flooding by carrying excess rainwater away from streets. Since the storm drain system does not provide for water treatment, it also serves the *unintended* function of transporting pollutants directly to our waterways.

Unlike sanitary sewers, storm drains are not connected to a treatment plant - they flow directly to our local streams, rivers and lakes.

In recent years, awareness of the need to protect water quality has increased. As a result, federal, state, and local programs have been established to reduce polluted stormwater discharges to our waterways. The emphasis of these programs is to prevent stormwater pollution since it's much easier, and less costly, than cleaning up "after the fact."

National Pollutant Discharge Elimination System (NPDES

In 1987, the Federal Clean Water Act was amended to establish a framework f regulating industrial stormwater discharges under the NPDES permit program. California, NPDES permits are issued by the State Water Resources Control Boa (SWRCB) and the nine (9) Regional Water Quality Control Boards (RWQCB). general, certain industrial facilities and manufacturing operations must obta coverage under the Industrial Activities Storm Water General Permit if the type facilities or operations falls into one of the several categories described in this brochure.

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

How Do I Know If I Need A Permit?

Following are ***general descriptions*** of the industry categories types that are regulated by the Industrial Activities Storm Water General Permit. Contact your local Region Water Quality Control Board to determine if your facility/operation requires coverage under the Permit.

➜ Facilities such as cement manufacturing; feedlots; fertilizer manufacturing; petroleum refining; phosphate manufacturing; steam electric power generation; coal mining; mineral mining and processing; ore mining and dressing; and asphalt emulsion;

➜ Facilities classified as lumber and wood products (except wood kitchen cabinets); pulp, paper, and paperboard mills; chemical producers (except some pharmaceutical and biological products); petroleum and coal products; leather production and products; stone, clay and glass products; primary metal industries; fabricated structural metal; ship and boat building and repairing;

➜ Active or inactive mining operations and oil and gas exploration, production, processing, or treatment operations;

➜ Hazardous waste treatment, storage, or disposal facilities;

➜ Landfills, land application sites and open dumps that receive or have received any industrial waste; unless there is a new overlying land use such as a golf course, park, etc., and there is no discharge associated with the landfill;

➜ Facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards;

➜ Steam electric power generating facilities, facilities that generate steam for electric power by combustion;

➜ Transportation facilities that have vehicle maintenance shops, fueling facilities, equipment cleaning operations, or airport deicing operations. This includes school bus maintenance facilities operated by a school district;

➜ Sewage treatment facilities;

➜ Facilities that have areas where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water.

How do I obtain coverage under the Industrial Activities Storm Water General Permit?

Obtain a permit application package from your local Regional Water Quality Control Board listed on the back of this brochure or the State Water Resources Control Board (SWRCB). Submit a completed Notice of Intent (NOI) form, site map and the appropriate fee ($250 or $500) to the SWRCB. Facilities must submit an NOI thirty (30) days prior to beginning operation. Once you submit the NOI, the State Board will send you a letter acknowledging receipt of your NOI and will assign your facility a waste discharge identification number (WDID No.). You will also receive an annual fee billing. These billings should roughly coincide with the date the State Board processed your original NOI submittal.

What are the requirements of the Industrial Activities Storm Water General Permit

The basic requirements of the Permit are:

1. The facility must eliminate any non-stormwater discharges or obtain a separate permit for su discharges.

2. The facility must develop and implement a Storm Water Pollution Prevention Plan (SWPPP). T SWPPP must identify sources of pollutants that may be exposed to stormwater. Once the sources pollutants have been identified, the facility operator must develop and implement Best Managem Practices (BMPs) to minimize or prevent polluted runoff.

   Guidance in preparing a SWPPP is available from a document prepared by the California Storm Wa Quality Task Force called the California Storm Water Best Management Practice Handbook.

3. The facility must develop and implement a Monitoring Program that includes conducting vis observations and collecting samples of the facility's storm water discharges associated with indust activity. The General Permit requires that the analysis be conducted by a laboratory that is certified by State of California.

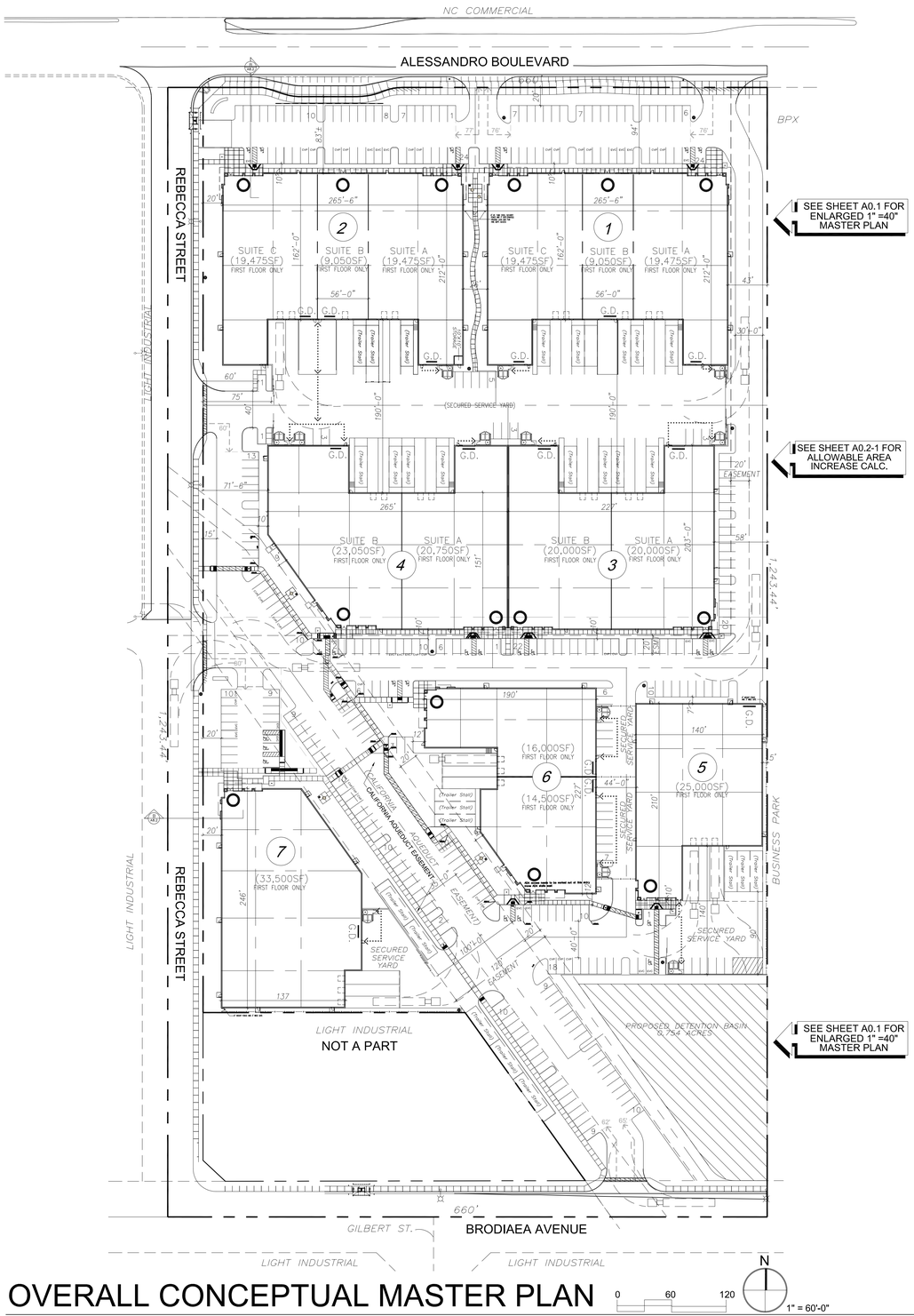
4. The facility must submit to the Regional Board, every July 1, an annual report that includes the results its monitoring program.

A Non-Storm Water Discharge is... *any discharge to a storm drain system that is not composed entirely of storm water. The following non-storm water discharges are authorized by the General Permit: fire hydrant flushing; potable water sources, including potable water related to the operation, maintenance, or testing of potable water systems; drinking fountain water; atmospheric condensates including refrigeration, air conditioning, and compressor condensate; irrigation drainage; landscape watering; springs; non-contaminated ground water; foundation or footing drainage; and sea water infiltration where the sea waters are discharged back into the sea water source.*

A BMP is . . . *a technique, process, activ or structure used to reduce the pollutant conten a storm water discharge. BMPs may inclu simple, non-structural methods such as gc housekeeping, staff training and prevent maintenance. Additionally, BMPs may inclu structural modifications such as the installatior berms, canopies or treatment control (e.g. sett basins, oil/water separators, etc.)*

WARNING*: There are significant penalties for non-compliance: a minimum fine of $5,000 for fa coverage, and, up to $10,000 per day, per violation plus $10 per gallon of discharge in excess of 1,0*

Attachment: Water Quality Management Plan (3285 : PAMA Business Center)

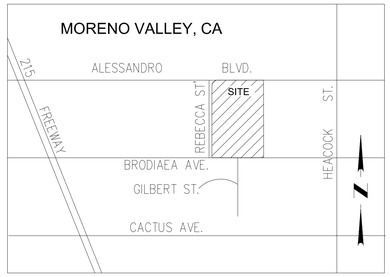


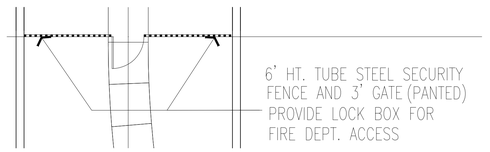
OVERALL CONCEPTUAL MASTER PLAN

0 60 120 — 1" = 60'-0"

N

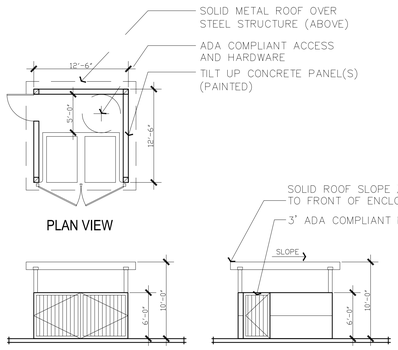
VICINITY MAP



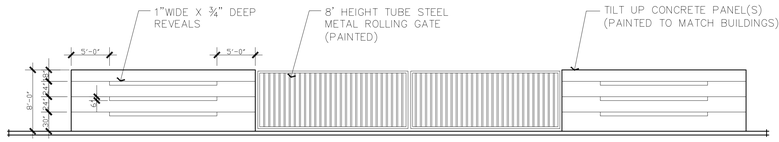


6' HT. TUBE STEEL SECURITY FENCE AND 3' GATE (PANTED) PROVIDE LOCK BOX FOR FIRE DEPT. ACCESS

FENCE BETWEEN BLDG. 1 & 2



TRASH ENCLOSURE



SCREEN WALL & GATE TYPICAL ELEVATION

GRAPHIC LEGEND:

- O = OFFICE ENTRY
- G.D. = GRADE DOOR (14'X14')
- = A.D.A. ACCESSIBLE PRKG.
- = PROPERTY LINE (SEE CIVIL)
- = DOCK DOOR & LEVELER
- = CANOPY OR OVERHANG
- = CENTERLINE OR GRID LINE
- = EASEMENT (SEE CIVIL)
- = TRASH ENCLOSURE W/ SOLID ROOF A.D.A ACCESIBLE
- = WB-67' TRACTOR TRAILER
- = DISTANCE FROM P.L. TO START OF PARKING STALL
- = PARKING ASSIGNMENT FOR EACH BUILDING
- = ADA PATH OF TRAVEL
- = FIRE HYDRANT

PARKING REQUIREMENTS:

OFFICE: = 4/1000

WAREHOUSE:
0-20,000SF = 1/1000
20,000SF-40,000SF = 1/2000
40,000SF+ = 1/4000

PARKING STALL SIZES:

STANDARD PARKING STALL (#S) 9' X 18' WITH 2' O.H.

A.D.A. (HANDICAP) STALLS (#H) 9' X 18' WITH 2' O.H.
12' X 18' WITH 2' O.H.(VAN)

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN IS SITUATED IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

LOTS 2 AND 7 BLOCK 241 OF MAP NO. 1 BEAR VALLEY AND ALESSANDRO DEVELOPMENT CO., IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 11, PAGE 10 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN BERNARDINO COUNTY, CALIFORNIA, TOGETHER WITH THAT PORTION OF ALESSANDRO BOULEVARD WITHIN SAID BLOCK LYING BETWEEN THE NORTHERLY PROLONGATION OF THE EAST AND WEST LINES OF SAID LOT 2 ALSO THAT PORTION OF BRODIAEA AVENUE WITHIN SAID BLOCK LYING BETWEEN THE SOUTHERLY PROLONGATION OF THE EAST AND WEST LINES OF SAID LOT 7.

EXCEPT FROM SAID LOT 2 THAT PORTION GRANTED TO THE COUNTY OF RIVERSIDE, BY THAT GRANT DEED RECORDED MAY 19, 1972, AS INSTRUMENT NO. 65503, OFFICIAL RECORDS.

ALSO EXCEPT FROM SAID LOT 7 THAT PORTION GRANTED TO THE CITY OF MORENO VALLEY, BY THAT GRANT DEED RECORDED AUGUST 13, 2012, AS INSTRUMENT NO. 2012-0382748, OFFICIAL RECORDS.

ASSESSOR'S PARCEL NO. = 297-170-083

SHEET INDEX

SHEET #	SHEET DESCRIPTION
A0.0	OVERALL MASTER PLAN 60TH SCALE
A0.1	OVERALL MASTER PLAN 40TH SCALE
A0.2	PARKING ASSIGNMENT
A0.2-1	ALLOWABLE AREA CALCULATIONS
A0.2-2	EXISTING CONDITIONS (PHOTO'S)
A0.3	CONCEPTUAL ROOF PLANS
A1.1	BUILDING 1 FLOOR PLAN
A1.2	BUILDING 1 ELEVATIONS
A2.1	BUILDING 2 FLOOR PLAN
A2.2	BUILDING 2 ELEVATIONS
A3.1	BUILDING 3 FLOOR PLAN
A3.2	BUILDING 3 ELEVATIONS
A4.1	BUILDING 4 FLOOR PLAN
A4.2	BUILDING 4 ELEVATIONS
A5.1	BUILDING 5 FLOOR PLAN
A5.2	BUILDING 5 ELEVATIONS
A6.1	BUILDING 6 FLOOR PLAN
A6.2	BUILDING 6 ELEVATIONS
A7.1	BUILDING 7 FLOOR PLAN
A7.2	BUILDING 7 ELEVATIONS
A8.1	CONCEPTUAL TENANT IMPROVEMENT
A8.1.2	CONCEPTUAL TENANT IMPROVEMENT
A8.2	SITE LINE STUDIES
L1.1	PRELIMINARY LANDSCAPE PLAN
L2.1	PRELIMINARY PLANT IMAGERY
1 of 2	CONCEPTUAL GRADING PLAN
2 of 2	TENTATIVE PARCEL MAP

ZONING / LAND USE:

EXISTING ZONING - BUSINESS PARK BP

EXISTING GP LAND USE DESIGNATION:
BP (BUSINESS PARK/LIGHT INDUSTRIAL

EXISTING: - VACANT

PROPOSED: - OFFICE / WAREHOUSE

OCCUPANCY CLASSIFICATION

BUILDINGS 1 THROUGH 7 : B, S1

PROJECT TEAM :

ARCHITECT:
MACDAVID AUBORT & ASSOCIATES
14 HUGHES SUITE B204
IRVINE, CA 92618
949.305.2200 EXT 2
CONTACT: DAN MACDAVID - PRINCIPAL

CIVIL ENGINEER:
HUITT-ZOLLARS, INC.
David White, PE
Senior Project Manager
3990 CONCOURSE SUITE 330 ONTARIO, CA 91764
909.941.7799, x-11420dwhite@huitt-zollars.com

LANDSCAPE ARCHITECT:
RIDGE LANDSCAPE ARCHITECTS
8841 RESEARCH DR. SUITE 200
IRVINE, CA 92618
CONTACT: TERRI MATTESON CHECKCINCO
OFFICE: 949-387-1323 X29 terri@ridgela.com

OWNER REPRESENTATIVE:
PAMA MANAGEMENT INC.
4900 SANTA ANITA AVE. SUITE 2C, EL MONTE, CA 91731
BRE LIC# 01998265
CONTACT: RYAN LIU / CHIEF FINANCIAL OFFICER
PHONE: 626-575-3070 EXT. 231 / FAX: 626-246-1011
ryan@pamamgt.com

SITE DATA TABLE

BUILDING	LAND AREA AC	LAND AREA SF	COVERAGE %	BLDG. FOOT PRINT	BLDG. MEZZ.	BLDG. S.F.	OFFICE S.F.	WAREHOUSE S.F.	OFFICE PARKING	WAREHOUSE PRKG.	PARKING REQ.	PARKING PROV.	CVP & EVC	BLDG. TYPE	SPRINKLER SYSTEM
1	2.564 AC	111,673.57	42.98%	48,000	2,000	50,000	5,000	45,000	20	31	51	51	6 4	III B	YES-NFPA 13
2	2.396 AC	104,389.83	46.61%	48,000	2,000	50,000	5,000	45,000	20	31	51	52	6 4	III B	YES-NFPA 13
3	1.908 AC	83,112.48	48.12%	40,000	2,000	42,000	5,000	37,000	20	29	49	49	3 2	III B	YES-NFPA 13
4	2.213 AC	96,398.28	45.43%	43,800	2,000	45,800	5,000	40,800	20	30	50	57	6 4	III B	YES-NFPA 13
5	1.438 AC	62,639.28	39.91%	25,000	1,000	26,000	2,000	24,000	8	22	30	38	3 2	III B	YES-NFPA 13
6	1.826 AC	79,540.56	38.34%	30,500	2,000	32,500	4,000	28,500	16	25	41	42	3 2	III B	YES-NFPA 13
7	2.525 AC	109,989.00	30.45%	33,500	1,000	34,500	2,000	32,500	8	27	35	60	6 4	III B	YES-NFPA 13
TOTAL	14.87 AC	647,743.00±	41.49%	268,800	12,000	280,800	28,000	252,800	112	195	307	349 (1.24/1000)	33 22		

LOT AREAS = 647,743.00±SF + DETENTION BASIN (.754AC) 32,844.24SF = 680,587.24±SF
LANDSCAPE AREA = 88,399 S.F. (not including the detention basin)
LANDSCAPE AREA @ 88,399 S.F. / LOT AREAS @ 647,743.± = 13.6%

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

CONCEPT MASTER PLAN #8

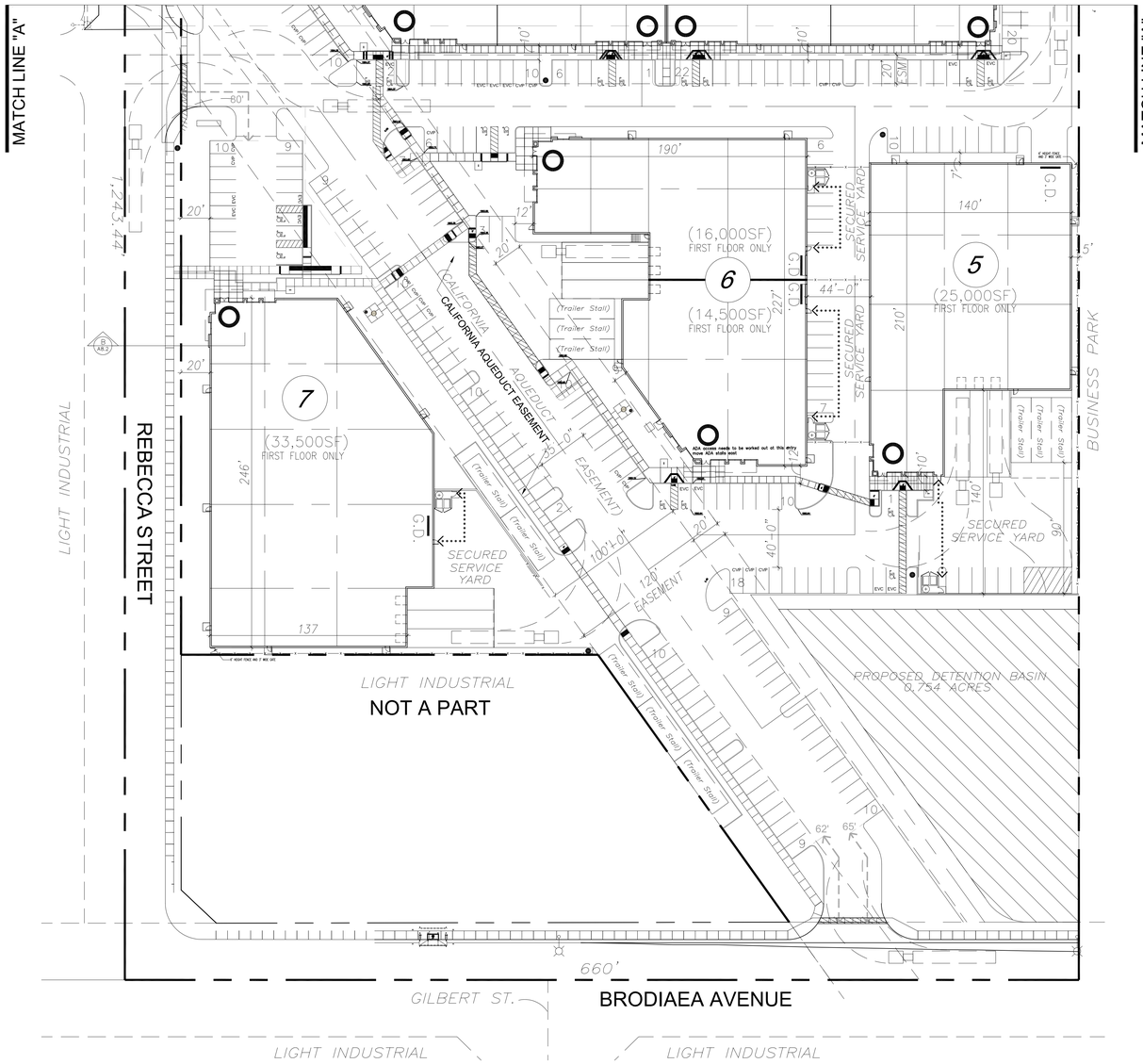
DISCLAIMER:
ALL INFORMATION CONTAINED HEREIN MAY BE SUBJECT TO CHANGE PENDING OWNER AND OR AGENCY REVIEW AND IS FOR INFORMATION ONLY

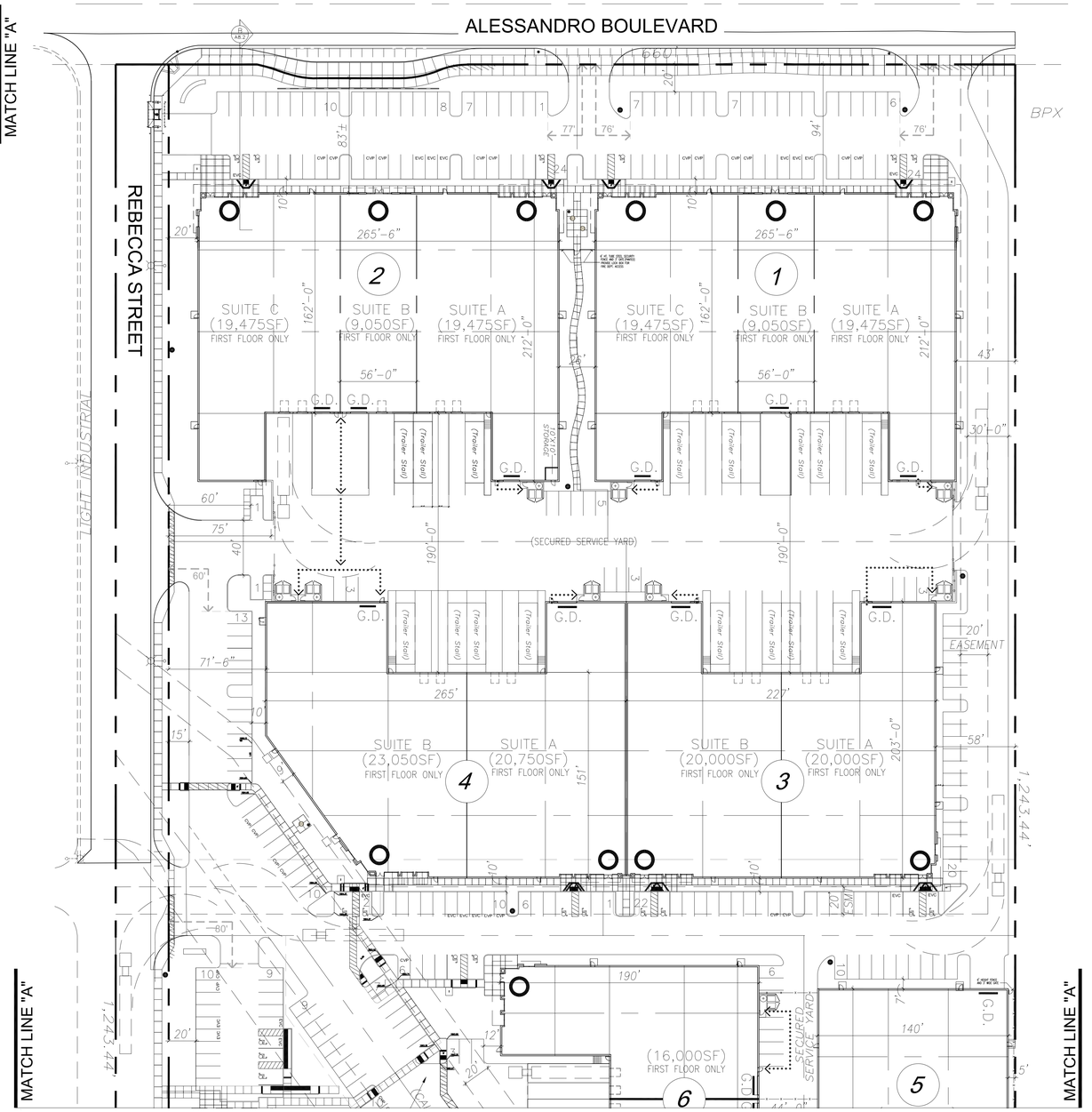
Client:
PAMA MANAGEMENT

09/14/2018

A0.0

Attachment: Master Site Plan PAMA (3285 : PAMA Business Center)





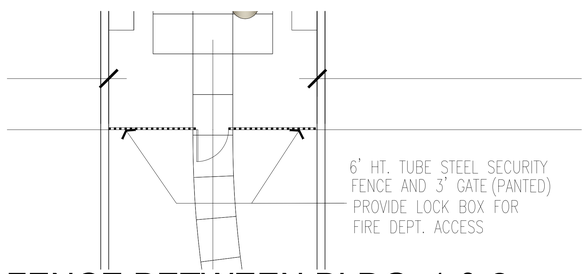
OVERALL CONCEPTUAL MASTER PLAN

0 40 120 — 1" = 40'-0"

N

GRAPHIC LEGEND:

- O = OFFICE ENTRY
- G.D. = GRADE DOOR (14'X14')
- = A.D.A. ACCESSIBLE PRKG.
- = PROPERTY LINE (SEE CIVIL)
- = DOCK DOOR & LEVELER
- = CANOPY OR OVERHANG
- = CENTERLINE OR GRID LINE
- = EASEMENT (SEE CIVIL)
- = TRASH ENCLOSURE W/ SOLID ROOF A.D.A ACCESIBLE
- = WB-67' TRACTOR TRAILER
- = DISTANCE FROM P.L. TO START OF PARKING STALL
- = PARKING ASSIGNMENT FOR EACH BUILDING
- = ADA PATH OF TRAVEL
- • = FIRE HYDRANT



FENCE BETWEEN BLDG. 1 & 2

SITE DATA TABLE

BUILDING	LAND AREA AC	LAND AREA SF	COVERAGE %	BLDG. FOOT PRINT	BLDG. MEZZ.	BLDG. S.F.	OFFICE S.F.	WAREHOUSE S.F.	OFFICE PARKING	WAREHOUSE PRKG.	PARKING REQ.	PARKING PROV.	CVP & EVC	BLDG. TYPE	SPRINKLER SYSTEM
1	2.564 AC	111,673.57	42.98%	48,000	2,000	50,000	5,000	45,000	20	31	51	51	6 4	III B	YES-NFPA 13
2	2.396 AC	104,389.83	46.61%	48,000	2,000	50,000	5,000	45,000	20	31	51	52	6 4	III B	YES-NFPA 13
3	1.908 AC	83,112.48	48.12%	40,000	2,000	42,000	5,000	37,000	20	29	49	49	3 2	III B	YES-NFPA 13
4	2.213 AC	96,398.28	45.43%	43,800	2,000	45,800	5,000	40,800	20	30	50	57	6 4	III B	YES-NFPA 13
5	1.438 AC	62,639.28	39.91%	25,000	1,000	26,000	2,000	24,000	8	22	30	38	3 2	III B	YES-NFPA 13
6	1.826 AC	79,540.56	38.34%	30,500	2,000	32,500	4,000	28,500	16	25	41	42	3 2	III B	YES-NFPA 13
7	2.525 AC	109,989.00	30.45%	33,500	1,000	34,500	2,000	32,500	8	27	35	60	6 4	III B	YES-NFPA 13
TOTAL	14.87 AC	647,743.00±	41.49%	268,800	12,000	280,800	28,000	252,800	112	195	307	349 (1.24/1000)	33 22		

LOT AREAS = 647,743.00±SF + DETENTION BASIN (.754AC) 32,844.24SF = 680,587.24±SF
LANDSCAPE AREA = 88,399 S.F. (not including the detention basin)
LANDSCAPE AREA @ 88,399 S.F. / LOT AREAS @ 647,743.± = 13.6%

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

CONCEPT MASTER PLAN #8

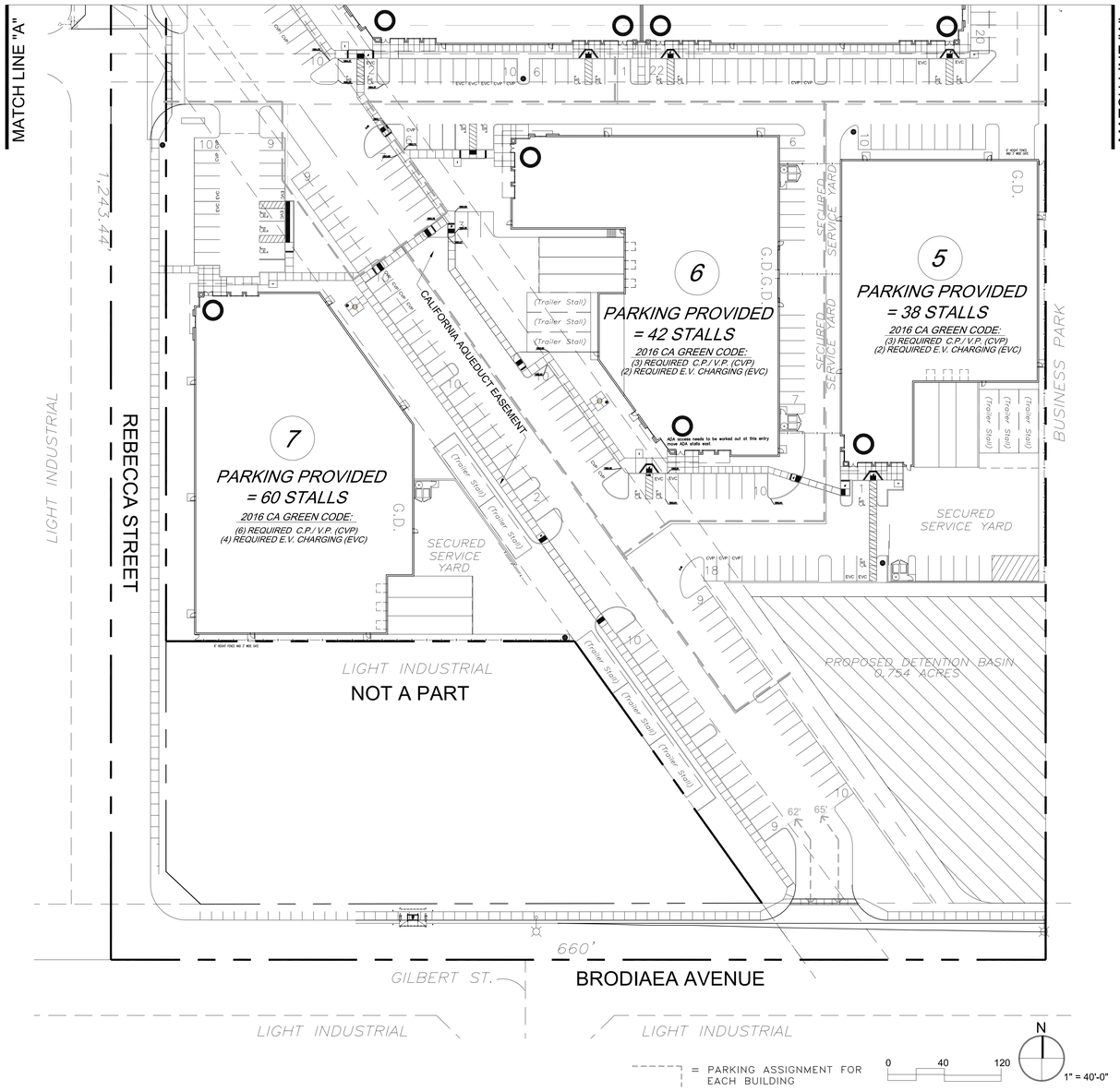
DISCLAIMER:
ALL INFORMATION CONTAINED HEREIN MAY BE SUBJECT TO CHANGE PENDING OWNER AND OR AGENCY REVIEW AND IS FOR INFORMATION ONLY

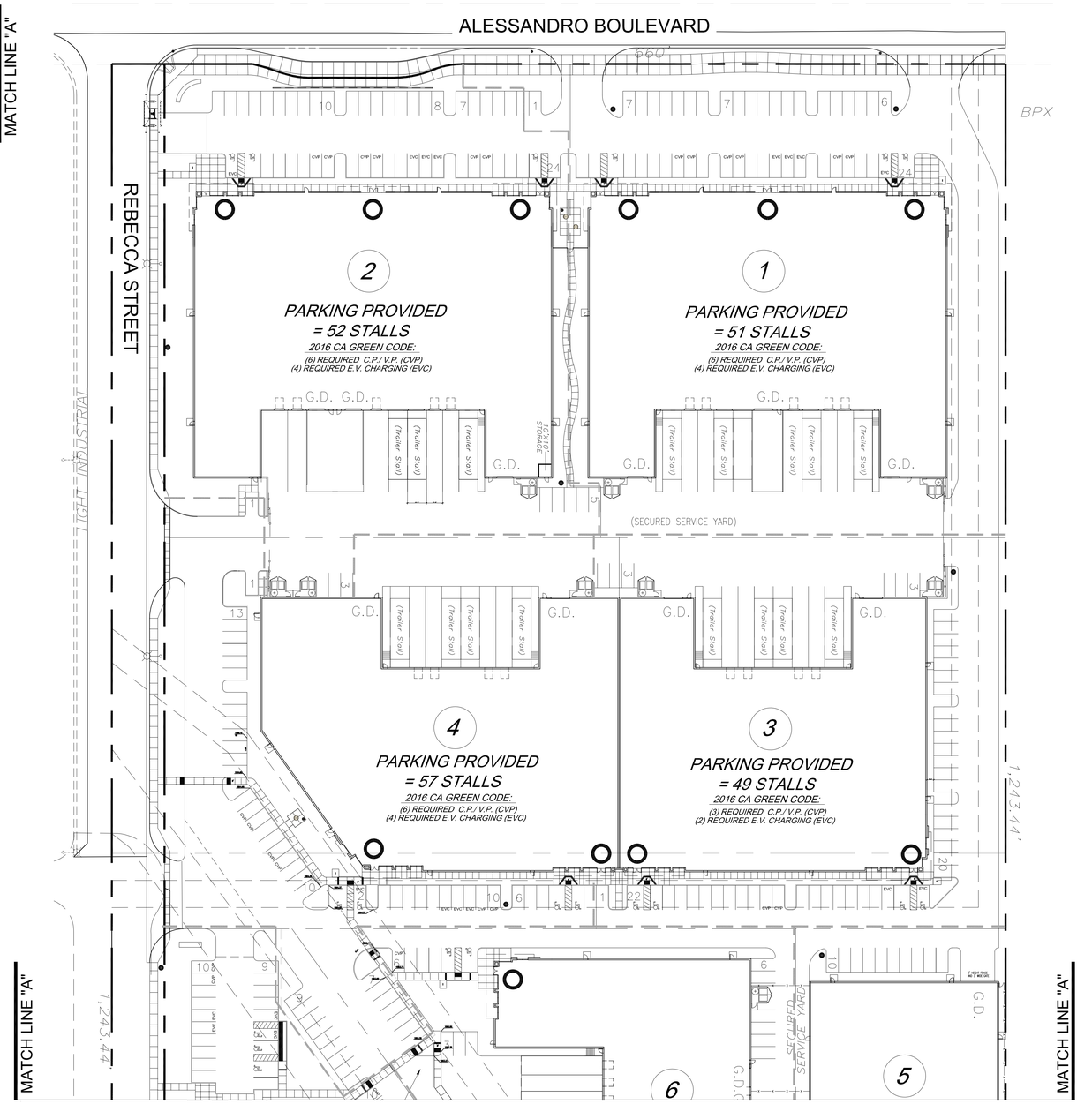
Client:
PAMA MANAGEMENT

09/14/2018

A0.1

Attachment: Master Site Plan A0-1 PAMA (3285 : PAMA Business Center)





2016 CALIFORNIA GREEN CODE: EV/VANPOOL/CLEAN AIR PARKING STALLS

TABLE 5.106.5.2
TOTAL NUMBER OF PARKING SPACES
NUMBER OF REQUIRED SPACES
0–9 0
10–25 1
26–50 3
51–75 6
76–100 8
101–150 11
151–200 16
201 and over At least 8 percent of total

5.106.5.2.1 Parking stall marking. Paint, in the paint used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle:
CLEAN AIR/ VANPOOL/ EV
Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces.

TABLE 5.106.5.3.3
TOTAL NUMBER OF ACTUAL PARKING SPACES
NUMBER OF REQUIRED EV CHARGING SPACES
0–9 0
10–25 1
26–50 2
51–75 4
76–100 5
101–150 7
151–200 10
201 and over 6 percent of total1

1. Calculation for spaces shall be rounded up to the nearest whole number.

5.106.5.3.4 [N] Identification. The service panel or subpanel(s) circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE."

5.106.5.3.5 [N] Future charging spaces qualify as designated parking as described in Section 5.106.5.2 Designated parking for clean air vehicles.

SITE DATA TABLE

BUILDING	LAND AREA AC	LAND AREA SF	COVERAGE %	BLDG. FOOT PRINT	BLDG. MEZZ.	BLDG. S.F.	OFFICE S.F.	WAREHOUSE S.F.	OFFICE PARKING	WAREHOUSE PRKG.	PARKING REQ.	PARKING PROV.	CVP & EVC	BLDG. TYPE	SPRINKLER SYSTEM
1	2.564 AC	111,673.57	42.98%	48,000	2,000	50,000	5,000	45,000	20	31	51	51	6 4	III B	YES–NFPA 13
2	2.396 AC	104,389.83	46.61%	48,000	2,000	50,000	5,000	45,000	20	31	51	52	6 4	III B	YES–NFPA 13
3	1.908 AC	83,112.48	48.12%	40,000	2,000	42,000	5,000	37,000	20	29	49	49	3 2	III B	YES–NFPA 13
4	2.213 AC	96,398.28	45.43%	43,800	2,000	45,800	5,000	40,800	20	30	50	57	6 4	III B	YES–NFPA 13
5	1.438 AC	62,639.28	39.91%	25,000	1,000	26,000	2,000	24,000	8	22	30	38	3 2	III B	YES–NFPA 13
6	1.826 AC	79,540.56	38.34%	30,500	2,000	32,500	4,000	28,500	16	25	41	42	3 2	III B	YES–NFPA 13
7	2.525 AC	109,989.00	30.45%	33,500	1,000	34,500	2,000	32,500	8	27	35	60	6 4	III B	YES–NFPA 13
TOTAL	14.87 AC	647,743.00±	41.49%	268,800	12,000	280,800	28,000	252,800	112	195	307	349 (1.24/1000)	33 22		

LOT AREAS = 647,743.00±SF + DETENTION BASIN (.754AC) 32,844.24SF = 680,587.24±SF
LANDSCAPE AREA = 88,399 S.F. (not including the detention basin)
LANDSCAPE AREA @ 88,399 S.F. / LOT AREAS @ 647,743.± = 13.6%

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA — CONCEPT MASTER PLAN #8 PARKING ASSIGNMENT

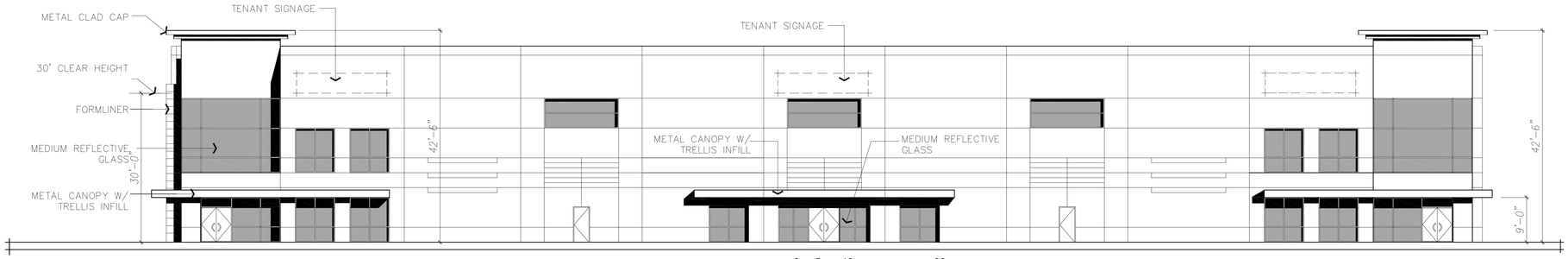
DISCLAIMER:
ALL INFORMATION CONTAINED HEREIN MAY BE SUBJECT TO CHANGE PENDING OWNER AND OR AGENCY REVIEW AND IS FOR INFORMATION ONLY

Client:
PAMA MANAGEMENT

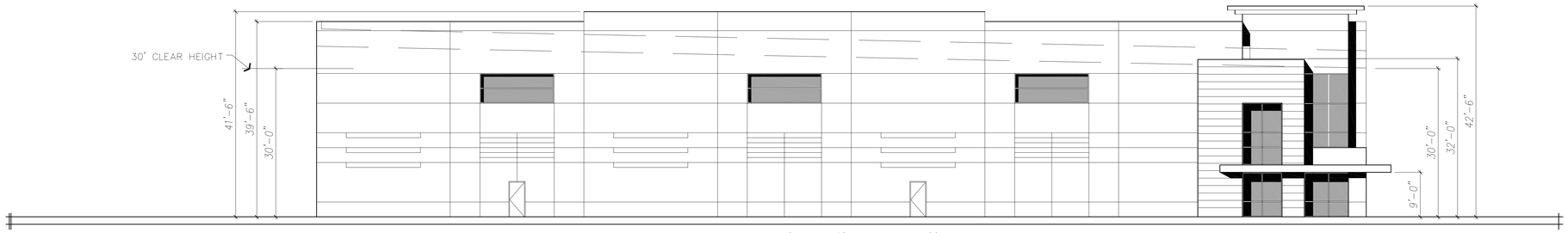
09/14/2018

A0.2

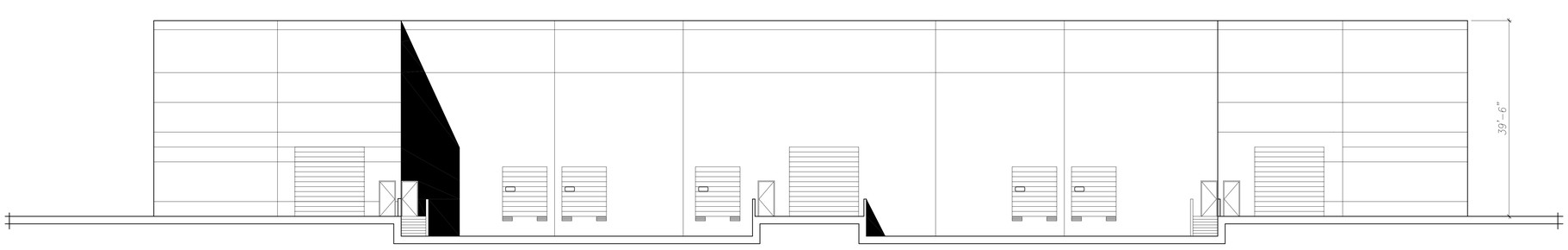
Attachment: Master Site Plan A0-2 PAMA (3285 : PAMA Business Center)



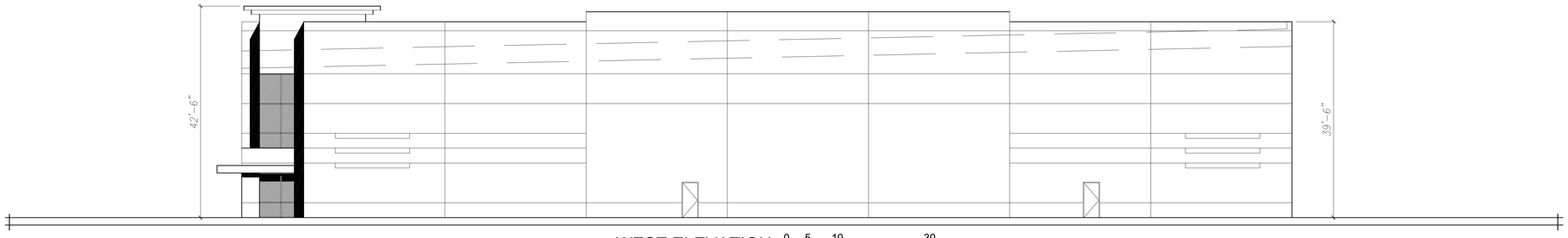
NORTH ELEVATION 0 5 10 30



EAST ELEVATION 0 5 10 30



SOUTH ELEVATION 0 5 10 30



WEST ELEVATION 0 5 10 30

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

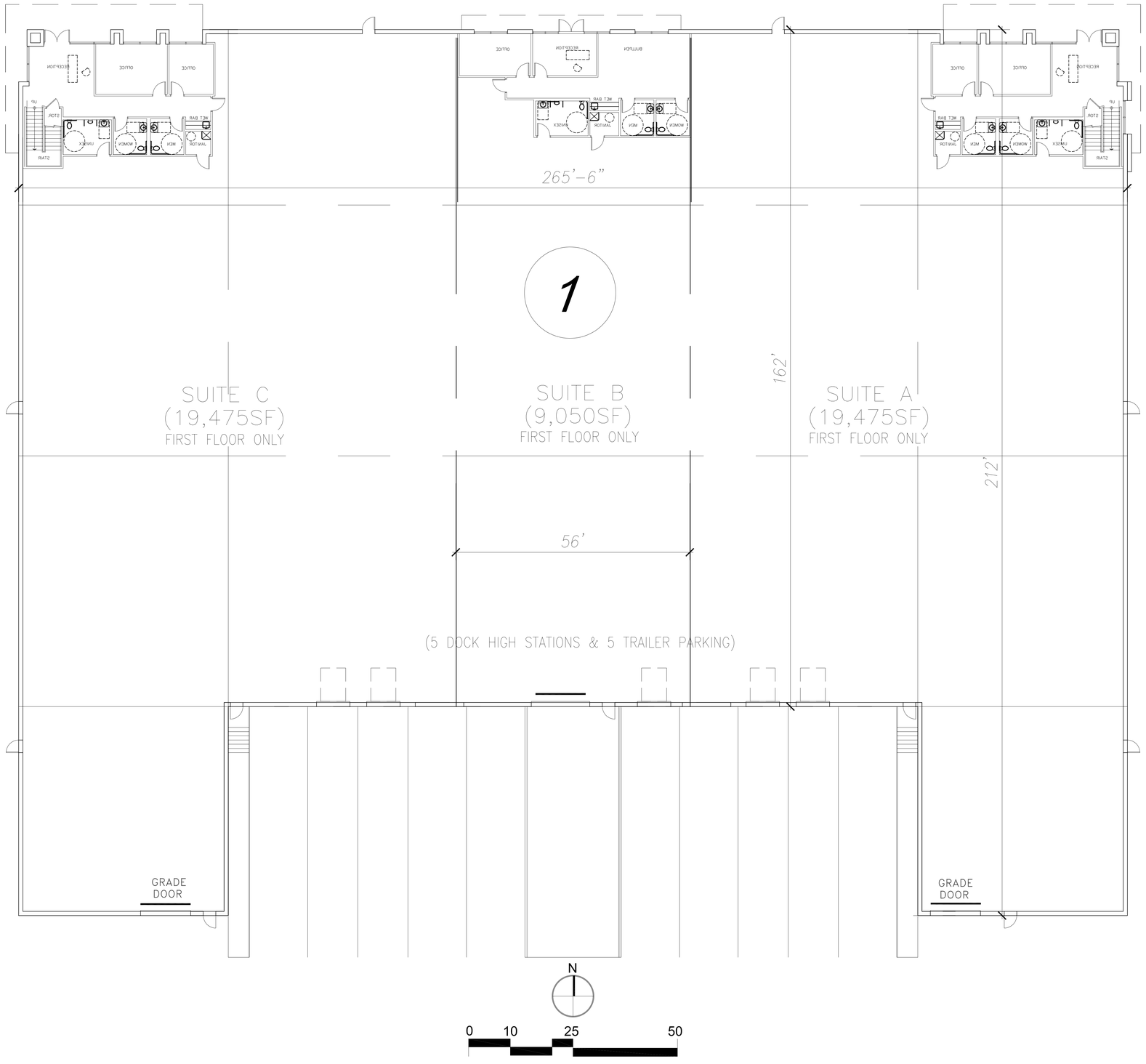
BUILDING 1 CONCEPT ELEVATIONS

Client:
PAMA MANAGEMENT

09/14/2018

A1.2

Attachment: Elevations Building 1 (3295 : PAMA Business Center)



MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

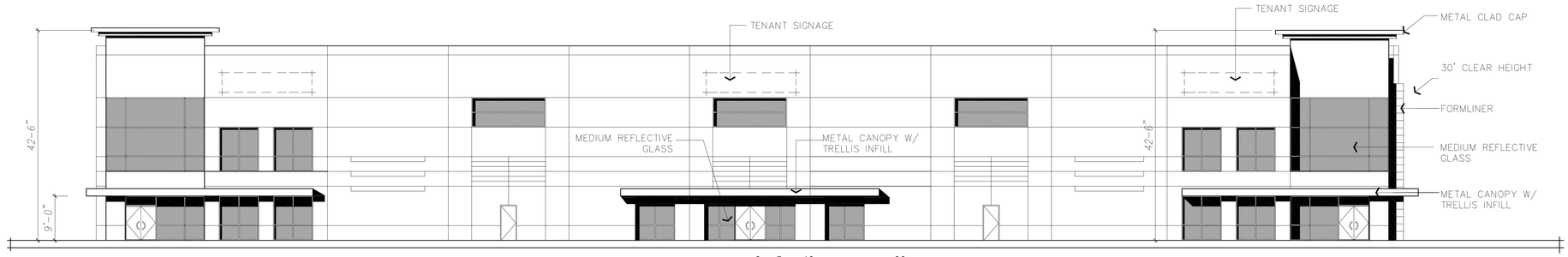
BUILDING 1 FLOOR PLAN

Client:
PAMA MANAGEMENT

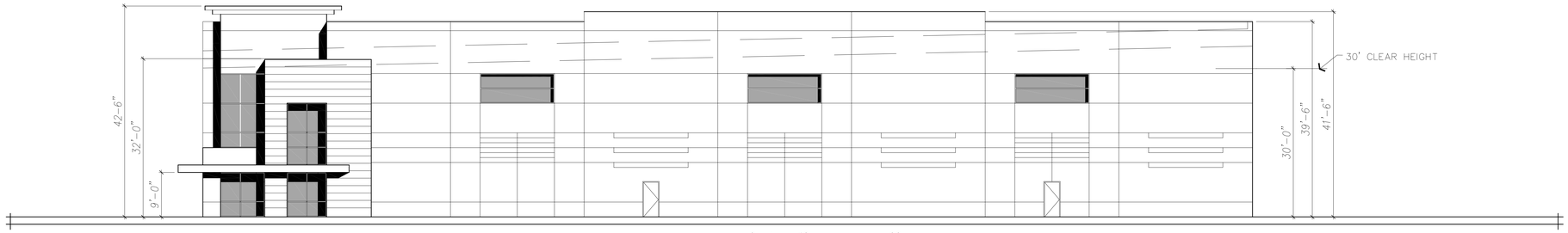
09/14/2018

A1.1

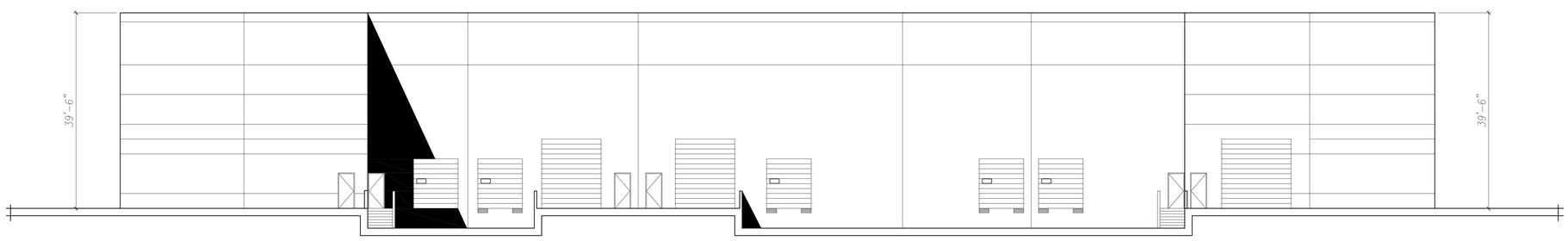
Attachment: Floor Plan Building 1 (3295 : PAMA Business Center)



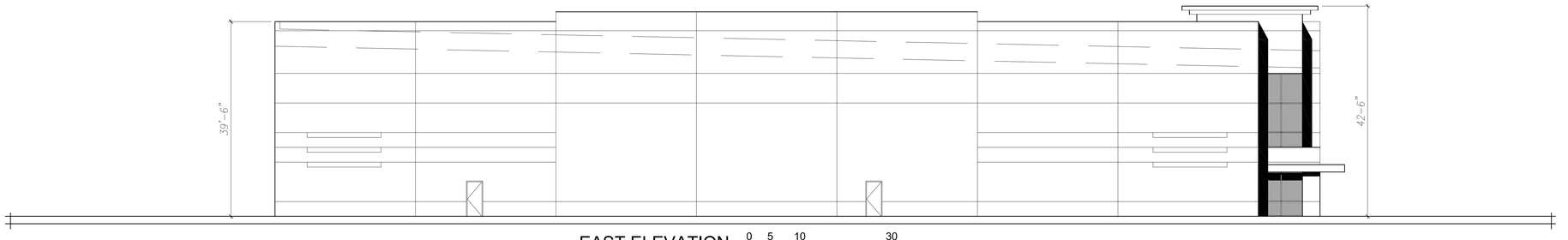
NORTH ELEVATION 0 5 10 30



WEST ELEVATION 0 5 10 30



SOUTH ELEVATION 0 5 10 30



EAST ELEVATION 0 5 10 30

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

BUILDING 2 CONCEPT ELEVATIONS

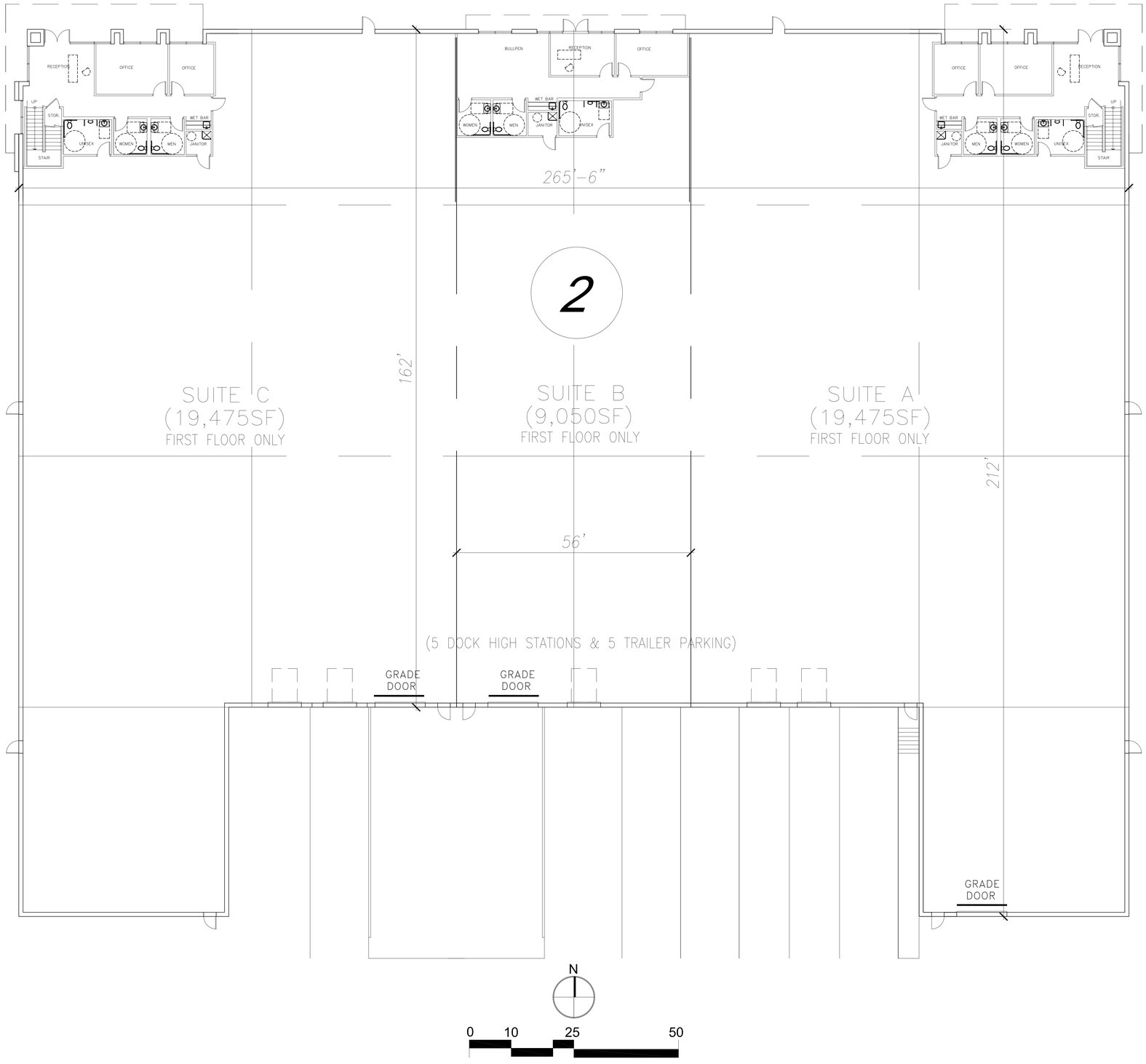
Client:
PAMA MANAGEMENT

09/14/2018

A2.2

File: Sep 13, 2018 - I: \Architects-Orange\PAMA\Entitlements\PAMA-ENTITLEMENT.dwg

Attachment: Elevations Building 2 (3285 : PAMA Business Center)



MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

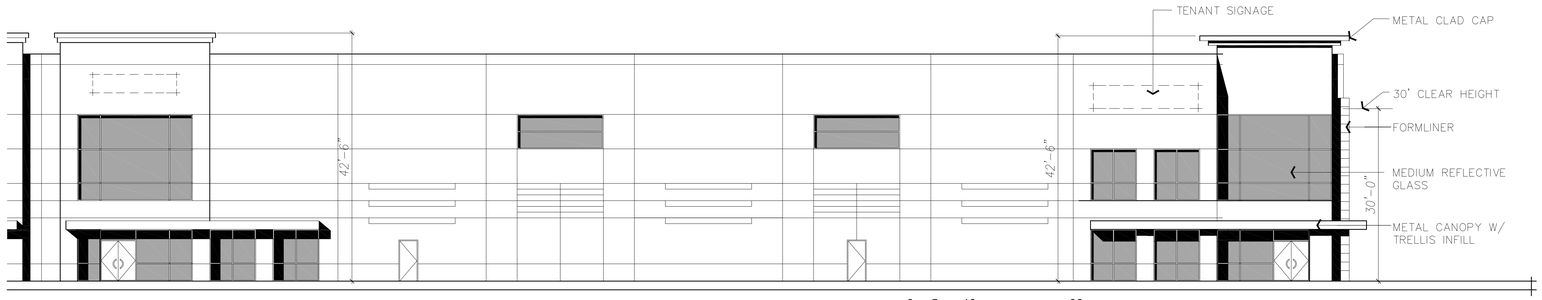
BUILDING 2 FLOOR PLAN

Client:
PAMA MANAGEMENT

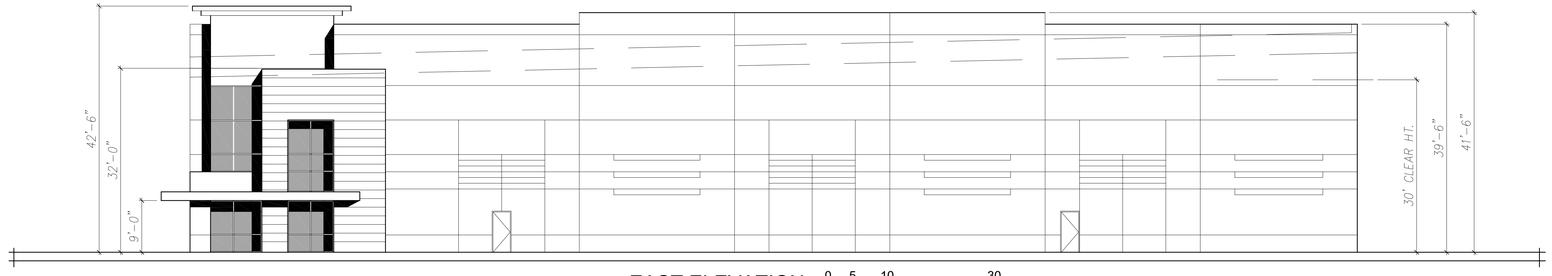
09/14/2018

A2.1

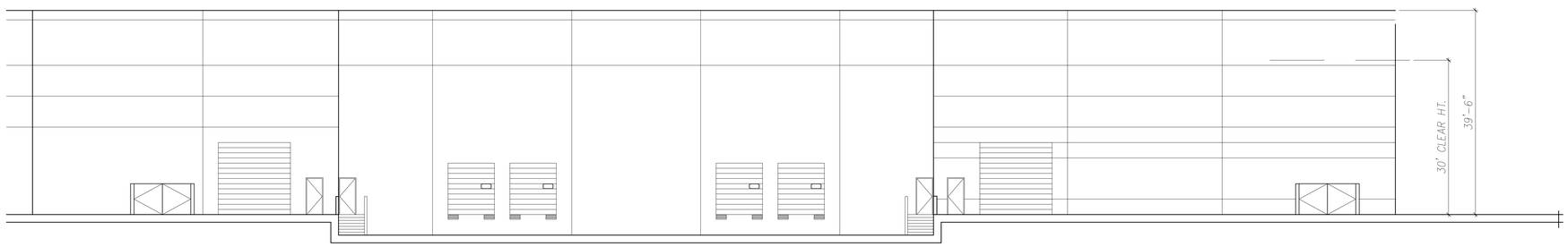
Attachment: Floor Plan Building 2 (3295 : PAMA Business Center)



SOUTH ELEVATION 0 5 10 30



EAST ELEVATION 0 5 10 30



30 10 5 0 NORTH ELEVATION

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

BUILDING 3 CONCEPT ELEVATIONS

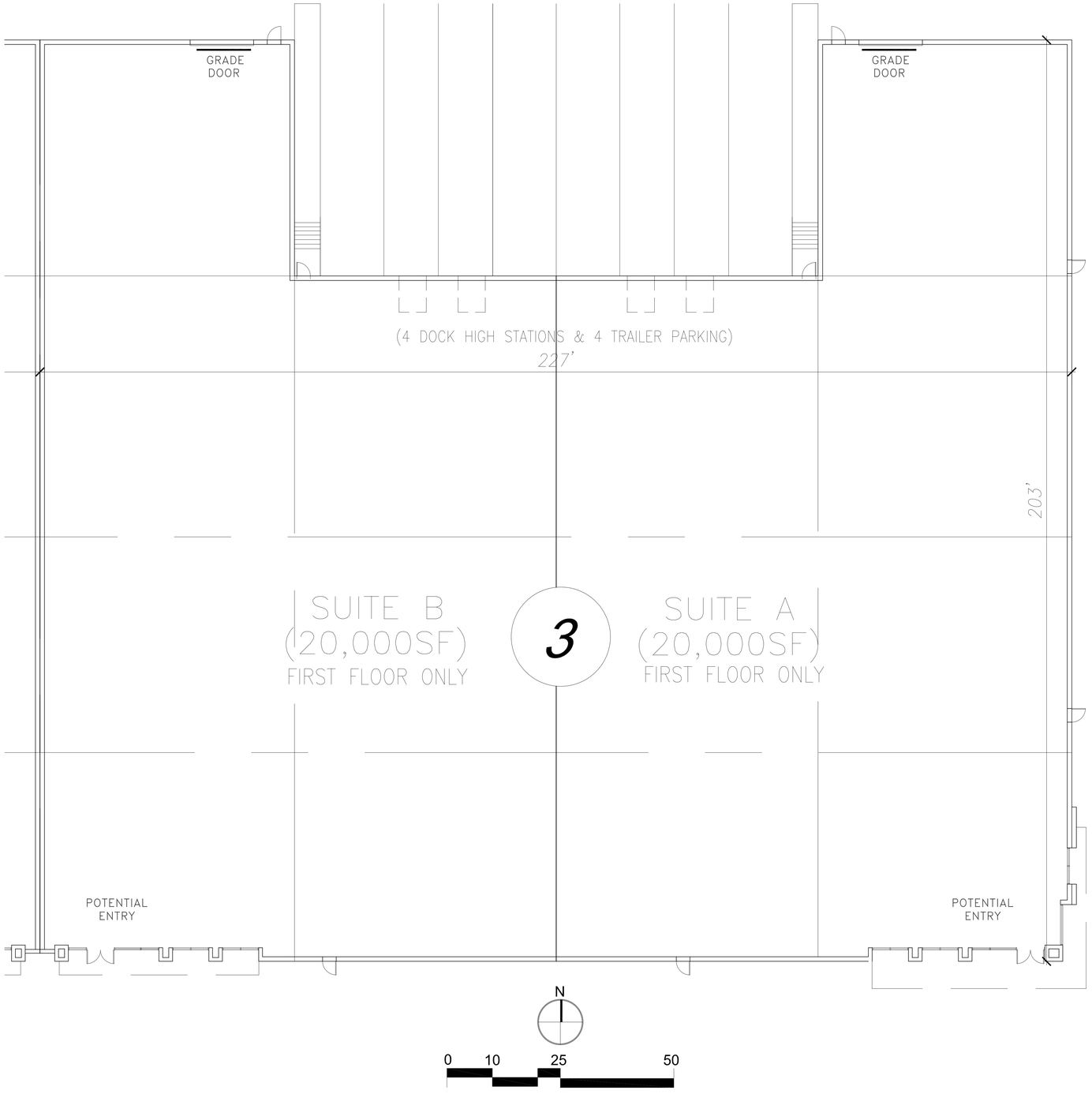
Client:
PAMA MANAGEMENT

09/14/2018

A3.2

File: Sep 13, 2018 – I: \Architects-Orange\PAMA \Entitlements\PAMA-ENTITLEMENT.dwg

Attachment: Elevations Building 3 (3285 : PAMA Business Center)



MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

BUILDING 3 FLOOR PLAN

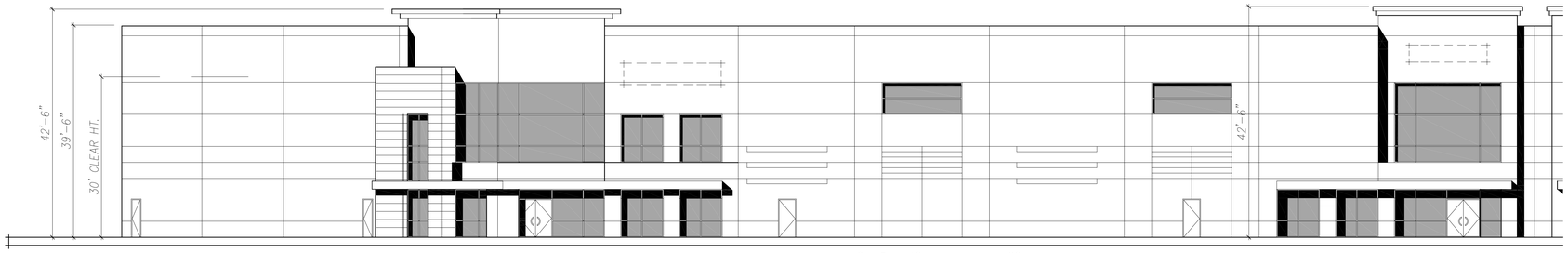
Client:
PAMA MANAGEMENT

09/14/2018

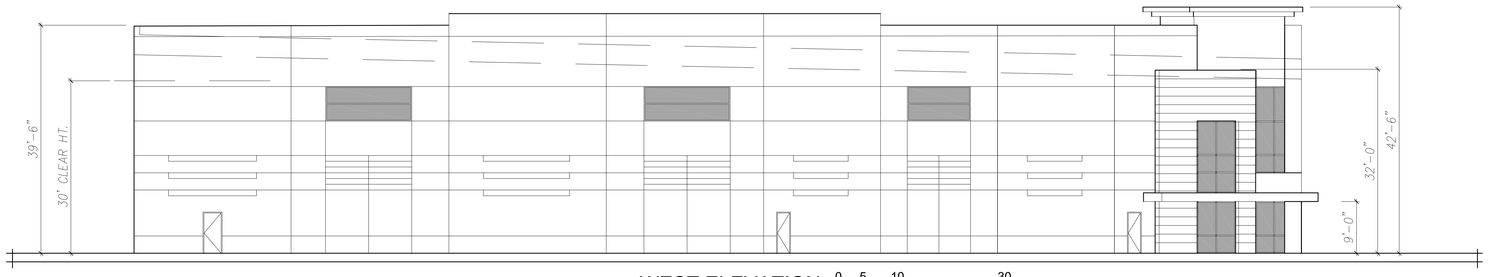
A3.1

File: Sep 13, 2018 – I:\Architects-Orange\PAMA\Entitlements\PAMA-ENTITLEMENT.dwg

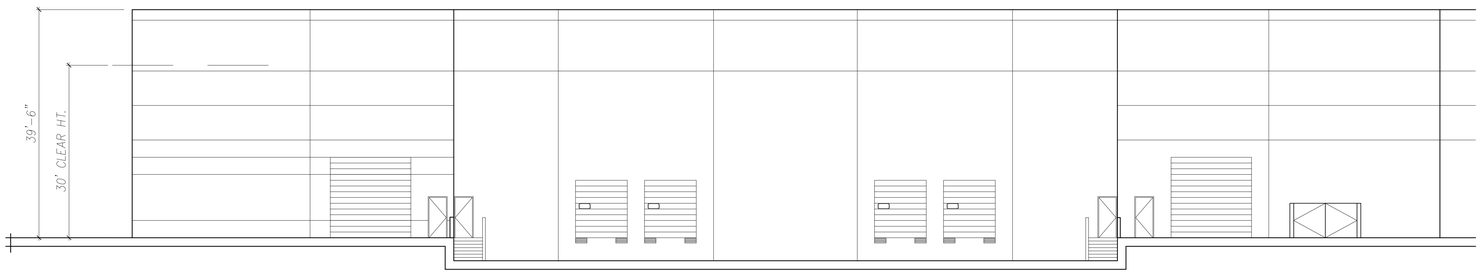
Attachment: Floor Plan Building 3 (3295 : PAMA Business Center)



SOUTH ELEVATION 0 5 10 30



WEST ELEVATION 0 5 10 30



NORTH ELEVATION 0 5 10 30

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

BUILDING 4 CONCEPT ELEVATIONS

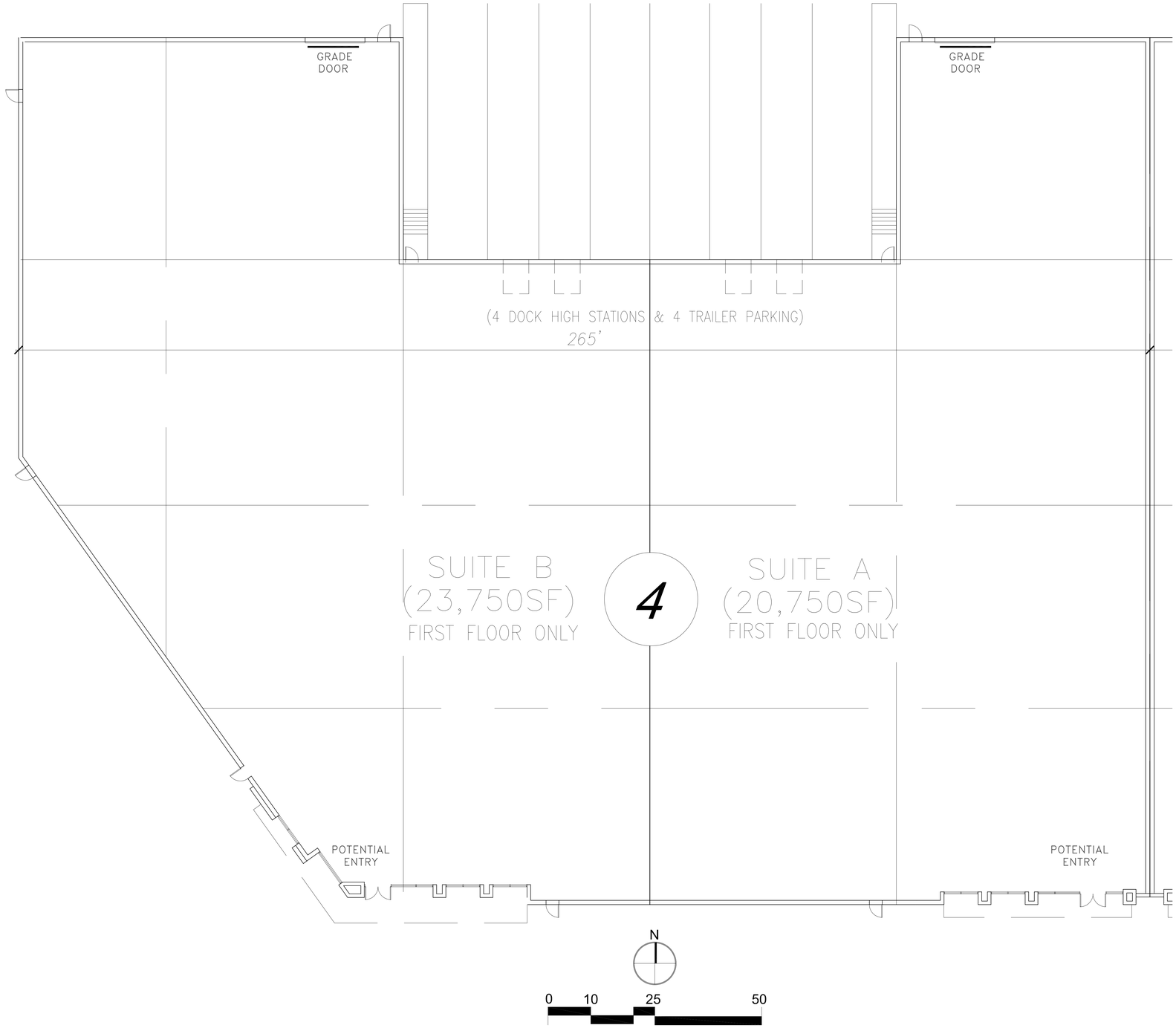
Client:
PAMA MANAGEMENT

09/14/2018

A4.2

File: Sep 13, 2018 – I: \Architects-Orange\PAMA \Entitlements\PAMA-ENTITLEMENT.dwg

Attachment: Elevations Building 4 (3285 : PAMA Business Center)



MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

BUILDING 4 FLOOR PLAN

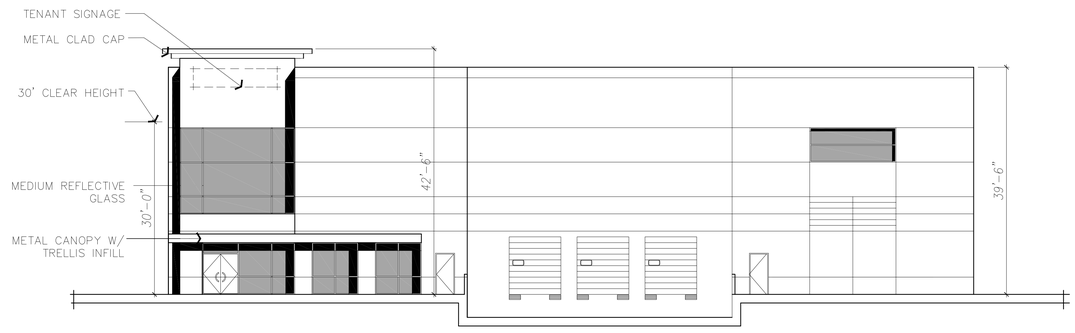
Client:
PAMA MANAGEMENT

09/14/2018

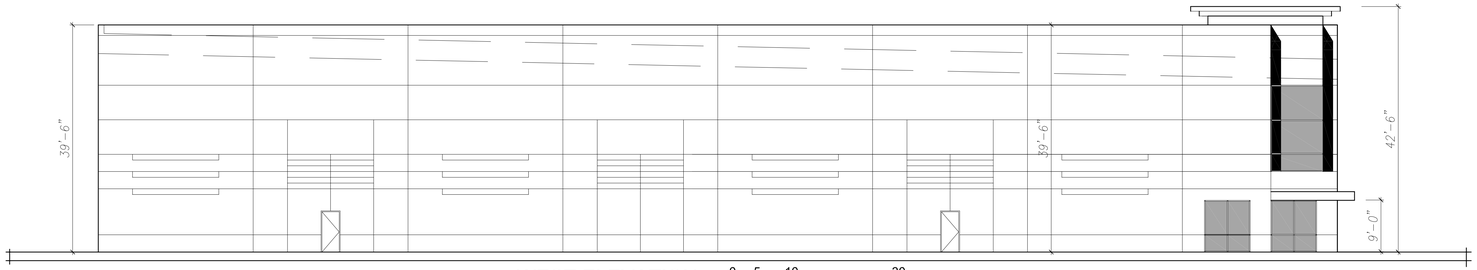
A4.1

File: Sep 13, 2018 – I:\Architects-Orange\PAMA\Entitlements\PAMA-ENTITLEMENT.dwg

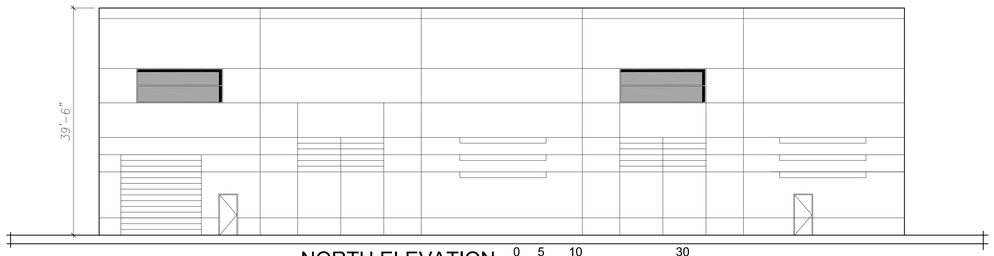
Attachment: Floor Plan Building 4 (3285 : PAMA Business Center)



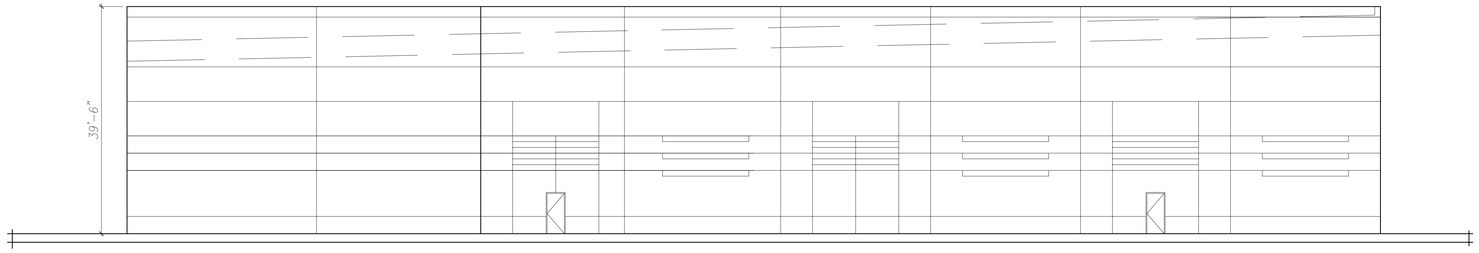
SOUTH ELEVATION 0 5 10 30



WEST ELEVATION 0 5 10 30



NORTH ELEVATION 0 5 10 30



EAST ELEVATION 0 5 10 30

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

BUILDING 5 CONCEPT ELEVATIONS

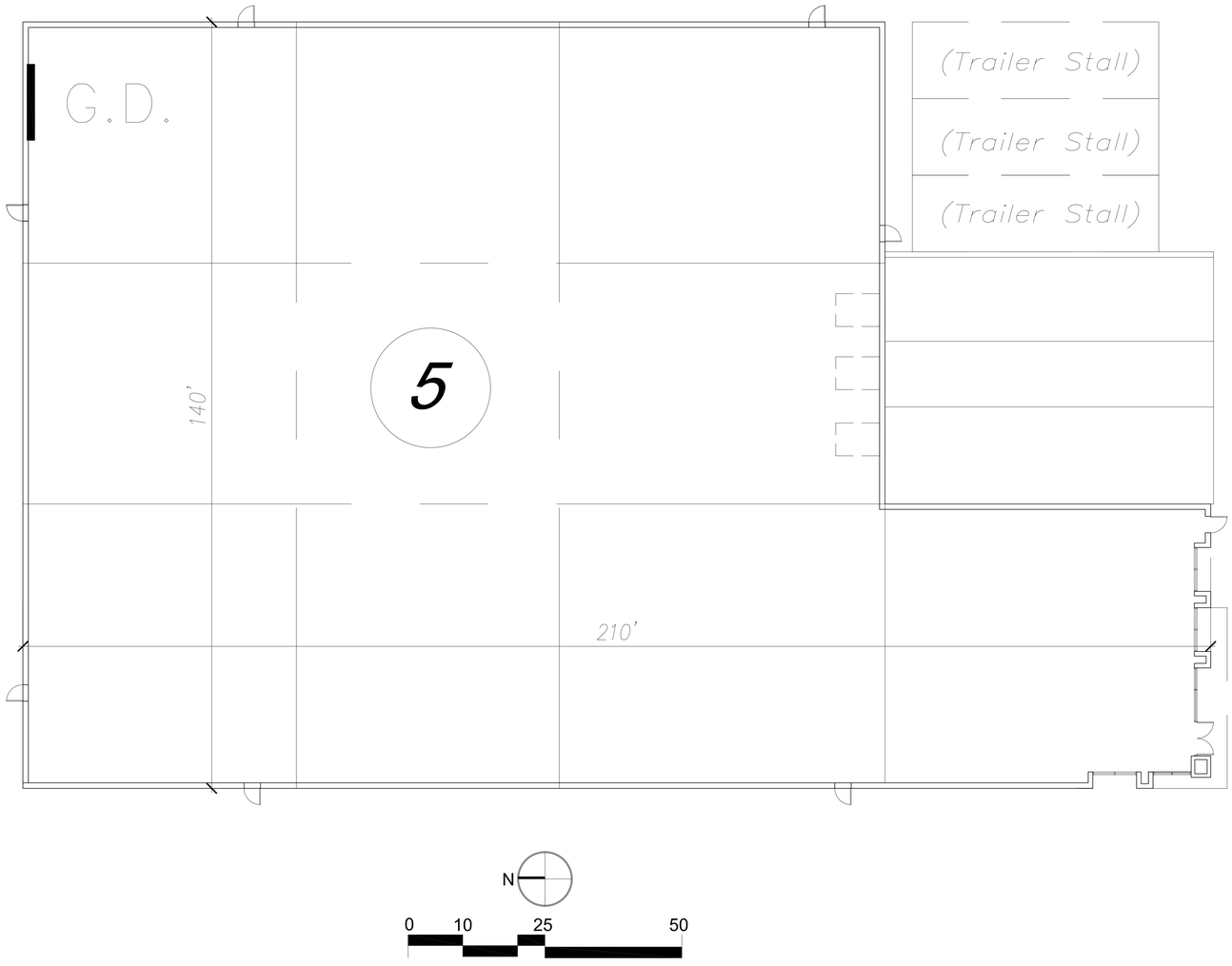
Client:
PAMA MANAGEMENT

09/14/2018

A5.2

File: Sep 13, 2018 - I:\Architects-Orange\PAMA\Entitlements\PAMA-ENTITLEMENT.dwg

Attachment: Elevations Building 5 (3285 : PAMA Business Center)



File: Sep 13, 2018 – I:\Architects-Orange\PAMA\Entitlements\PAMA-ENTITLEMENT.dwg

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

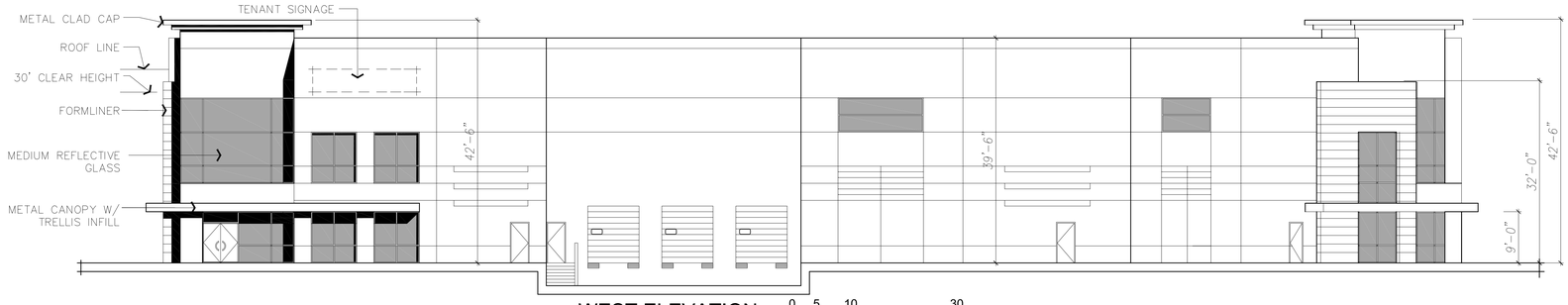
BUILDING 5 FLOOR PLAN

Client:
PAMA MANAGEMENT

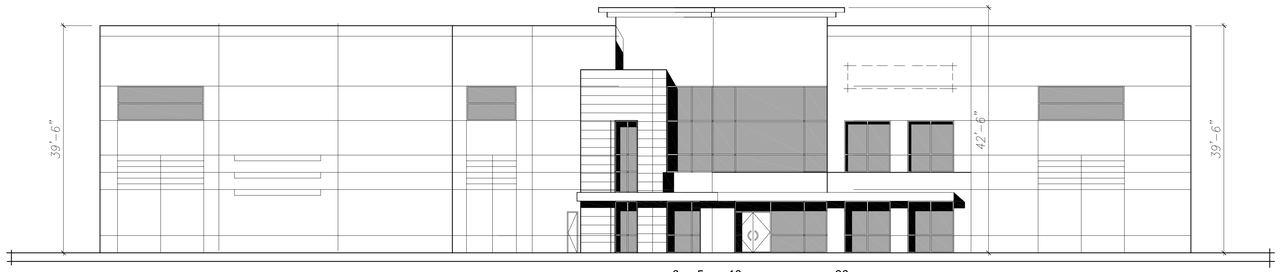
09/14/2018

A5.1

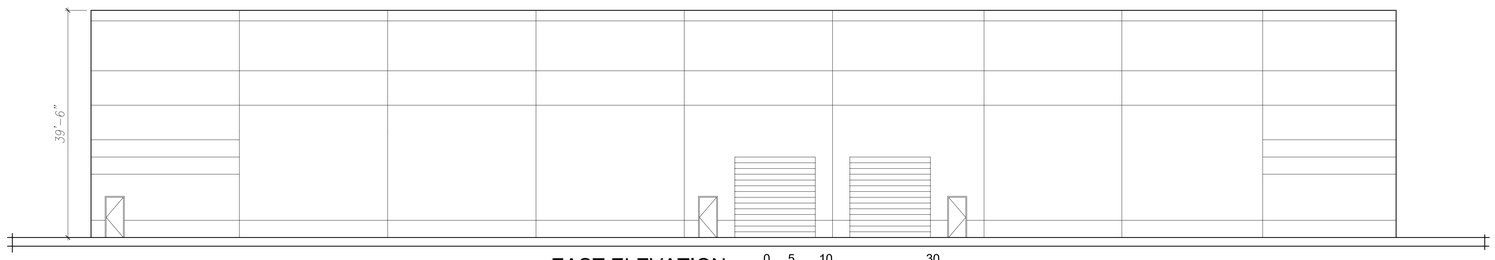
Attachment: Floor Plan Building 5 (3295 : PAMA Business Center)



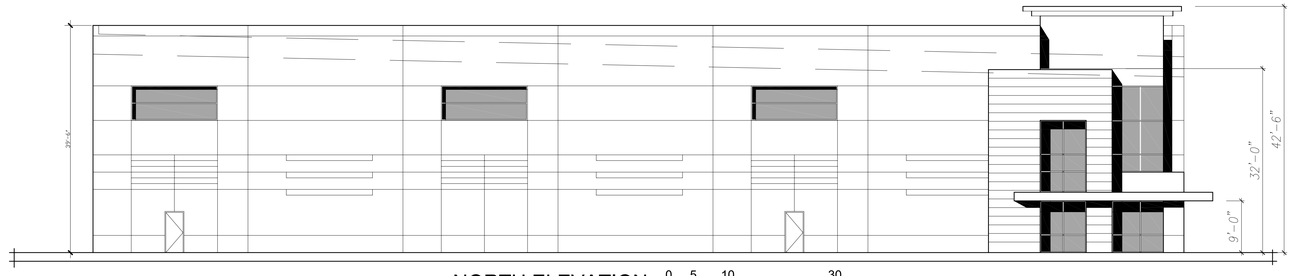
WEST ELEVATION 0 5 10 30



SOUTH ELEVATION 0 5 10 30



EAST ELEVATION 0 5 10 30



NORTH ELEVATION 0 5 10 30

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

BUILDING 6 CONCEPT ELEVATIONS

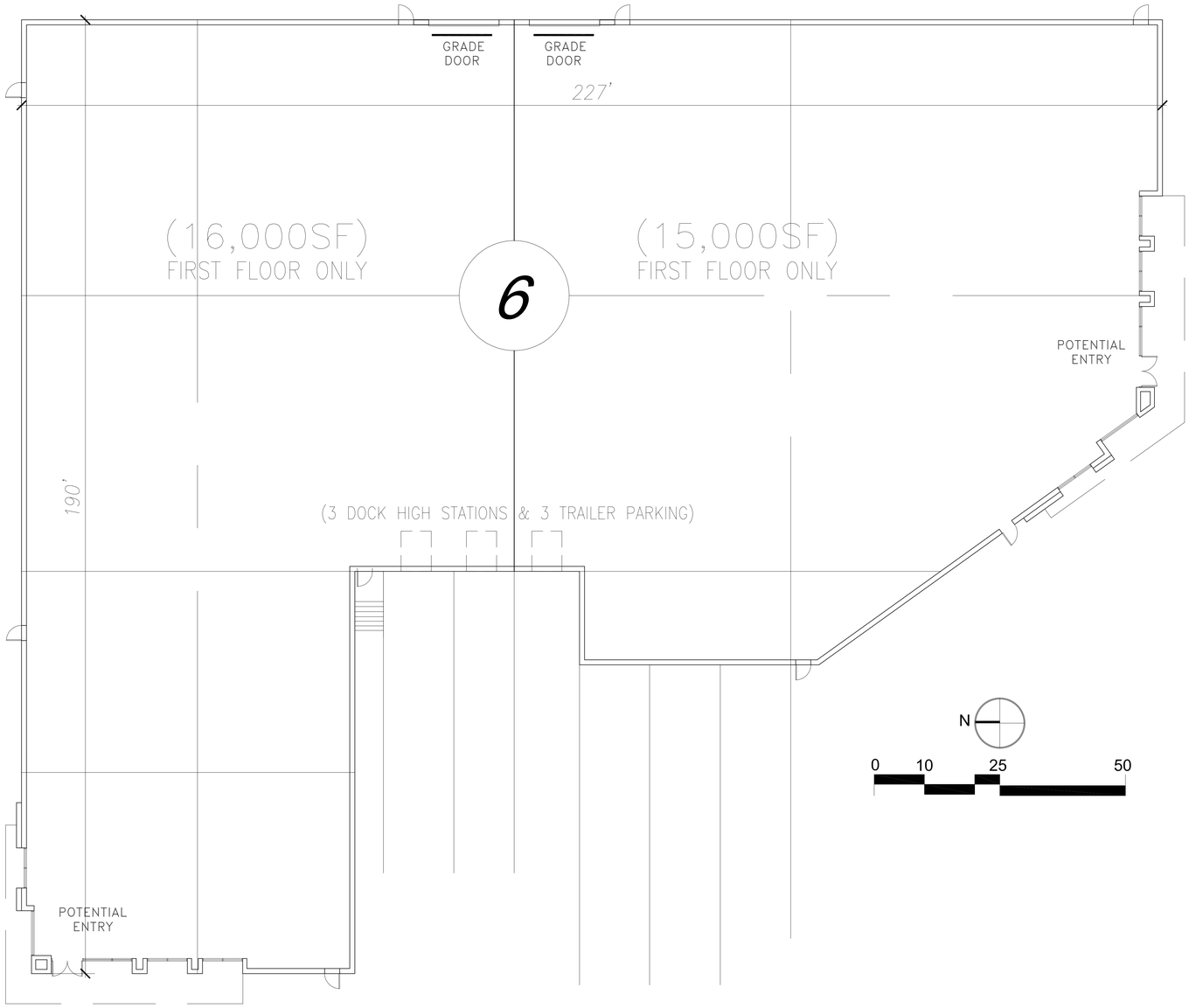
Client:
PAMA MANAGEMENT

09/14/2018

A6.2

File: Sep 13, 2018 - I:\Architects-Orange\PAMA\Entitlements\PAMA-ENTITLEMENT.dwg

Attachment: Elevations Building 6 (3285 : PAMA Business Center)



MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

BUILDING 6 FLOOR PLAN

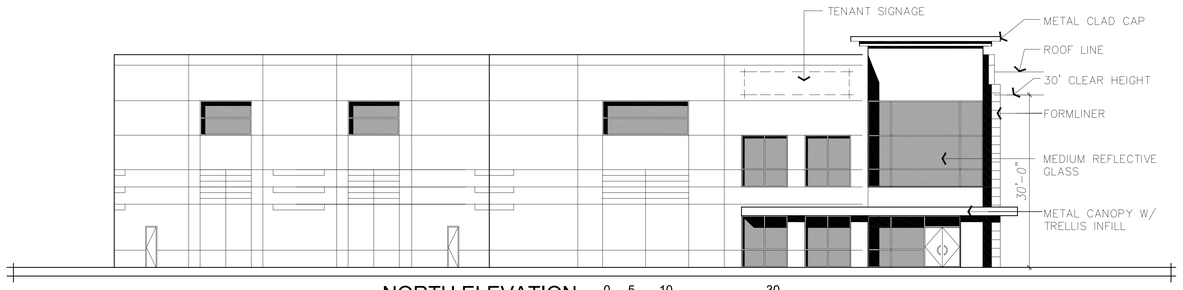
Client:
PAMA MANAGEMENT

09/14/2018

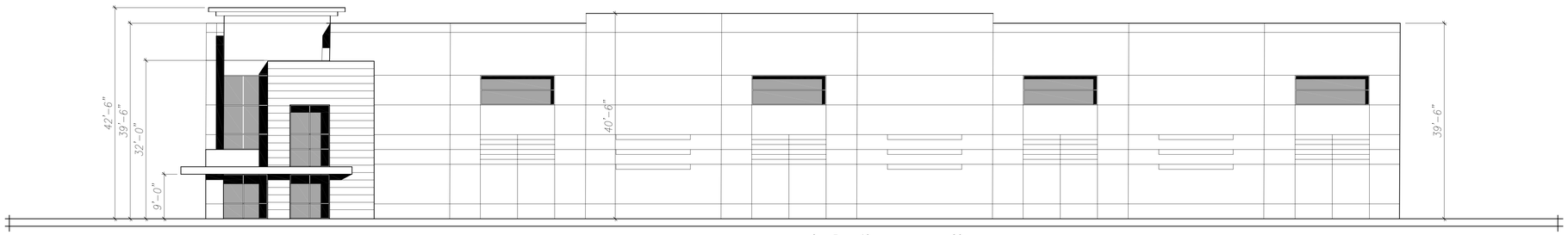
A6.1

File: Sep 13, 2018 – I: \Architects–Orange\PAMA\Entitlements\PAMA–ENTITLEMENT.dwg

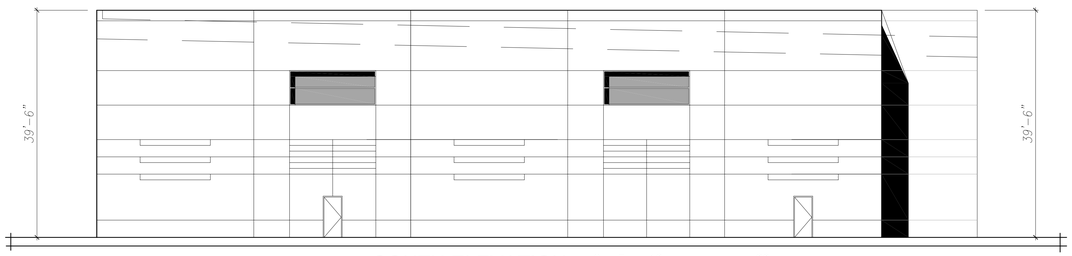
Attachment: Floor Plan Building 6 (3285 : PAMA Business Center)



NORTH ELEVATION 0 5 10 30



WEST ELEVATION 0 5 10 30



SOUTH ELEVATION 0 5 10 30

EAST ELEVATION 0 5 10 30

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

MORENO VALLEY, CALIFORNIA

BUILDING 7 CONCEPT ELEVATIONS

Client:
PAMA MANAGEMENT

09/14/2018

A7.2

File: Sep 13, 2018 - I: \Architects-Orange\PAMA\Entitlements\PAMA-ENTITLEMENT.dwg

Attachment: Elevations Building 7 (3285 : PAMA Business Center)

Attachment: Floor Plan Building 7 (3285 : PAMA Business Center)

File: Sep 13, 2018 – I: \Architects–Orange\PAMA\Entitlements\PAMA–ENTITLEMENT.dwg

MacDavid Aubort
and Associates Incorporated
Architecture • Planning • Interiors
14 Hughes Suite B204 Irvine, California 92618
P: 949.305-2200

Alessandro Industrial Center

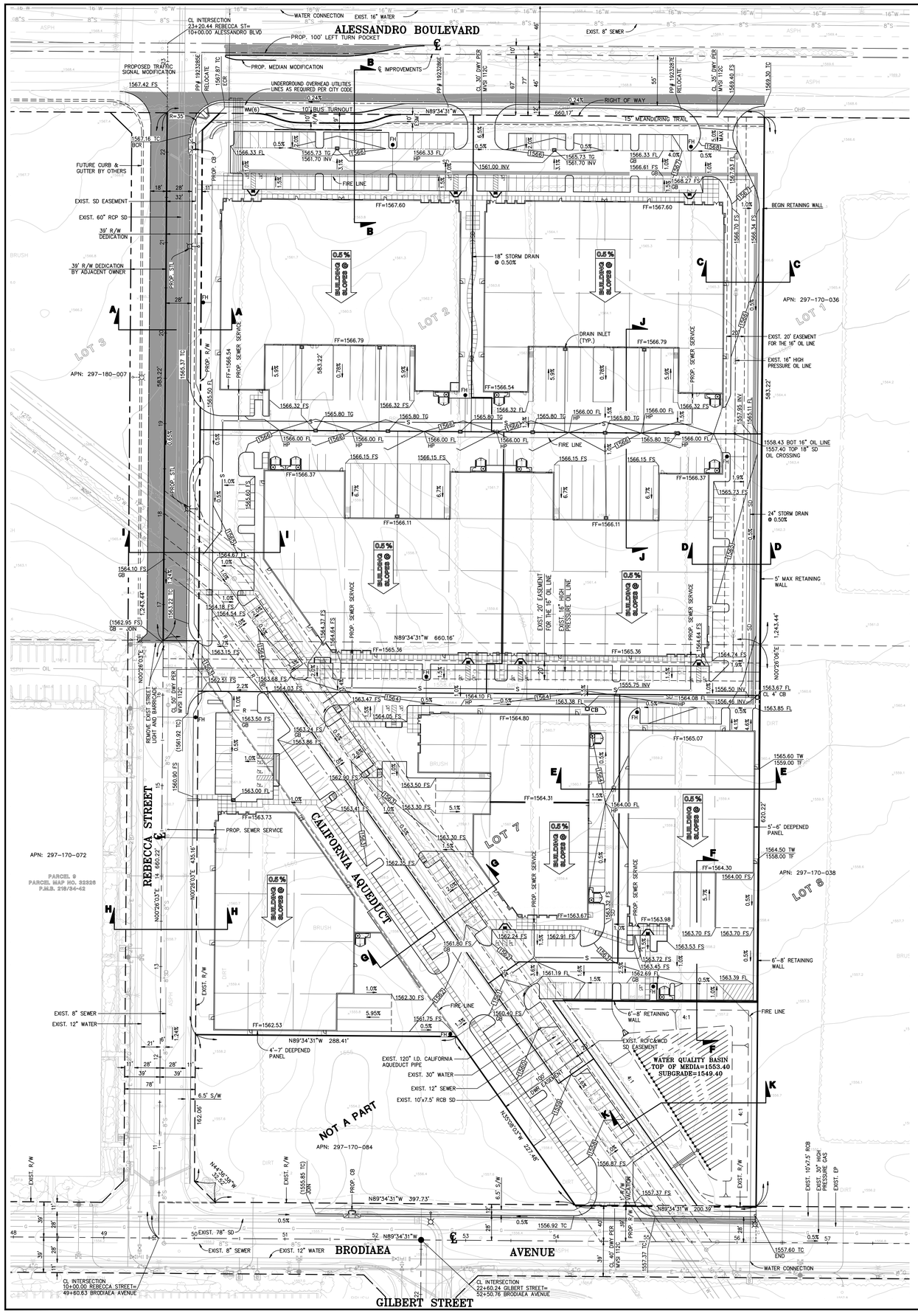
MORENO VALLEY, CALIFORNIA

BUILDING 7 FLOOR PLAN

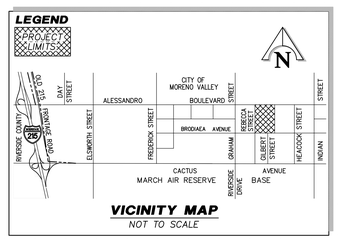
Client:
PAMA MANAGEMENT

09/14/2018

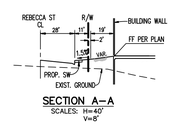
A7.1



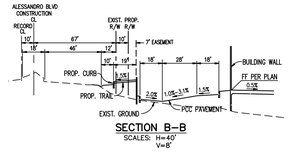
LEGEND



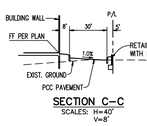
VICINITY MAP
NOT TO SCALE



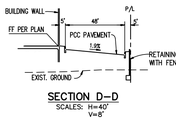
SECTION A–A
SCALES: H=40' V=8'



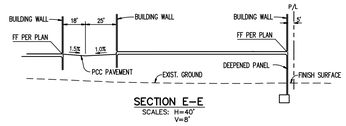
SECTION B–B
SCALES: H=40' V=8'



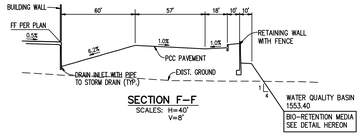
SECTION C–C
SCALES: H=40' V=8'



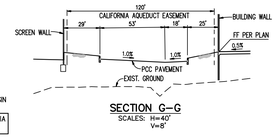
SECTION D–D
SCALES: H=40' V=8'



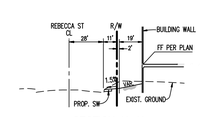
SECTION E–E
SCALES: H=40' V=8'



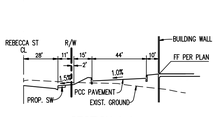
SECTION F–F
SCALES: H=40' V=8'



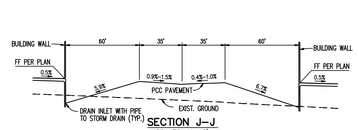
SECTION G–G
SCALES: H=40' V=8'



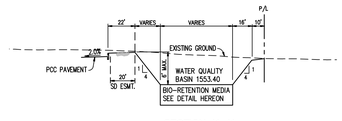
SECTION H–H
SCALES: H=40' V=8'



SECTION I–I
SCALES: H=40' V=8'



SECTION J–J
SCALES: H=40' V=8'



SECTION K–K
SCALES: H=40' V=8'

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN IS SITUATED IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

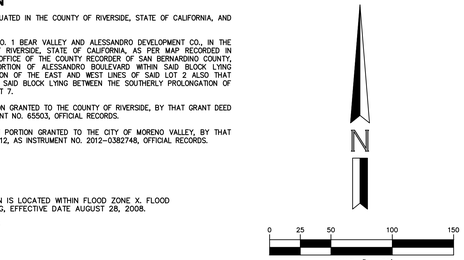
LOTS 2 AND 7 BLOCK 241 OF MAP NO. 1 BEAR VALLEY AND ALESSANDRO DEVELOPMENT CO., IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 11, PAGE 10 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN BERNARDINO COUNTY, CALIFORNIA, TOGETHER WITH THAT PORTION OF ALESSANDRO BOULEVARD WITHIN SAID BLOCK LYING BETWEEN THE NORTHERLY PROLONGATION OF THE EAST AND WEST LINES OF SAID LOT 2 ALSO THAT PORTION OF BRODIAEA AVENUE WITHIN SAID BLOCK LYING BETWEEN THE SOUTHERLY PROLONGATION OF THE EAST AND WEST LINES OF SAID LOT 7.

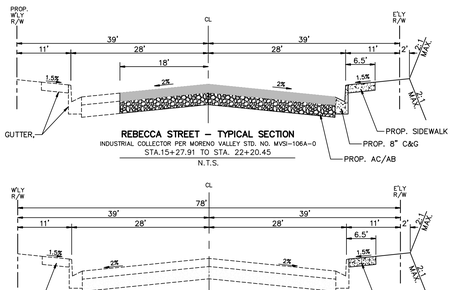
EXCEPT FROM SAID LOT 2 THAT PORTION GRANTED TO THE COUNTY OF RIVERSIDE, BY THAT GRANT DEED RECORDED MAY 19, 1972, AS INSTRUMENT NO. 65503, OFFICIAL RECORDS.

ALSO EXCEPT FROM SAID LOT 7 THAT PORTION GRANTED TO THE CITY OF MORENO VALLEY, BY THAT GRANT DEED RECORDED AUGUST 13, 2012, AS INSTRUMENT NO. 2012-0382748, OFFICIAL RECORDS.

GENERAL NOTES

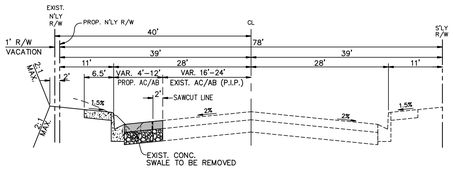
1. SITE ADDRESS: VACANT LAND
2. THE PROPERTY SHOWN HEREON IS LOCATED WITHIN FLOOD ZONE X. FLOOD ZONE X MAP NO. 06065C0761G, EFFECTIVE DATE AUGUST 28, 2008.
3. GROSS AREA = 17.345 ACRES
   NET AREA = 15.65 ACRES
4. PRELIMINARY EARTHWORK
   RAW CUT = 3,516 CY
   RAW FILL = 69,711 CY
   FINAL QUANTITIES WILL BE DETERMINED DURING FINAL DESIGN
5. ASSESSOR'S PARCEL NO. = 297-170-083 (ASSESSOR'S PARCEL NUMBERS SHOWN HEREON ARE PER THE CURRENT TAX ASSESSOR'S ROLLS AS PROVIDED BY ORANGE COAST TITLE COMPANY.
6. AERIAL PHOTOGRAPHY WAS COMPILED BY DIGITAL MAPPING, INC., DATED MAY 16, 2017 AND COMPLIES WITH NATIONAL MAPPING ACCURACY STANDARDS.



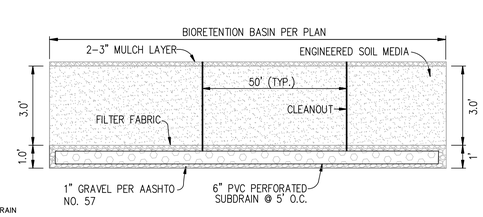


REBECCA STREET – TYPICAL SECTION
INDUSTRIAL COLLECTOR PER MORENO VALLEY STD. NO. MVSI-106A-0
STA.15+27.91 TO STA. 22+20.45
N.T.S.

REBECCA STREET – TYPICAL SECTION
INDUSTRIAL COLLECTOR PER MORENO VALLEY STD. NO. MVSI-106A-0
STA.10+63.01 TO STA. 15+27.91
N.T.S.

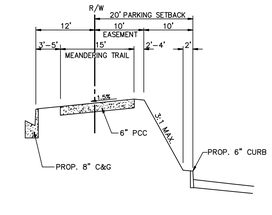


BRODIAEA AVENUE – TYPICAL SECTION
INDUSTRIAL COLLECTOR PER MORENO VALLEY STD. NO. MVSI-106A-0
STA. 51+51.13 TO STA. 56+20.78
N.T.S.

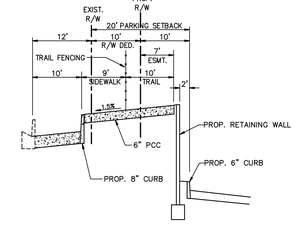


BIORETENTION BASIN DETAIL
NOT TO SCALE

ALESSANDRO BOULEVARD – TYPICAL SECTION
DIVIDED ARTERIAL PER MORENO VALLEY STD. NO. MVSI-107A-0
STA. 10+00.00 TO STA. 16+60.15
N.T.S.



A–A
CLASS 1 MULTI-USE TRAIL – TYPICAL SECTION
N.T.S.



B–B
BUS TURNOUT & TRAIL CROSS SECTION
N.T.S.

LEGEND

- SD — PROPOSED STORM DRAIN
- S — PROPOSED SEWER
- W — PROPOSED WATER
- GB — PROPOSED GRADE BREAK LINE
- PROPOSED R/W
- EXISTING R/W
- PROPOSED GRATING INLET
- PROPOSED CURB OPENING INLET
- FF — PROPOSED FINISH FLOOR ELEVATION
- TP — TOP OF PAVEMENT
- TG — TOP OF GRATE
- FL — FLOWLINE
- CF — CURB FACE
- FS — FINISHED SURFACE
- CB — CATCH BASIN
- PL — PROPERTY LINE
- R/W — RIGHT-OF-WAY
- CL — CENTERLINE
- PROP. — PROPOSED
- EX. — EXISTING
- DRWY — DRIVEWAY
- CB — CATCH BASIN
- STL — STREET LIGHT
- DIRECTION OF FLOW

OWNER/DEVELOPER
PAMA MANAGEMENT
4900 SANTA ANITA AVENUE, SUITE 2C
EL MONTE, CA 91731
PH: 626-258-3374
CONTACT: RYAN LIU

ENGINEER
HUITT-ZOLLARS
3990 CONCOURS, SUITE 330
ONTARIO, CALIFORNIA 91764
PHONE: (909) 941-7799
CONTACT: JOHNNY MURAD

BASIS OF BEARINGS:

BEARINGS SHOWN HEREON ARE BASED ON THE CENTERLINE OF BRODIAEA AVENUE BEING NORTH 89°34'31" WEST ON PARCEL MAP NO. 32326, P.M.B. 218/34-42.

B.M. NO. M-61-69 **ELEV.** 1569.963

LOCATION:
AT THE NORTHWEST CORNER OF FREDERICK STREET AND ALESSANDRO BLVD. 175 FEET WEST OF FREDERICK STREET, 48 FEET NORTH OF ALESSANDRO BLVD. 4 FEET SOUTHWEST OF A GAS STATION LIGHT STANCHION AT THE SOUTH END AND INSIDE OF A 4 INCH HIGH CONCRETE PLANTER SET A BRASS DISK MARKED M-61-69 IN THE TOP OF A CONCRETE POST "NO MARKER POST SET"

PRELIMINARY GRADING & UTILITY PLAN

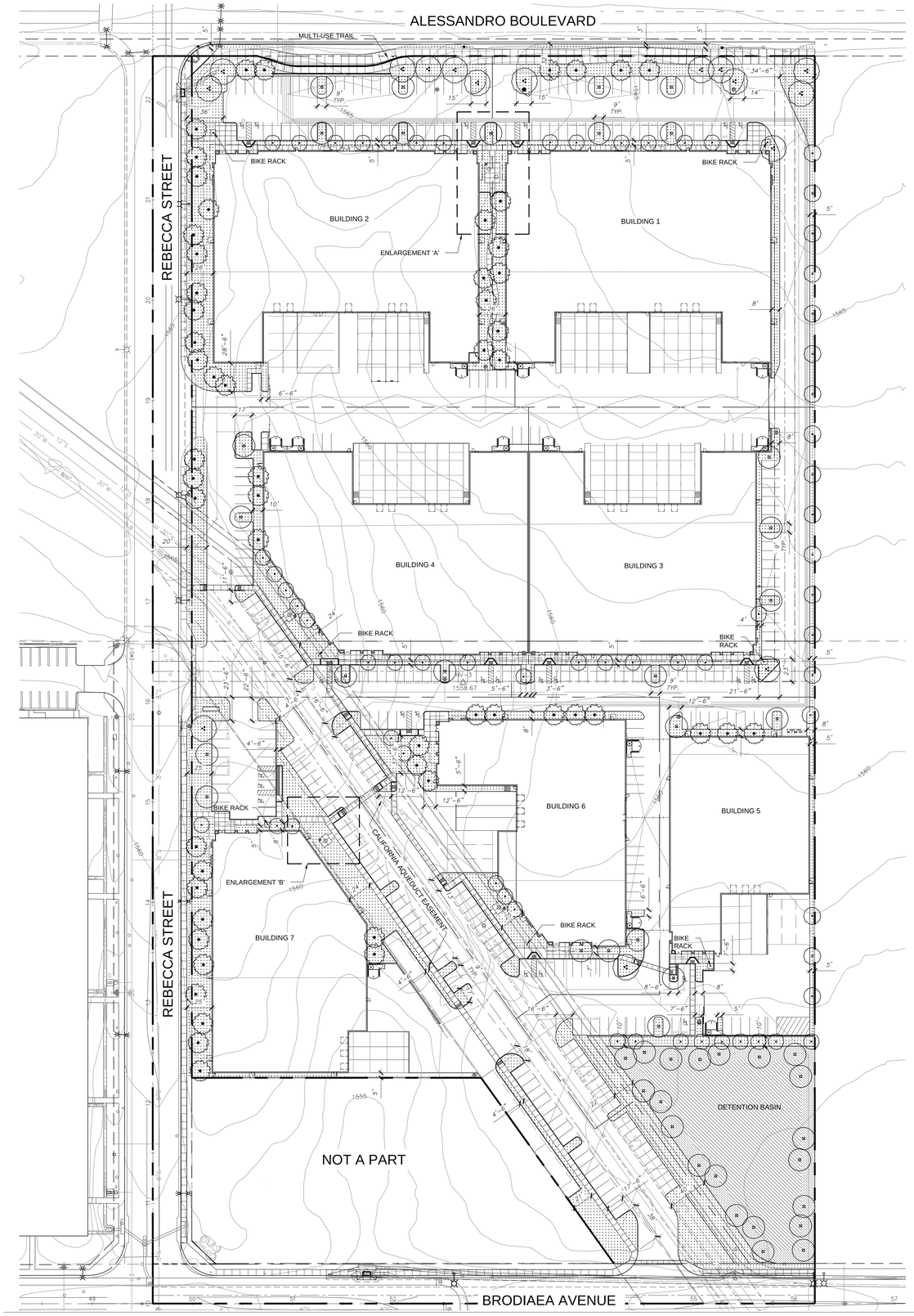
FOR

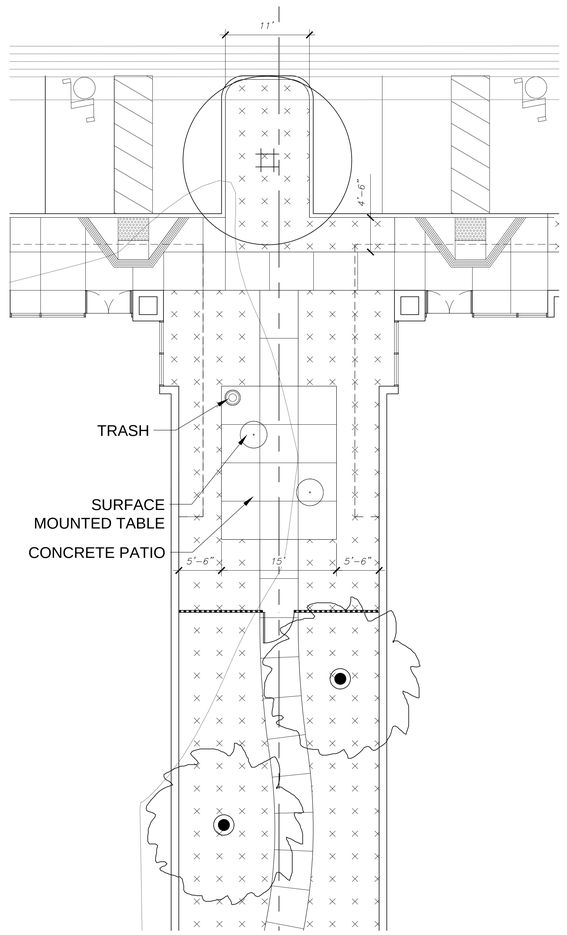
ALESSANDRO INDUSTRIAL CENTER
BRODIAEA AVENUE AND REBECCA STREET
CITY OF MORENO VALLEY

HUITT-ZOLLARS
HUITT-ZOLLARS, INC.
3990 CONCOURSE, SUITE 330 * ONTARIO, CALIFORNIA 91764 * (909) 941-7799

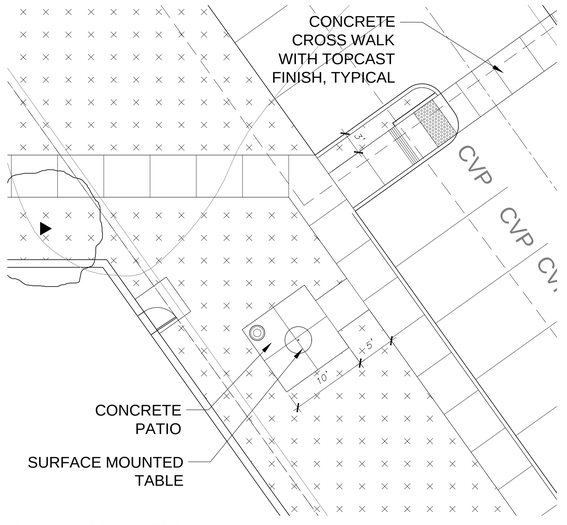
DESIGNED BY	D.W.
DRAWN BY	H-Z STAFF
CHECKED BY	J.M.
FIELD BOOK	
SHEET	1 OF 1 SHEETS
JOB NO.	J307012.01

Attachment: Tentative Grading Plan (3285 : PAMA Business Center)





A ENLARGEMENT A
SCALE: 1/8" = 1'-0"



B ENLARGEMENT B
SCALE: 1/8" = 1'-0"

PROPOSED TREE PALETTE

SYMBOL	CALL	BOTANICAL NAME	COMMON NAME	SIZE	FORM	WATER USE
TREES						
	LAGERSTROEMIA INDICA X FAURIEI 'TUSCARORA'		TUSCARORA CRAPE MYRTLE	24" BOX	MULTI	MOD
	OLEA EUROPEA 'SWAN HILL'		SWAN HILL FRUITLESS OLIVE	24" BOX	MULTI	LOW
	PINUS ELDARICA		AFGHAN PINE	24" BOX	SINGLE TRUNK	LOW
	RHUS LANCEA		AFRICAN SUMAC	24" BOX	SINGLE TRUNK	LOW
	LOPHOSTOMEN CONFERTUS		BRISBANE BOX	24" BOX	STD	

PROPOSED PLANT PALETTE

SYMBOL	CALL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	WATER USE
SHRUBS, GROUNDCOVERS AND VINES						
	ACA D.C.	ACACIA REDOLENS 'DESERT CARPET'	PROSTRATE ACACIA	1 GAL.	6' O.C.	LOW
	AGA DES	AGAVE DESMETTIANA	SMOOTH AGAVE	5 GAL.	30" O.C.	LOW
	BAC CON	BACCHARIS P. CONSANGUINEA	COYOTE BRUSH	1 GAL.	10' O.C.	LOW
	BAC T.P.	BACCHARIS P. 'TWIN PEAKS'	DWARF COYOTE BRUSH	5 GAL.	36" O.C.	LOW
	CAL L.J.	CALLISTEMON 'LITTLE JOHN'	DWARF BOTTLE BRUSH	5 GAL.	30" O.C.	LOW
	CEA SKY	CEANOTHUS T. 'SKYLARK'	CALIFORNIA LILAC	5 GAL.	5' O.C.	LOW
	CIS LAD	CISTUS LADANIFER	CRIMSON-SPOT ROCKROSE	5 GAL.	48" O.C.	LOW
	DIA REV	DIANELLA REVOLUTA 'LITTLE REV'	FORTNIGHT LILY	5 GAL.	24" O.C.	LOW
	FIC PUM	FICUS PUMILA	CREEPING FIG	5 GAL. STAKED	PER PLAN	MOD
	LAN G.R.	LANTANA 'GOLD RUSH'	YELLOW TRAILING LANTANA	5 GAL.	36" O.C.	LOW
	LEU G.C.	LEUCOPHYLLUM F. 'GREEN CLOUD'	TEXAS RANGER	5 GAL.	42" O.C.	LOW
	MIS TRA	MISCANTHUS TRANSMORRISONENSIS	EVERGREEN MISCANTHUS	5 GAL.	42" O.C.	MOD
	MAH G.A.	MAHONIA 'GOLDEN ABUNDANCE'	GOLDEN ABUNDANCE OREGON GRAPE	5 GAL.	48" O.C.	MOD
	MUH RIG	MUHLENBERGIA RIGENS	DEER GRASS	5 GAL.	36" O.C.	MOD
	MYO PAR	MYOPORUM PARVIFOLIUM 'PINK'	PINK MYOPORUM	FLATS	36" O.C.	LOW
	RHA MSB	RHAMNUS C. 'MOUND SAN BRUNO'	COFFEEBERRY	5 GAL.	48" O.C.	LOW
	RHU OVA	RHUS OVATA	SUGAR BUSH	5 GAL.	60" O.C.	LOW
	ROS PRO	ROSMARINUS O. 'PROSTRATUS'	PROSTRATE ROSEMARY	1 GAL.	24" O.C.	LOW
	SAL GRE	SALVIA GREGGII	AUTUMN SAGE	5 GAL.	30" O.C.	LOW
	SEN ART	SENNA ARTEMISIOIDES	FEATHERY CASSIA	5 GAL.	42" O.C.	LOW
	WES W.G.	WESTRINGIA F. 'WYNYABBIE GEM'	COAST ROSEMARY	5 GAL.	42" O.C.	LOW
	D.B.	4 LBS / AC ANEMOPSIS CALIFORNICA / YERBA MANSA 5 LBS / AC ARTEMISIA DOUGLASIANA / MUGWORT .5 LBS / AC BROMUS CARINATUS / CALIFORNIA BROME GRASS 3 LBS / AC HORDEUM BRACHYANTHERUM / MEADOW BARLEY 2 LBS / AC JUNCUS ACUTUS / SPINY RUSH 5 LBS / AC RUMEX SALICIFOLIUS / WILLOW DOCK 2 LBS / AC TYPHA LATIFOLIA / COMMON CATTAIL 2 LBS / AC PLUCHEA ODORATA / MARSH FLEABANE			DETENTION BASIN HYDROSEED MIX AT BOTTOM OF BASIN:	
	SLO	4 LBS / AC ARTEMISIA CALIFORNICA / CALIFORNIA SAGEBRUSH 5 LBS / AC ENCELIA FARINOSA / BRITTLEBUSH .5 LBS / AC ERIOGONUM FASCICULATUM / CALIFORNIA BUCKWHEAT 3 LBS / AC ERIODICTYPN TRICHOCALYX / HAIRY YERBA SANTA 2 LBS / AC ESCHSCHOLZIA CALIFORNICA / CALIFORNIA POPPY 5 LBS / AC LASTHENIA CALIFORNICA / DWARF GOLDFIELDS 2 LBS / AC LOTUS SCOPARIUS / DEERWEED 2 LBS / AC LUPINUS HIRSUTISSIMUS / STINGING LUPINE 2 LBS / AC NASSELLA PULCHRA / PURPLE NEEDLEGRASS 2 LBS / AC PHACELIA CILIATA / GREAT VALLEY PHACELIA 2 LBS / AC SALVIA APIANA / WHITE SAGE 2 LBS / AC SALVIA MELLIFERA / BLACK SAGE			HYDROSEED MIX AT SLOPE AREAS (DETENTION BASINS AND CONSERVATION EASEMENT AREA:	

PAMA BUSINESS PARK
MORENO VALLEY, CALIFORNIA

PRELIMINARY LANDSCAPE PLAN

L1.1

JOB #18005
09/12/2018

0 50 100 150

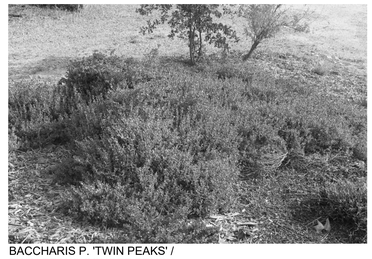
RLA
8841 RESEARCH DR
SUITE 200
IRVINE • CA 92618
949.387.1323
RIDGELA.COM

Attachment: Conceptual Landscape Plan (3285 : PAMA Business Center)

ACACIA REDOLENS /
PROSTRATE ACACIA

AGAVE DESMETTIANA /
SMOOTH AGAVE

BACCHARIS P. CONSANGUINEA /
COYOTE BRUSH



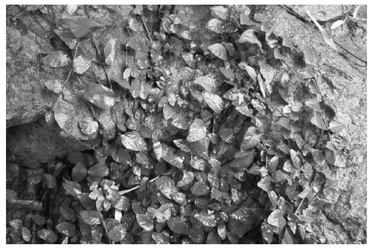
BACCHARIS P. 'TWIN PEAKS' /
TWIN PEAKS COYOTE BRUSH

CALLISTEMON 'LITTLE JOHN' /
DWARF BOTTLE BRUSH

CEANOTHUS T. 'SKYLARK' /
BLUE MOUNTAIN LILAC

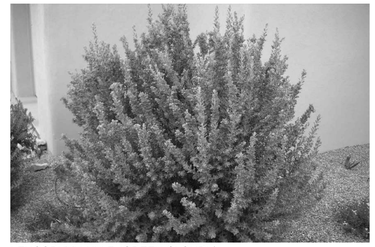
CISTUS LADANIFER /
CRIMSON-SPOT ROCKROSE

DIANELLA REVOLUTA 'LITTLE REV' /
LITTLE REV FLAX LILY



FICUS PUMILA /
CREEPING FIG

LANTANA 'GOLD RUSH' /
GOLD RUSH LANTANA



LEUCOPHYLLUM F. 'GREEN CLOUD' /
GREEN CLOUD TEXAS SHADE

MISCANTHUS TRANSMORRISONENSIS /
EVERGREEN MISCANTHUS

MAHONIA 'GOLDEN ABUNDANCE' /
HYBRID OREGON GRAPE.

MUHLENBERGIA RIGENS /
DEER GRASS

MYOPORUM PARVIFOLIUM 'PINK' /
PINK GROUNDCOVER MYOPORUM

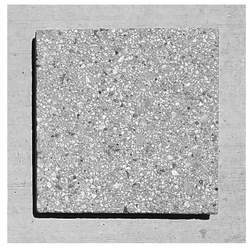
RHAMNUS CALIFORNICA 'MOUND SAN BRUNO' /
SAN BRUNO COFFEEBERRY

RHUS OVATA /
SUGAR BUSH

ROSMARINUS OFFICINALIS 'PROSTRATUS' /
CREEPING ROSEMARY

SENNA ARTEMISIOIDES /
FEATHERY CASSIA

WESTRINGIA F. 'WYNYABBIE GEM' /
WYNYABBIE GEM COAST ROSEMARY



TOPCAST 50 FINISH

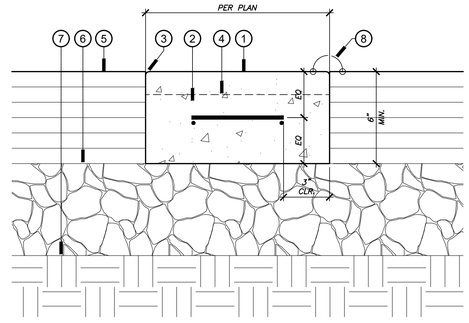
LAGERSTOEMIS INDICA X F. 'TUSCARORA' /
TUSCARORA CRAPE MYRTLE

OLEA EUROPAEA 'SWAN HILL' /
SWAN HILL FRUITLESS OLIVE

PINUS ELDARICA /
AFGHAN PINE

RHUS LANCEA /
AFRICAN SUMAC

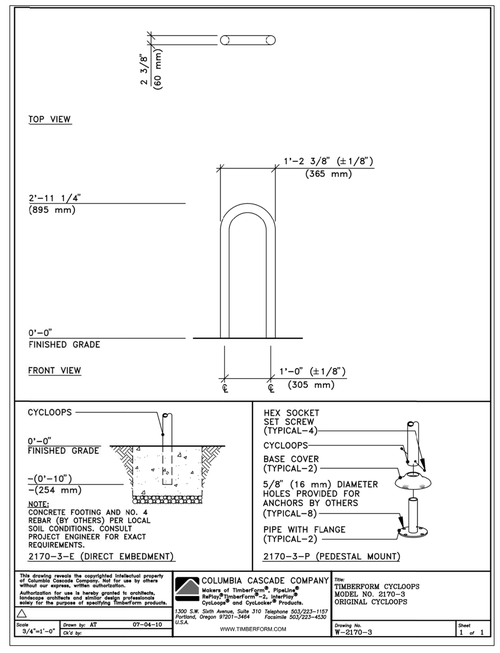
LOPHOSTEMON CONFERTUS /
BRISBANE BOX



LEGEND:
1. CONCRETE PAVING - NATURAL GRAY CONCRETE WITH ENHANCED TOPCAST 50 FINISH TO MATCH ENHANCED PAVING AT BUILDINGS.
2. (2) #4 CONTINUOUS BARS, CENTER IN SLAB.
3. 1/4" TOOLED RADIUS.
4. 1/8" WIDE BY 1.5" DEEP CONTINUOUS SAWCUT CONTRACTION JOINT. SEE HARDSCAPE PLAN FOR LOCATIONS.
5. EXISTING ASPHALT PAVING - PROTECT IN PLACE. PROVIDE CLEAN, STRAIGHT, AND CONTINUOUS SAWCUT EDGE.
6. COMPACTED SUB-BASE - VERIFY REQUIREMENTS WITH GEOTECHNICAL SOILS REPORT.
7. COMPACTED SUB-GRADE - VERIFY REQUIREMENTS WITH GEOTECHNICAL SOILS REPORT.
8. FLUSH.

NOTES:
A. PAVING THICKNESS, BASE PREPARATION, AND REINFORCING ARE SHOWN FOR BID PURPOSES ONLY. VERIFY AND COMPLY WITH REQUIREMENTS NOTED IN THE GEOTECHNICAL SOILS REPORT.
B. PROVIDE MOCK-UP PER SPECIFICATIONS.
C. SEAL EXPOSED PORTIONS OF CONCRETE PAVING PER SPECIFICATIONS.

Ⓐ CONCRETE CROSS-WALK DETAIL — SCALE: N.T.S.



Ⓑ BIKE RACK — SCALE: N.T.S.

PAMA BUSINESS PARK

MORENO VALLEY,
CALIFORNIA

PRELIMINARY PLANT IMAGERY

L2.1

JOB #18005
09/12/2018

0 50 100 150

RLA
8841 RESEARCH DR
SUITE 200
IRVINE • CA 92618
949.387.1323
RIDGELA.COM

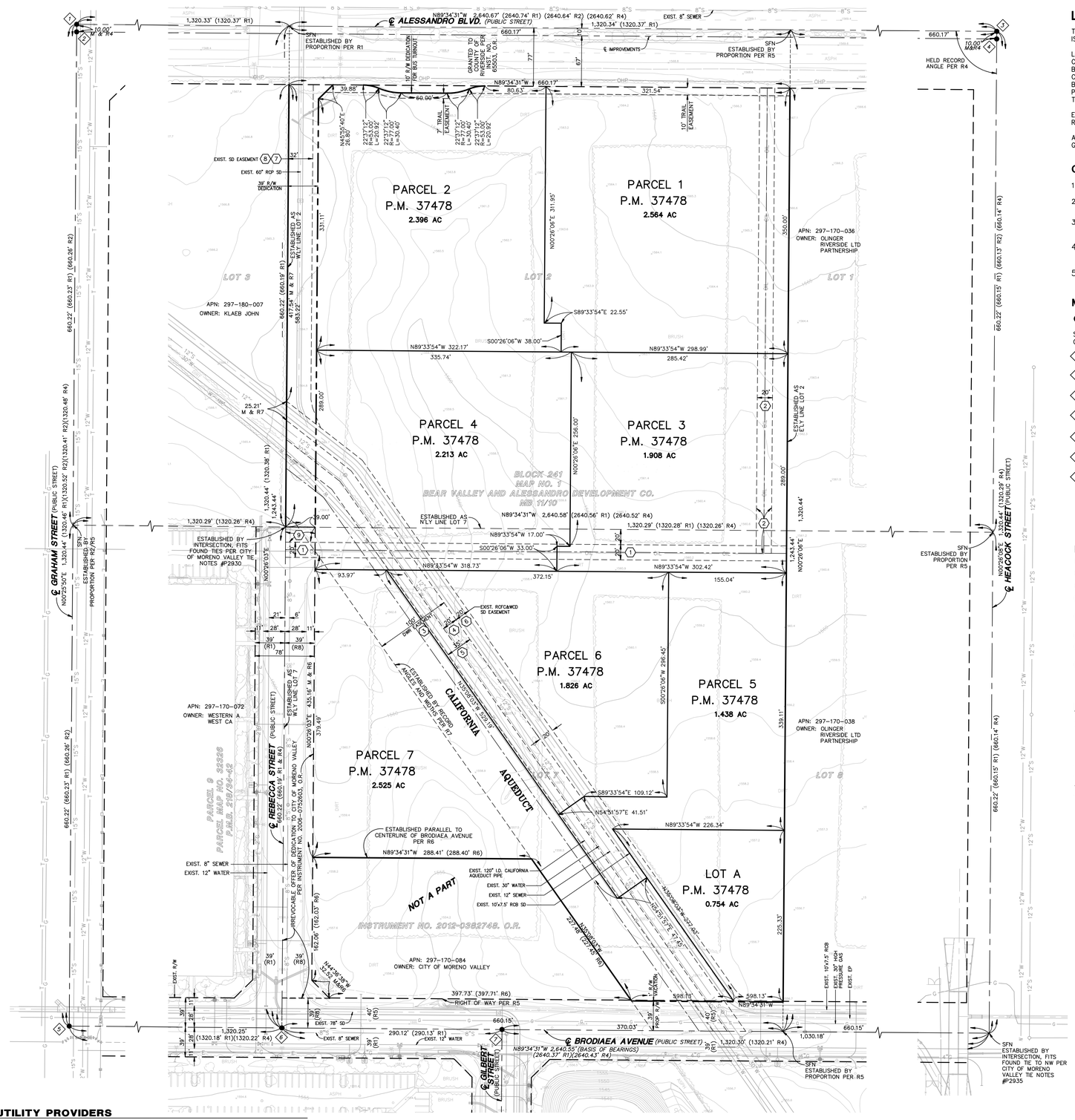
Attachment: Conceptual Landscape Plan (3285 : PAMA Business Center)

TENTATIVE PARCEL MAP NO. 37478

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

HUITT–ZOLLARS

JANUARY 2018



LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN IS SITUATED IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

LOTS 2 AND 7 BLOCK 241 OF MAP NO. 1 BEAR VALLEY AND ALESSANDRO DEVELOPMENT CO., IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 11, PAGE 10 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN BERNARDINO COUNTY, CALIFORNIA, TOGETHER WITH THAT PORTION OF ALESSANDRO BOULEVARD WITHIN SAID BLOCK LYING BETWEEN THE NORTHERLY PROLONGATION OF THE EAST AND WEST LINES OF SAID LOT 2 ALSO THAT PORTION OF BRODIAEA AVENUE WITHIN SAID BLOCK LYING BETWEEN THE SOUTHERLY PROLONGATION OF THE EAST AND WEST LINES OF SAID LOT 7.

EXCEPT FROM SAID LOT 2 THAT PORTION GRANTED TO THE COUNTY OF RIVERSIDE, BY THAT GRANT DEED RECORDED MAY 19, 1972, AS INSTRUMENT NO. 65503, OFFICIAL RECORDS.

ALSO EXCEPT FROM SAID LOT 7 THAT PORTION GRANTED TO THE CITY OF MORENO VALLEY, BY THAT GRANT DEED RECORDED AUGUST 13, 2012, AS INSTRUMENT NO. 2012–0382748, OFFICIAL RECORDS.

GENERAL NOTES

1. SITE ADDRESS: VACANT LAND
2. THE PROPERTY SHOWN HEREON IS LOCATED WITHIN FLOOD ZONE X. FLOOD ZONE X MAP NO. 06065C0761G, EFFECTIVE DATE AUGUST 28, 2008.
3. GROSS AREA = 17.345 ACRES
   NET AREA = 15.623 ACRES
4. ASSESSOR'S PARCEL NO. = 297–170–083 (ASSESSOR'S PARCEL NUMBERS SHOWN HEREON ARE PER THE CURRENT TAX ASSESSOR'S ROLLS AS PROVIDED BY ORANGE COAST TITLE COMPANY.
5. AERIAL PHOTOGRAPHY WAS COMPILED BY DIGITAL MAPPING, INC., DATED MAY 16, 2017 AND COMPLIES WITH NATIONAL MAPPING ACCURACY STANDARDS.

MONUMENT NOTES

● FOUND MONUMENT AS NOTED

SEARCHED FOUND NOTHING AT ALL PROPERTY CORNERS UNLESS SHOWN OTHERWISE.

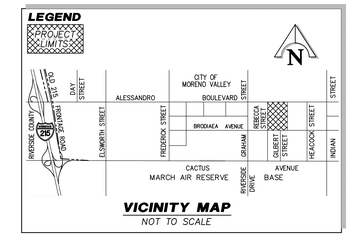
1. FOUND MAG. NAIL & WASHER STAMPED "PLS 7083", NO REFERENCE, ACCEPTED AS CENTERLINE INTERSECTION PER R1 & R4, FLUSH
2. FOUND 1" IRON PIPE STAMPED "COUNTY SURVEYOR PI 103+81.6 CL SUR" IN WELL MONUMENT PER R4, DOWN 0.4'
3. FOUND 1" IRON PIPE STAMPED "LS 3018" IN WELL MONUMENT PER R1, DOWN 0.4'
4. FOUND 1" IRON PIPE W/ PLASTIC CAP STAMPED "COUNTY SURVEYOR" IN WELL MONUMENT PER R1, DOWN 0.9'
5. FOUND 1" IRON PIPE STAMPED "LS 4457" IN WELL MONUMENT PER CITY OF MORENO VALLEY TIE NOTES #P2927, DOWN 0.3'
6. FOUND 1" IRON PIPE STAMPED "LS 4457" IN WELL MONUMENT PER CITY OF MORENO VALLEY TIE NOTES #P2929
7. FOUND 1" IRON PIPE STAMPED "LS 4457" IN WELL MONUMENT PER CITY OF MORENO VALLEY TIE NOTES #P2931, DOWN 0.3'

REFERENCES

(R1) INDICATES RECORD DATA PER PARCEL MAP NO. 32326, P.M.B. 218/34–42
(R2) INDICATES RECORD DATA PER PARCEL MAP NO. 5667, P.M.B. 11/60
(R3) INDICATES RECORD DATA PER PARCEL MAP 10174, P.M.B. 90/82
(R4) INDICATES RECORD DATA PER RECORD OF SURVEY, 73/95–99 OF RECORDS OF SURVEY
(R5) INDICATES RECORD DATA PER MAP NO. 1 BEAR VALLEY AND ALLESSANDRO DEVELOPMENT CO. BOOK 11, PAGE 10 OF MAPS
(R6) INDICATES RECORD DATA PER INSTRUMENT NO. 2012–0382748, O.R.
(R7) INDICATES RECORD DATA PER DOCUMENT RECORDED FEBRUARY 19, 1987 AS INSTRUMENT NO. 46351, OFFICIAL RECORDS,
(R8) INDICATES RECORD DATA PER DOCUMENT RECORDED OCTOBER 12, 2006 AS INSTRUMENT NO. 2006–0752603, OFFICIAL RECORDS,

LEGEND / ABBREVIATIONS

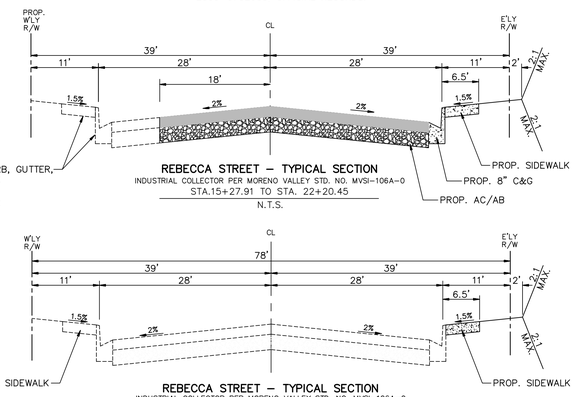
S	EXISTING STORM DRAIN
S	EXISTING SEWER
W	EXISTING WATER
G	EXISTING GRADE BREAK LINE
OIL	EXISTING OIL LINE
	EXISTING R/W
	PROPOSED R/W
	PROPOSED BOUNDARY
E'LY	EASTERLY
M	MEASURED
N'LY	NORTHERLY
NW	NORTHWEST
PL	PROPERTY LINE
P.O.C.	POINT OF COMMENCEMENT
SFN	SEARCHED, FOUND NOTHING
T.P.O.B.	TRUE POINT OF BEGINNING
W'LY	WESTERLY
R/W	RIGHT–OF–WAY
CL	CENTERLINE



VICINITY MAP
NOT TO SCALE

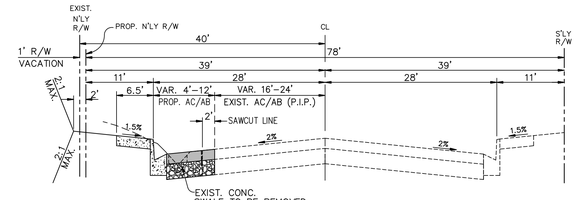
EXISTING EASEMENTS

1. AN EASEMENT FOR PIPELINE PURPOSES IN FAVOR OF FOUR CORNERS PIPE LINE COMPANY RECORDED JANUARY 10, 1958, IN BOOK 2205, PAGE 147, OFFICIAL RECORDS.
2. AN EASEMENT FOR PIPELINE PURPOSES IN FAVOR OF FOUR CORNERS PIPE LINE COMPANY RECORDED FEBRUARY 11, 1958, IN BOOK 2221, PAGE 126, OFFICIAL RECORDS.
3. AN EASEMENT FOR WATER PIPELINE PURPOSES IN FAVOR OF THE STATE OF CALIFORNIA RECORDED NOVEMBER 11, 1966, AS INSTRUMENT NO. 110206, OFFICIAL RECORDS.
4. AN EASEMENT FOR SEWER PURPOSES IN FAVOR OF EASTERN MUNICIPAL WATER DISTRICT RECORDED MAY 11, 1973, AS INSTRUMENT NO. 61508, OFFICIAL RECORDS.
5. AN EASEMENT FOR ROADWAY PURPOSES AND WATER PIPELINE PURPOSES IN FAVOR OF EASTERN MUNICIPAL WATER DISTRICT RECORDED MARCH 4, 1983, AS INSTRUMENT NO. 41344, OFFICIAL RECORDS.
6. AN EASEMENT FOR STORM DRAIN PURPOSES IN FAVOR OF RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT RECORDED FEBRUARY 19, 1987, AS INSTRUMENT NO. 46351, OFFICIAL RECORDS.
7. AN EASEMENT FOR STORM DRAIN PURPOSES IN FAVOR OF IMPERIAL BANK RECORDED NOVEMBER 24, 1993 AS INSTRUMENT NO. 469987, OFFICIAL RECORDS. (EASEMENT WAS GRANTED TO RIVERSIDE COUNTY FLOOD CONTROL DISTRICT AND WATER CONSERVATION DISTRICT PER ITEM NO. 17 BELOW).
8. AN EASEMENT FOR STORM DRAIN PURPOSES IN FAVOR OF RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT RECORDED DECEMBER 22, 1993, AS INSTRUMENT NO. 510162, OFFICIAL RECORDS.
9. AN IRREVOCABLE OFFER TO DEDICATE A PERPETUAL EASEMENT AND RIGHT OF WAY FOR PUBLIC HIGHWAY AND PUBLIC UTILITY PURPOSES IN FAVOR OF THE CITY OF MORENO VALLEY OCTOBER 12, 2006, AS DOCUMENT NO. 2006–0752603, OFFICIAL RECORDS.

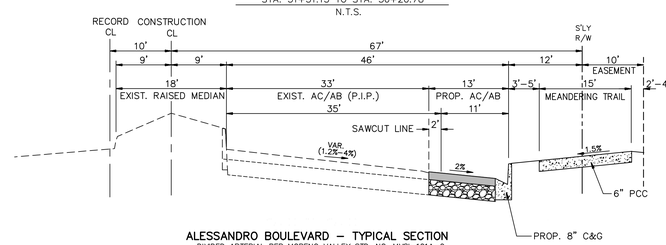


REBECCA STREET – TYPICAL SECTION
INDUSTRIAL COLLECTOR PER MORENO VALLEY STD. NO. MVSI–106A–0
STA.15+27.91 TO STA. 22+20.45
N.T.S.

REBECCA STREET – TYPICAL SECTION
INDUSTRIAL COLLECTOR PER MORENO VALLEY STD. NO. MVSI–106A–0
STA.10+63.01 TO STA. 15+27.91
N.T.S.



BRODIAEA AVENUE – TYPICAL SECTION
INDUSTRIAL COLLECTOR PER MORENO VALLEY STD. NO. MVSI–106A–0
STA. 51+51.13 TO STA. 56+20.78
N.T.S.



ALESSANDRO BOULEVARD – TYPICAL SECTION
DIVIDED ARTERIAL PER MORENO VALLEY STD. NO. MVSI–101A–0
STA. 10+00.00 TO STA. 16+60.15
N.T.S.

SCALE IN FEET
0 60 120 180
SCALE: 1" = 60'

UTILITY PROVIDERS

SEWER, WATER	TELEPHONE	ELECTRIC
EASTERN MUNICIPAL WATER DISTRICT 2270 TRUMBLE ROAD PERRIS, CA 92571	FRONTIER 150 S. JUANITA HEMET, CA 92543 (909) 658–7305	MORENO VALLEY UTILITIES 14331 FREDERICK ST., SUITE 2 MORENO VALLEY, CA 92552 (951) 413–3500

GAS
SOUTHERN CALIFORNIA GAS COMPANY
25200 TRUMBLE RD, SC 8058
ROMOLAND, CA 92380
PHONE: (951) 335–3902

BASIS OF BEARINGS:

BEARINGS SHOWN HEREON ARE BASED ON THE CENTERLINE OF BRODIAEA AVENUE BEING NORTH 89°34'31" WEST ON PARCEL MAP NO. 32326, P.M.B. 218/34–42.

B.M. NO. M–61–69 ELEV. 1569.963
LOCATION:
AT THE NORTHWEST CORNER OF FREDERICK STREET AND ALESSANDRO BLVD. 175 FEET WEST OF FREDERICK STREET, 48 FEET NORTH OF ALESSANDRO BLVD. 4 FEET SOUTHWEST OF A GAS STATION LIGHT STANCHION AT THE SOUTH END AND INSIDE OF A 4 INCH HIGH CONCRETE PLANTER SET A BRASS DISK MARKED M–61–69 IN THE TOP OF A CONCRETE POST "NO MARKER POST SET"

TENTATIVE PARCEL MAP
FOR
ALESSANDRO INDUSTRIAL CENTER
BRODIAEA AVENUE AND REBECCA STREET
CITY OF MORENO VALLEY

HUITT–ZOLLARS
HUITT–ZOLLARS, INC.
3990 CONCOURSE, SUITE 330 • ONTARIO, CALIFORNIA 91764 • (909) 941–7799

DESIGNED BY	SHEET
D.W.	1
DRAWN BY	OF
H–Z STAFF	1
CHECKED BY	SHEETS
J.M.	
FIELD BOOK	JOB NO.
	R307012.01

Attachment: Tentative Parcel Map (3285 : PAMA Business Center)

This may affect your property

Notice of PUBLIC HEARING

Notice is hereby given that a Public Hearing will be held by the Planning Commission of the City of Moreno Valley on the following item(s):

PROJECT: PAMA Business Center

PEN18-0028 Plot Plan
PEN18-0027 Tentative Parcel Map - TPM 37478

APPLICANT: MacDavid Aubert and Associates, Inc.
OWNER: Group V San Bernardino, LP
REPRESENTATIVE: Ryan Liu, PAMA Management, Inc.
A.P. No: 291-170-083
LOCATION: South of Alessandro Boulevard, north of Brodiaea Avenue, east of Rebecca Street

PROPOSAL: The Project includes a Plot Plan for the construction and operation of seven (7) buildings for warehouse and office uses ranging from 26,000 to 50,000 square-feet, totaling 280,800 square feet; and a Tentative Parcel Map (TPM 37478) to create seven (7) numbered lots and one (1) lettered lot, on a 16.62-acre site located south of Alessandro Boulevard, north of Brodiaea Avenue, and east of Rebecca Street. Approval of this Project will require adoption of a Mitigated Negative Declaration (MND).

ENVIRONMENTAL DETERMINATION: Mitigated Negative Declaration (Circulated October 4, 2018 through October 23, 2018)

COUNCIL DISTRICT: 1

STAFF RECOMMENDATION: Approval

Any person interested in any listed proposal can contact the Community Development Department, Planning Division, at 14177 Frederick St., Moreno Valley, California, during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday and Fridays from 7:30 a.m. to 4:30 p.m.), or may telephone (951) 413-3206 for further information. The associated documents will be available for public inspection at the above address. In the case of Public Hearing items, any person may also appear and be heard in support of or opposition to the project or recommendation of adoption of the Environmental Determination at the time of the Hearing.

The Planning Commission, at the Hearing or during deliberations, could approve changes or alternatives to the proposal. If you challenge any of these items in court, you may be limited to raising only those items you or someone else raised at the Public Hearing described in this notice, or in written correspondence delivered to the Planning Commission at, or prior to, the Public Hearing.

LOCATION N ↑

PLANNING COMMISSION HEARING

City Council Chamber, City Hall
14177 Frederick Street
Moreno Valley, Calif. 92553

DATE AND TIME: October 25, 2018 at 7 PM
CONTACT PLANNER: Chris Ormsby
PHONE: (951) 413-3229

Upon request and in compliance with the Americans with Disabilities Ac of 1990, any person with a disability who requires a modification o accommodation in order to participate in a meeting should direct such request to Guy Pegan, ADA Coordinator, at 951.413.3120 at least 4 hours before the meeting. The 48-hour notification will enable the City t make reasonable arrangements to ensure accessibility to this meeting.

Attachment: 300-ft Public Hearing Notice (3285 : PAMA Business Center)

ILY. NO LIABILITY
SESSOR'S PARCEL
E ORDINANCES.

Riverside CA Assessor Map 296.28 Page 1 of 1

ORO

POR S 12 T 3S R 4W
CITY OF MORENO VALLEY

TRA 021-332

BLK 240

GRAHAM STREET

CALIFORNIA AQUEDUCT

ALESSANDRO BOULEVARD

296-28

296-30

BLVD

300'

-30'

297-180

297-170

297-17
293-26

N
W E
S

1 " = 400 '

Legend
Lot Lines
Right-Of-Way
Old Lot Lines
Reference R.O.W
Other Easements
Lease Area
Subdivision Tic Mark

Date	Old Number	New Number
9/1/1988	1,8	28,29,ST
9/1/1988	9,16	26,27,ST
9/1/1989	12	31,32,ST
9/1/1989	11	30,ST
9/1/1989	22	33,ST
8/1/1990	28	34,ST
2/1/1991	24	35,ST
2/1/1995	18	36,37
2/1/1995	19	38,39
2/1/1995	37,39	40
6/1/2000	35	41,42
11/8/2004	21,44	45
11/8/2004	20	43-44
8/16/2005	25,52	54
8/16/2005	45	46,ST.
8/16/2005	23	47-48

3
02
3.94 AC

2
03
8.83 AC

1
04
8.99 AC

660.25
36.89
400.29
L=247.03

BLK 242

PAR 2
87
51.47 AC

POR PAR 1
89
18.46 AC ML

PAR 1
88
6 AC ML

LOT B
LOT C
PM 36465

BRODIAEA AVE

GRAHAM ST

PAR 5
68
8.76 AC GR

5
46
12.41 AC.ML.

POR 6

PAR 9
72
5.87 AC GR

PAR 6
69
24.37 AC GR

REBECCA ST

EASEMENT

2
83
16.77 AC M/L

7

1
36
7.58 AC
EX

40
1.61 AC

8
38
8.79 AC

84
EX
1.50 AC ML

LOT A

POR PAR 7
78
6.71 AC ML

73

PAR 8
EX
71
11.03 AC GR

POR PAR 7
EX
79
1.87 AC M/L

LOT B

POR 1
EX
42
1.45 AC

HEACOCK ST

Packet Pg. 1096

Attachment: Radius Map for Noticing (3285 : PAMA Business Center)

Branch :OBS,User :RJAC

Comment:

2.aj

PLANNING COMMISSION

STAFF REPORT

Meeting Date: October 25, 2018

TENTATIVE TRACT MAP, GENERAL PLAN AMENDMENT AND CHANGE OF ZONE FOR 45 SINGLE-FAMILY RESIDENTIAL LOTS ON 8.85 ACRES

Case:	PEN18-0053 (General Plan Amendment), PEN18-0054 (Change of Zone), PEN18-0092 (Tentative Tract Map)
Applicant:	FH II, LLC.
Owner:	FH II, LLC.
Representative:	Melissa Vallone
Location:	Northwest corner of Brodiaea Avenue and Quincy Street, easterly of Moreno Beach Drive
Case Planner:	Seda Yaghoubian
Council District:	3

SUMMARY

The applicant, FH II, LLC., is requesting approval of a General Plan Amendment (PEN18-0053) to change the Land Use Designation from Residential 3 (maximum 3 units/acre) to Residential 10 (maximum 10 units/acre), a Change of Zone (PEN18-0054) to change the Zoning Designation from R3 (maximum 3 units/acre) to RS10 (single-family maximum 10 units/acre), and a Tentative Tract Map (PEN18-0092) to subdivide the subject property into 45 single-family residential lots on approximately 8.85 acres. A General Plan Amendment and Change of Zone are required for the proposed project because the General Plan Land Use Designation and the Zoning Designation of the property establish a maximum density of 3 single-family units per acre while the applicant desires to develop the site with 7.75 units per acre. The applicant is

requesting the General Plan Amendment and Change of Zone to increase the allowable density on the site in order to build a residential product type which will be more in-line with current market demand and will serve more diverse socioeconomic groups. Associated improvements to the property include improvements to the Quincy Channel, streets and utility infrastructure.

PROJECT DESCRIPTION

PEN18-0053 General Plan Amendment

The proposed General Plan Amendment will change the General Plan land use designation for the 8.85-acre property from Residential 3 (maximum 3 units/acre) to Residential 10 (maximum 10 units/acre). The proposed Tentative Tract Map would result in a density of 5.09 units per gross acre and 7.75 units per net acre. The General Plan Amendment would allow the subject property to be subdivided with the proposed density.

The primary purpose of areas designated Residential 3 is to provide a transition between rural and urban density development areas and to provide for a suburban lifestyle on residential lots larger than those commonly found in suburban subdivisions. The primary purpose of areas designated Residential 10 is to provide for a variety of residential products and to encourage innovation in housing types. Developments within Residential 10 areas are typically expected to provide amenities not generally found in suburban subdivisions, such as common open space and recreational areas.

Residential areas east of Moreno Beach Drive and north of Brodiaea Avenue are generally designated for or developed with lower densities suitable for rural and suburban lifestyles (R2 – R3). Existing and planned residential areas south of the project site including areas immediately south of Brodiaea Avenue are designated for, or developed with, higher densities which incorporate amenities and common open space and recreational areas and allow for multi-family residential communities (R10) and single family residential developments in RS10 and R5 zoning districts.

The proposed 7.75 units per acre density will address Goal 2.4 of the General Plan which calls for a supply of housing in sufficient numbers suitable to meet the diverse needs of future residents and to support healthy economic development without creating an oversupply of any particular type of housing. Furthermore, the proposed project will provide a gradual transition from the higher density areas to the south to lower density areas to the north.

PEN18-0054 Change of Zone

The proposed Change of Zone will change the zoning designation of the 8.85-acre site from R3 to RS10. The primary purpose of the existing R3 district is to provide a transition between rural and urban density development areas, and to provide for a suburban life-style on residential lots larger than those commonly found in suburban

subdivisions. This district is intended as an area for development of large lot, single-family residences at a maximum allowable density of three dwelling units per net acre.

The primary purpose of the proposed RS10 district is to provide for residential developments on small single-family lots with amenities not generally found in suburban subdivisions. The district is intended for subdivisions at a maximum allowable density of ten (10) dwelling units per net acre.

The RS10 zoning designation will allow for the development of the proposed residential subdivision as desired by the applicant, consistent with the primary purpose of the RS10 district. The proposed subdivision provides a range of lot sizes, and includes trail amenities along the Quincy Channel. The project will improve the Quincy Channel, and as an added amenity will provide recreational improvements to the trail along the channel, including benches, exercise stations and landscaping treatments (Lot B). These amenities will be maintained by a Homeowners Association (HOA) which will be formed for the proposed project.

PEN18-0092 Tentative Tract Map 37544

Tentative Tract Map 37544 proposes to subdivide the 8.85-acre site into 45 residential lots and four (4) lettered lots for water quality/detention and open space/recreational purposes. The residential lot sizes range from 4,843 square feet to 11,939 square feet. While the average lot size is 5,624 square feet, the four (4) residential lots (lots 42-45) facing Brodiaea Avenue, are larger in size (8,024 square feet to 8,436 square feet) to be more compatible with the existing homes south of Brodiaea. The Tentative Tract Map also includes improvements to the Quincy Channel on the eastern boundary of the Project. The ultimate design of these improvements will be determined in consultation with other regulatory and resource agencies. A linear park and walking trail will run the entire length of the project along Quincy Channel along with recreational amenities.

Project

Site

The project site is located on the northwest corner of Brodiaea Avenue and Quincy Street, easterly of Moreno Beach Drive on a gently sloping, rectangular-shaped site. The proposed grading will be largely balanced on site with minimal amount of soil import and will not create any manufactured slopes. The site is vacant, undeveloped and has no notable topographic features.

Surrounding Area

The surrounding area is developed with one and two-story single-family homes to the south across Brodiaea (zoned RS10), vacant land to the north (zoned R3), vacant land and a single residence with an associated industrial yard farther to the west (zoned R3), the Quincy Channel to the east, and vacant land and rural residences farther to the east

(zoned R3). The land east and west of the existing RS10 residences is zoned R5. A new residential subdivision is under construction southeast of the site (zoned R5).

Access/Parking

Access to the project site would be from Quincy Street which will be improved to approximately 650 feet north of Brodiaea Avenue as part of project construction. The project will have a second point of access (Street A) off Brodiaea, west of Quincy Street. Both of these access streets will connect to internal streets (Street B and Street C) which will provide access to the residential lots.

Design/Landscaping

The applicant has not submitted a plot plan for the development of the architectural design of the building at this time. The design of the residential units, including massing, scale and architectural features, as well as the landscape design will be subject to the approval of a Plot Plan by the City.

REVIEW PROCESS

The applicant submitted the project application on May 8, 2018. The Project Review Staff Committee reviewed the Project on June 6, 2018. Staff reviewed the Project and the Applicant revised the project plans between June 2018 and September 2018 to address various site design, access, drainage and circulation design issues. The applicant has addressed all staff comments and there are no outstanding site planning or design items.

ENVIRONMENTAL

An Initial Study was prepared for the project after all discretionary applications were deemed complete. The Initial Study indicated a Mitigated Negative Declaration (MND) would be the appropriate environmental document for the project. The MND incorporates mitigation measures for Biological Resources, Cultural Resources and Tribal Cultural Resources which result in a less than significant impact on these subject areas. Staff prepared a Notice of Availability for the IS/MND which indicated a public comment period beginning on September 25, 2018 and ending on October 24, 2018.

The consulting firm, Psomas, prepared the draft environmental documents, and submitted the documents to the City for review to ensure that the documents reflect the independent judgment and analysis of the City as the California Environmental Quality Act (CEQA) Lead Agency.

NOTIFICATION

Public notice was sent to all property owners of record within 300' of the project. The public hearing notice for this project was also posted on the project site and published in the local newspaper.

REVIEW AGENCY COMMENTS

Staff sent public hearing notices to all property owners of record within 300' of the project. In addition, the public hearing notice for the project was posted on the project site and published in the local newspaper.

Staff received the following responses to the Project Review Staff Committee transmittal; which was sent to all potentially affected reviewing agencies.

Agency	Response Date	Comments
Riverside County Flood Control and Water Conservation District	May 31, 2018	Project within the limits of District's Moreno Area -Fees apply prior to grading permits. Project involves District Master Plan Facilities.
EMWD	May 24, 2018	Project proponent to develop and receive approval of a Plan of Service (POS) from EMWD.

STAFF RECOMMENDATION

Staff recommends that the Planning Commission **APPROVE** Resolution Numbers 2018-47, 2018-48, 2018-49 and 2018-50, and thereby **RECOMMEND** that the City Council:

Resolution 2018-47

1. **CERTIFY** that the Initial Study/Mitigated Negative Declaration PEN18-0055 for the Brodiaea Residential project on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Initial Study/Mitigated Negative Declaration, and that the Initial Study/Mitigated Negative Declaration reflects the City's independent judgment and analysis; and

2. **ADOPT** the Mitigation Monitoring and Reporting Program for the Initial Study/Mitigated Negative Declaration for the proposed project, attached hereto as Exhibit B; and

Resolution 2018-48

3. **APPROVE** PEN18-0053, the General Plan Amendment as shown on the attachment included as Exhibit A; and

Resolution 2018-49

4. **APPROVE** PEN18-0054, the Change of Zone as shown on the attachment included as Exhibit A; and

Resolution 2018-50

5. **APPROVE** PEN18-0092, Tentative Tract Map subject to the attached Conditions of Approval included as Exhibit A.

Prepared by:
Chris Ormsby
Senior Planner

Approved by:
Patty Nevins
Planning Official

ATTACHMENTS

1. PC Reso 2018-47 Initial Study MND
2. Initial Study Frontier 9-18-18
3. MMRP Frontier 9-18-18 final
4. PC Reso 2018-48 GPA
5. Exhibit A GPA PEN18-0053
6. PC Reso 2018-49 CZ
7. Exhibit A CZ PEN18-0054 Atlas Pg 101
8. PC Reso 2018-50 Tentative Tract Map
9. Air Quality GHG Memo 9-12-18
10. Exhibit A Conditions of Approval PEN18-0092
11. Bio Report March 2018
12. Burrowing Owl RCAA March 2018
13. Cultural Report Final 9-6-18
14. Geotech + Soils Report Geotek 2-12-18
15. Phase 1 ESA Geotek 3-3-14
16. Prelim Hydro MBI April 2018
17. Hydro Maps+ Calcs MBI ND H-2
18. Noise Tables UC April 2018

19. Trip Gen Memo Letter
20. WQMP MBI 4-24-18
21. TTM 37544 9-13-18
22. 300-ft Public Hearing Notice
23. Radius Map for Noticing

RESOLUTION NO. 2018-47

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL CERTIFY THE FINAL INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION (PEN18-0055) AND MITIGATION MONITORING AND REPORTING PROGRAM FOR THE BRODIAEA RESIDENTIAL PROJECT LOCATED AT THE NORTHWEST CORNER OF BRODIAEA AVENUE AND QUINCY STREET, EASTERLY OF MORENO BEACH DRIVE

WHEREAS, the applicant, FH II LLC., submitted applications for the Brodiaea Residential Project including General Plan Amendment (PEN18-0053), Change of Zone (PEN18-0054) and Tentative Tract Map 37544 (PEN18-0092) ("Project"), and an Initial Study/Mitigated Negative Declaration PEN18-0055, for the subdivision of a 8.85-acre property into forty-five (45) residential lots and four (4) lettered lots for water quality/open space purposes. The above applications shall not be approved unless the Initial Study/Mitigated Negative Declaration (IS/MND) PEN18-0055 is adopted and approved; and

WHEREAS, with respect to concurrently filed applications, Section 9.02.030D of the City Municipal Code establishes that applications which are dependent on approval of other enabling application(s), of which the General Plan Amendment and Change of Zone serve, the final approval authority for such dependent application(s) shall be vested with the body authorized to approve the enabling application(s), which in this case is the City Council; and

WHEREAS, the applications for the Project have been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, an Initial Study, supporting studies, and Mitigated Negative Declaration for the Project were prepared, consistent with the California Environmental Quality Act (CEQA); and

WHEREAS, the City of Moreno Valley (City) worked with the environmental consultant, Psomas, in the preparation of an Initial Study and Mitigated Negative Declaration; and

WHEREAS, a 30-day public review period of the Initial Study and Mitigated Negative Declaration commenced on September 25, 2018 and concluded on October 24, 2018. The public notice of Intent to adopt the Mitigated Negative Declaration was mailed to interested parties, public agencies, as well as published in the local newspaper on September 25, 2018 and filed with the Riverside County Clerk; and

WHEREAS, the City, in conducting its own independent analysis of the Final Mitigated Negative Declaration, determined that a Mitigated Negative Declaration is an appropriate environmental determination for the Project as there is substantial evidence

Attachment: PC Reso 2018-47 Initial Study MND [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

that demonstrates the Project with mitigation would not result in any significant environmental impacts; and

WHEREAS, a Mitigated Monitoring and Reporting Program (MMRP) has been prepared in accordance with CEQA Guidelines, and will ensure compliance with the identified mitigation measures outlined in the Final Mitigated Negative Declaration through Project implementation; and

WHEREAS, the City of Moreno Valley, Community Development Department, located at 14177 Frederick Street, Moreno Valley, California 92552 is the custodian of documents and other materials that constitute the record of proceedings upon which the decision to adopt the Mitigated Negative Declaration is based; and

WHEREAS, the Planning Commission of the City Moreno Valley considered the Project, including all environmental documentation, at a public hearing held on October 25, 2018; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, the Planning Commission considered the Initial Study prepared for the Project for the purpose of compliance with the California Environmental Quality Act (CEQA), and based on the Initial Study including all supporting technical evidence, it was determined that the project impacts are expected to be less than significant with mitigation, and approval of a Mitigated Negative Declaration is an appropriate environmental determination for the Project.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

A. This Planning Commission specifically finds that all of the facts set forth above in the Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on October 25, 2018, including written and oral staff reports, and the record from the public hearing, this Planning Commission finds as follows:

1. Independent Judgment and Analysis – City staff coordinated the preparation of the Initial Study/Mitigated Negative Declaration and related technical studies with the environmental consultant, Psomas, for the Brodiaea Residential Project. The documents were properly circulated for public review in accordance with the California Environmental Quality Act Guidelines. The Initial Study/Mitigated Negative Declaration has been completed along with the Mitigation Monitoring and Reporting Program (MMRP) to ensure compliance with all mitigation through project implementation. All environmental

Attachment: PC Reso 2018-47 Initial Study MND [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

documents that comprise the Mitigated Negative Declaration, including all technical studies, were independently reviewed by the City. On the basis of the whole record, there is no substantial evidence that the Project as designed, conditioned and mitigated, will have a significant effect on the environment. The Mitigated Negative Declaration prepared and completed, in accordance with the CEQA Guidelines, reflects the independent judgment and analysis of the City.

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-47, and recommends that the City Council:

1. **CERTIFY** that the Mitigated Negative Declaration prepared for General Plan Amendment (PEN18-0053), Change of Zone (PEN18-0054) and Tentative Tract Map 37544 (PEN18-0092) on file with the Community Development Department, incorporated herein by this reference, has been completed in compliance with the California Environmental Quality Act, that the Planning Commission reviewed and considered the information contained in the Mitigated Negative Declaration and that the Document reflects the City's independent judgment and analysis. Attached hereto as Exhibit A; and

2. **APPROVE** the Mitigation Monitoring and Reporting Program for Tentative Tract Map PEN18-0092, attached hereto as Exhibit B.

APPROVED AND ADOPTED this 25th day of October, 2018.

AYES:
NOES:
ABSTAIN:

_____
Jeffrey Barnes
Chair, Planning Commission

ATTEST:

_____
Patty Nevins, Planning Official
Secretary to the Planning Commission

APPROVED AS TO FORM:

_____
City Attorney

ATTACHMENTS:

Exhibit A and Exhibit B

Attachment: PC Reso 2018-47 Initial Study MND [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION ENVIRONMENTAL CHECKLIST FORM CITY OF MORENO VALLEY

Brodiaea Residential Project by Frontier Communities

(GPA PEN18-0053, CZ PEN18-0054, and TTM 37544)

City of Moreno Valley
14177 Frederick Street
Moreno Valley, CA 92552

Contact Seda Yaghoubian, Planning Consultant/Case Planner

September 18, 2018

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS

SECTION		PAGE
Project Information		**1**
Environmental Factors Potentially Affected		**13**
Determination		**13**
Evaluation of Environmental Impacts		**14**
I.	Aesthetics	16
II.	Agricultural Resources	18
III.	Air Quality	19
IV.	Biological Resources	24
V.	Cultural Resources	26
VI.	Geology and Soils	30
VII.	Greenhouse Gas Emissions	32
VIII.	Hazards and Hazardous Materials	35
IX.	Hydrology and Water Quality	37
X.	Land Use and Planning	42
XI.	Mineral Resources	46
XII.	Noise	47
XIII.	Population and Housing	49
XIV.	Public Services	52
XV.	Recreation	54
XVI.	Transportation and Traffic	54
XVII.	Utilities and Service Systems	56
XVIII.	Tribal Cultural Resources	58
XIX.	Mandatory Findings of Significance	59
References		**61**
Summary of Mitigation Measures		**62**
Mitigation Monitoring and Reporting Program		**68**

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS (cont'd)

SECTION		PAGE
List of Figures		
1	Regional Location	4
2	Project Area	5
3	Site Photographs	6
4	Conceptual Site Plan (TTM 37544)	9
5	Quincy Channel Design Options	11
6	Proposed Grading Plan	12
List of Tables		
A	Estimated Construction Emissions	21
B	Operational Emissions	22
C	Construction Localized Impact Analysis	23
D	Long-Term Operational Localized Impacts Analysis	23
E	Annual Greenhouse Gas Emissions from Project Operation	33
F	General Plan Consistency Analysis	43
G	Vibration Source Amplitudes for Construction Equipment	49
H	Human Response to Groundborne Noise and Vibration	49
I	Summary of Construction Equipment and Activity Vibration	50
J	Historical Enrollments at Local MVUSD Schools	53
K	Estimated Student Generation	53
List of Appendices		
A	Project Information	A
B	Tribal Consultation*	--
C	Air Quality/Greenhouse Gas Emissions	C
D	Biological Resources	D
E	Cultural Resources Reports	E
F	Geology and Soils	F
G	Hazards (Phase I ESA Report)	G
H	Hydrology and Water Quality Reports	H
I	Noise Calculations	I
J	Traffic Memo & Trip Generation Calculations	J

* *The City has determined the materials in the Tribal Consultation Appendix are confidential and so they are not physically included in the appendices for this document*

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

INITIAL STUDY/ ENVIRONMENTAL CHECKLIST FORM CITY OF MORENO VALLEY

September 18, 2018

1. Project Title: Brodiaea Residential Project by Frontier Communities (GPA PEN18-0053, CZ PEN18-0054, and TTM 37544)

2. Lead Agency Name and Address: City of Moreno Valley, 14177 Frederick Street, Moreno Valley, CA 92552

3. Contact Person and Phone Number: Seda Yaghoubian, Planning Consultant/Case Planner, 714-401-9514

4. Project Location: The project site occupies approximately 8.85 acres on the north side of Brodiaea Avenue and on the west side of Quincy Street (a paper street) in the eastern portion of the City of Moreno Valley (City), western Riverside County. The project site consists of Assessor's Parcel Number (APN) 478-080-014. The site is approximately 1.65 miles south of State Route 60 (SR-60), and Interstate 215 (I-215) is approximately 6.5 miles west of the project site (Figure 1 depicts the regional and project location). The Moreno Valley Ranch Golf Club is located approximately 0.35 mile south of the project site, and the unimproved Quincy Channel is located just east of the project site. The latitude of the site is 33° 54' 57" North and its longitude is 117° 10' 09" West. According to the U.S. Geological Survey (USGS) Sunnymead Quadrangle topographic map (7.5-minute series, 1980), the site is located in Section 14, Township 3 South, Range 3 West based on the San Bernardino Baseline and Meridian (SBBM). See Figures 1 and 2.

5. Project Sponsor's Name and Address: Melissa Vallone (909) 354-8014, Frontier Communities, 2151 E. Convention Center Way, Ontario, CA 91764

6. General Plan Designation: Residential: Max. 3 dwelling units/acre (per General Plan Figure 2-2, Land Use Map)

7. Zoning: Residential (R3) with up to 3 units per acre

8. Description of the Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary)(see Appendix A). Photographs of the project site are provided in Figure 3.

   The Project proposes the creation of 45 residential lots and three (3) lettered lots for the construction of 45 single family residential units on 8.85 gross acres and 5.81 net acres, with a gross density of 5.09 units per acre and a net density of 7.75 units/acre. The project will require a General Plan Amendment (PEN18-0053), Change of Zone (CZ PEN18-0054), and a Tentative Tract Map (TTM 37544). The General Plan land use designation for the site is Residential 3 (R3); Max. 3 units/acre and is proposed to be changed to Residential 10 (R10): Max. 10 units/acre. The existing zoning is R3 (max. 3 units/acre) and is proposed to be changed to RS10 (single-family, max. 10 units per acre). The proposed arrangement of lots is depicted in Tentative Tract Map 37544 and as shown in Figure 4. The project would generate approximately 176 residents based on current U.S. Census data for the City (3.91 persons per household). Appendix A contains project information. TTM 37544 shows lot sizes range from 4,843 square feet (50' x 95') up to 11,939 square feet, with an average lot size of 5,624 square feet (see Appendix A). One lot in the southwest

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

corner of the site will be utilized as a water quality/detention basin (Lot A designated for Open Space with 6,105 square feet). An underground water quality basin is proposed near the southeast corner of the site. Improvements to the Quincy Channel (Moreno Master Plan Drainage Line G) just east of the site are anticipated as part of this project (i.e. from Brodiaea Avenue to a point approximately 430 feet north of Brodiaea Avenue per TTM 37544). Figure 5 shows the possible channel design cross sections that may be employed for improving the channel, subject to approval by the City and various regulatory agencies. Although the channel is not within the project boundary, these improvements are proposed to address indirect biological and hydrological impacts to the channel from project development.

The existing ground gradually slopes gently down to the south (1.2% slope). Elevations onsite range from 1,600 feet above mean sea level (AMSL) along the northern boundary down to 1,592 feet AMSL along the southern boundary and are generally consistent with the surrounding topography. Grading activities include 15,900 cubic yards of cut and 17,200 cubic yards of fill (net is 1,300 cubic yards of imported fill but largely balanced onsite). The project grading plan is shown in Figure 6. Existing utility lines in Brodiaea Avenue include a 6-inch domestic gas line, a 30-inch high pressure gas line, an 8- to 12-inch domestic water line, as well a storm drain line and sanitary sewer line.

Ingress/egress to the project site would be from two (2) local streets off Brodiaea Avenue: Quincy Street to the east, which will be improved to approximately 650 feet north of Brodiaea Avenue as part of project construction, and a proposed Street "A" to the west, designed per City standards. Both streets will also provide access for emergency vehicles, and, will connect to the proposed streets "B" and "C" providing internal access within the Project. The Project will provide a linear park incorporating a variety of improvements in conjunction with a trail along the west side of the Quincy Channel adjacent to the project site. The final design of the linear park and related trail improvements will be subject to review and approval by the City of Moreno Valley.

The applicant has requested a General Plan Amendment (GPA) to change the existing land use designation on the site from Residential Maximum 3 units/acre to Residential Maximum 10 units/acre. The applicant has similarly requested a Change of Zone (CZ) to change the existing onsite zoning from R3 (maximum 3 units/acre) to RS10 (single-family maximum 10 units per acre). The applicant is proposing a more intense land use designation and zoning to provide more housing opportunities for a wider segment of the home-buying market. The applicant believes this higher density is also consistent with regional housing and demographic trends and to help provide a wider range of housing opportunities than are currently available in this portion of the City. The special amenity required by the Municipal Code for RS10 zone housing is the linear park and trail improvements along the portion of the Quincy Channel adjacent to the project site.

9. Surrounding Land Uses and Setting: (Briefly describe the project's surroundings)

   Surrounding land uses include: one and two-story single-family residential housing to the south across Brodiaea Avenue (zoned RS10), vacant land to the north (zoned R3), vacant land and a single residence with an associated light industrial yard further to the west (zoned R3), the Quincy Channel to the east, and vacant land and rural residences further to the east (zoned R3). The land east and west of the existing RS10 residences is zoned R5. A new residential subdivision is being constructed southeast of the site (zoned R5). Refer to Figure 2 for surrounding zoning.

10. Other public agencies whose approval is required (e.g. permits, financing approval, or participation agreement).

    Regulatory permitting through the California Department of Fish and Wildlife, U.S. Army Corps of Engineers, Regional Water Quality Control Board, Riverside County Flood Control and Water Conservation District may be required for improvements to the Quincy Channel.

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

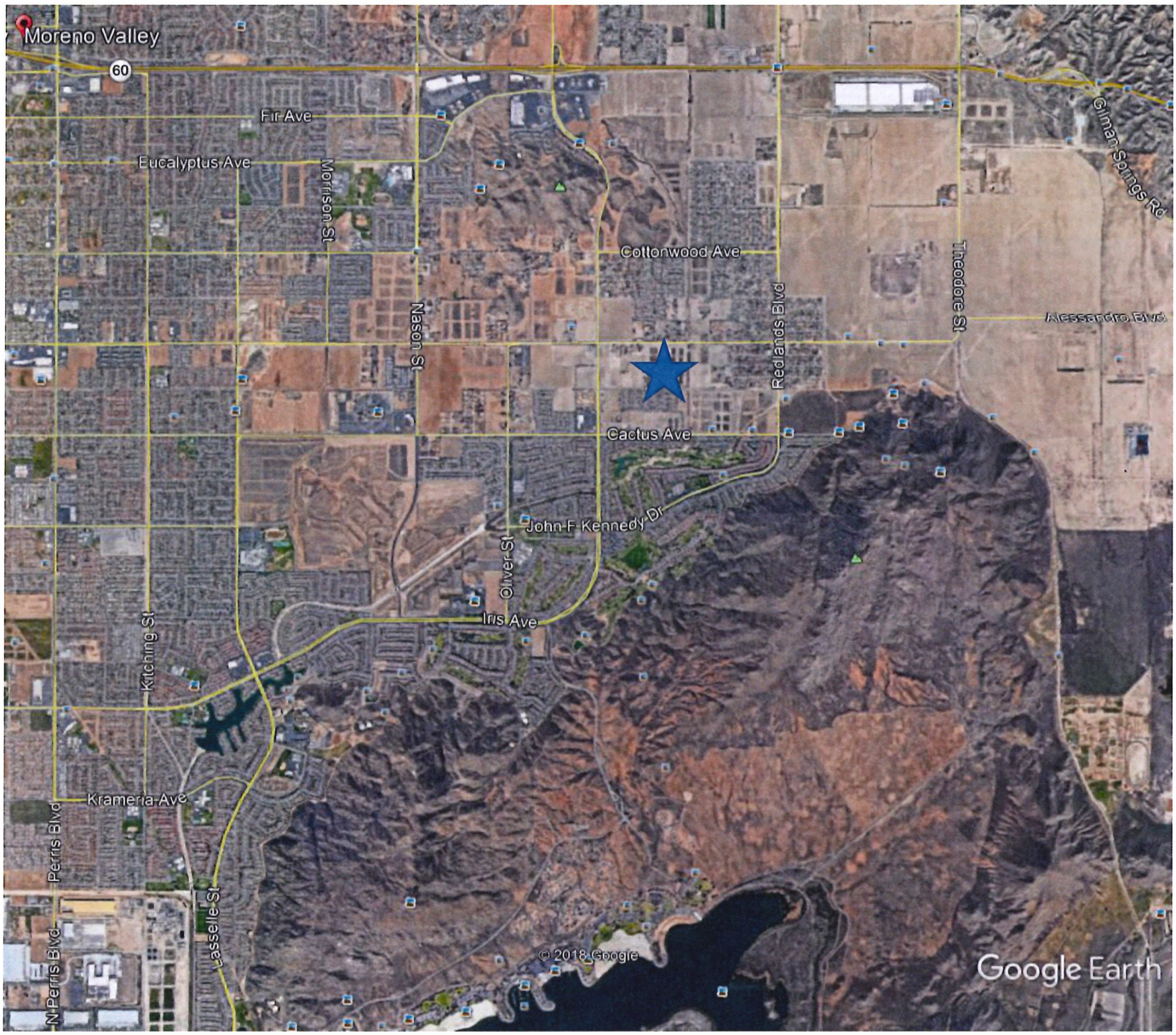
    The City sent out SB 18 and AB 52 letters/emails to local tribal representatives on March 29, 2018 and received the following replies regarding government to government consultation on this project:

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

- San Manuel Band of Mission Indians- letter dated March 29, 2018 requesting consultation.
- Agua Caliente Band of Cahuilla Indians – 2 letters dated April 2, 2018 deferring consultation to the Morongo and Soboba tribes.
- Soboba Tribe – letter dated April 27, 2018 requesting consultation.
- Pechanga Tribe (Temecula Band of Luiseno Mission Indians) two letters dated April 5, 2018 requesting consultation under both SB 18 and AB 52.

NOTE: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3 (c) contains provisions specific to confidentiality.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

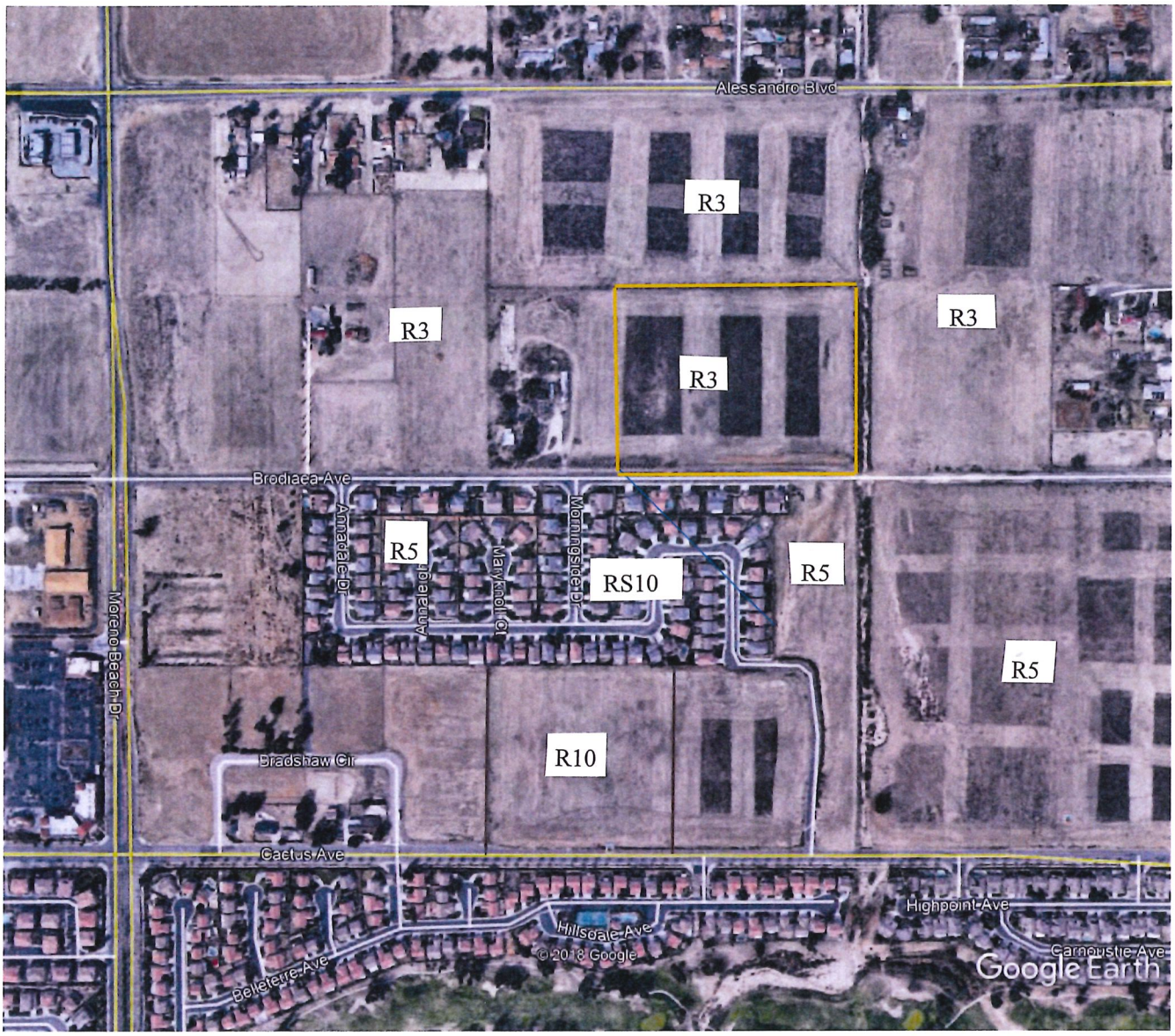


Project Site

FIGURE 1: REGIONAL LOCATION

Brodiaea Residential Project by Frontier Communities

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)



Site Boundary

FIGURE 2: PROJECT AREA

Brodiaea Residential Project by Frontier Communities

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Figure 3 Site Photographs

(a) Looking north across eastern end of site from Brodiaea Avenue (from southeast corner of site)

(b) Looking northwest across center of site from Brodiaea Avenue (from southeast corner of site)

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Figure 3 Site Photographs (cont'd)

(c) Looking northwest across western portion of site from Brodiaea Avenue (from southeast corner of site)

(d) Looking west along Brodiaea Avenue from southeast corner of project site

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Figure 3: Site Photographs (cont'd)

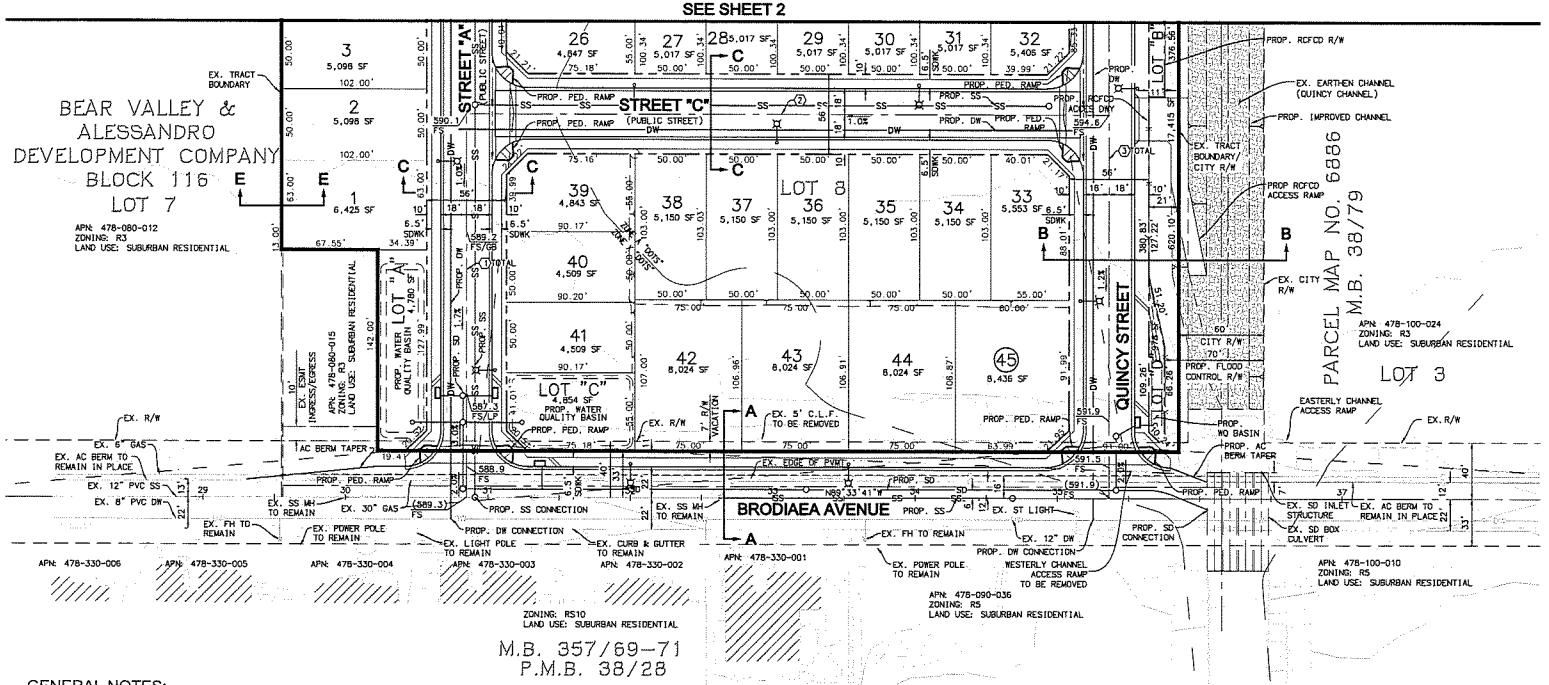
(e) Looking east along Brodiaea Avenue (new housing construction at right)(from southeast corner of site)

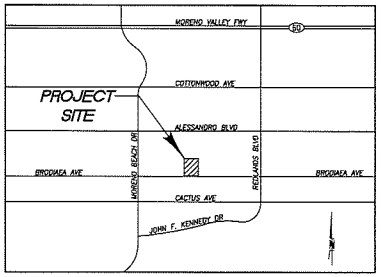
(f) Looking north along Quincy Channel from Brodiaea Avenue just east of the project site

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TENTATIVE TRACT MAP 37544

APN: 478-080-014





VICINITY MAP

NOT TO SCALE

LOT SUMMARY:

SUBAREA LOT NUMBER	CONCEPT PLAN LAND USE	AREA ACREAGE
LOT 1	RESIDENTIAL	0.147
LOT 2	RESIDENTIAL	0.117
LOT 3	RESIDENTIAL	0.117
LOT 4	RESIDENTIAL	0.117
LOT 5	RESIDENTIAL	0.118
LOT 6	RESIDENTIAL	0.116
LOT 7	RESIDENTIAL	0.204
LOT 8	RESIDENTIAL	0.274
LOT 9	RESIDENTIAL	0.141
LOT 10	RESIDENTIAL	0.115
LOT 11	RESIDENTIAL	0.112
LOT 12	RESIDENTIAL	0.111
LOT 13	RESIDENTIAL	0.111
LOT 14	RESIDENTIAL	0.111
LOT 15	RESIDENTIAL	0.113
LOT 16	RESIDENTIAL	0.108
LOT 17	RESIDENTIAL	0.109
LOT 18	RESIDENTIAL	0.118
LOT 19	RESIDENTIAL	0.115
LOT 20	RESIDENTIAL	0.117
LOT 21	RESIDENTIAL	0.117
LOT 22	RESIDENTIAL	0.117
LOT 23	RESIDENTIAL	0.116
LOT 24	RESIDENTIAL	0.176
LOT 25	RESIDENTIAL	0.103
LOT 26	RESIDENTIAL	0.111
LOT 27	RESIDENTIAL	0.115
LOT 28	RESIDENTIAL	0.115
LOT 29	RESIDENTIAL	0.115
LOT 30	RESIDENTIAL	0.115
LOT 31	RESIDENTIAL	0.115
LOT 32	RESIDENTIAL	0.124
LOT 33	RESIDENTIAL	0.127
LOT 34	RESIDENTIAL	0.118
LOT 35	RESIDENTIAL	0.118
LOT 36	RESIDENTIAL	0.118
LOT 37	RESIDENTIAL	0.118
LOT 38	RESIDENTIAL	0.118
LOT 39	RESIDENTIAL	0.111
LOT 40	RESIDENTIAL	0.104
LOT 41	RESIDENTIAL	0.104
LOT 42	RESIDENTIAL	0.184
LOT 43	RESIDENTIAL	0.184
LOT 44	RESIDENTIAL	0.184
LOT 45	RESIDENTIAL	0.194
LOT A	OPEN SPACE	0.110
LOT B	OPEN SPACE	0.195
LOT C	OPEN SPACE	0.111
LOT D	OPEN SPACE	0.023
---	PROPOSED PUBLIC STREET	2.412
---	PROPOSED COUNTY CHANNEL	0.182
TOTAL		8.846

GENERAL NOTES:

1. SITE ADDRESS: NORTHWEST CORNER OF BRODIAEA AVE AND QUNICY CHANNEL (STREET), MORENO VALLEY, CA
2. SITE ACREAGE:
   GROSS: 8.846 ACRES
   NET: 5.811 ACRES
3. EXISTING ZONING: R3
4. PROPOSED ZONING: RS10
5. GENERAL LAND USE: SUBURBAN RESIDENTIAL
6. EARTHWORK: 15,900 CY CUT
   17,200 CY FILL
   1,300 CY IMPORT
7. TOPOGRAPHY SOURCE:
8. TOTAL STREET LENGTH: 2,081 L.F.
9. SCHOOL DISTRICT: MORENO VALLEY UNIFIED

FLOOD ZONE NOTE

THE SUBJECT PROPERTY IS DESIGNATED AS FEMA ZONE A "DOTS": SPECIAL FLOOD ZONE HAZARD AREA (SFHA) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. NO BASE FLOOD ELEVATION DETERMINED.

AND FEMA FLOOD ZONE X "DOTS": OTHER FLOOD AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.

AS SHOWN ON:
FLOOD INSURANCE RATE MAP NO. 06065C0770G
COMMUNITY: CITY OF MORENO VALLEY
NUMBER: 065074
PANEL: 0770 OF 3805
DATE: AUGUST 28, 2008.

(SOURCE: https://msc.fema.gov)

AMENITY NOTE

THE PROJECT PROPOSES A LINEAR PARK AND WALKING TRAIL THAT WILL RUN THE ENTIRE LENGTH OF THE PROJECT ALONG QUINCY CHANNEL WITH AMENITIES TO INCLUDE: MEANDERING TRAIL, BENCHES, EXERCISE STATIONS, AND LANDSCAPE. TRAIL SHALL BE MAINTAINED BY THE CITY. AMENITIES AND LANDSCAPING WITHIN LOT "B" SHALL BE MAINTAINED BY THE HOA.

LEGAL DESCRIPTION

PARCEL 1:

LOT 8 IN BLOCK 116 OF MAP NO. 1 OF BEAR VALLEY AND ALESSANDRO DEVELOPMENT COMPANY, AS SHOWN BY MAP ON FILE IN BOOK 11 PAGE(S) 10 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY, CALIFORNIA.

EXCEPT THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID LOT 8, SAID POINT BEING ON THE NORTHERLY LINE OF BRODIAEA STREET, AS SHOWN ON SAID MAP; THENCE EASTERLY ALONG THE SOUTHERLY LINE OF SAID LOT, 67.6 FEET; THENCE NORTHERLY AND PARALLEL WITH THE WESTERLY LINE OS SAID LOT, 135 FEET; THENCE WESTERLY AND PARALLEL WITH THE SOUTHERLY LINE OF SAID LOT, 67.6 FEET; THENCE SOUTHERLY ALONG THE WESTERLY LINE OF SAID LOT, 135 FEET TO THE POINT OF BEGINNING.

APN: 478-080-014

SYMBOLS LEGEND

- TOP/TOE OF SLOPE
- TRACT BOUNDARY
- EASEMENT
- CENTERLINE
- RETAINING WALL
- LINE OF SIGHT
- FLOOD ZONE LINE
- PROPOSED PROPERTY LINE
- RIGHT OF WAY
- EXISTING RIGHT OF WAY
- SLOPE
- SANITARY SEWER
- STORM DRAIN
- DOMESTIC WATER
- EXISTING STREET LIGHT
- CATCH BASIN
- FIRE HYDRANT
- SCE TRANSFORMER LOCATION.
- DOUBLE DETECTOR CHECK
- AC CONDENSER
- PROPOSED ST LIGHT

ABBREVIATIONS

AC	ASPHALT CONCRETE
℄	CENTER LINE
C.L.F.	CHAIN LINK FENCE
CONC.	CONCRETE
CY	CUBIC YARD
DW	DOMESTIC WATER
ESMT.	EASEMENT
EX.	EXISTING
FH	FIRE HYDRANT
MH	MANHOLE
MWS	MODULAR WETLAND SYSTEM
RCFCD	RIVERSIDE COUNTY FLOOD CONTROL DISTRICT
PED.	PEDESTRIAN
PVC	POLYVINYL CHLORIDE
PROP.	PROPOSED
PVMT.	PAVEMENT
R/W	RIGHT OF WAY
SCE	SOUTHERN CALIFORNIA EDISON
SD	STORM DRAIN
SDWK	SIDEWALK
SF	SQUARE FEET
SS	SANITARY SEWER
WQ	WATER QUALITY

LINE/CURVE DATA TABLE

		BEARING/DELTA	RADIUS	LENGTH	TANGENT
TOTAL	1	N00°24'18"E	---	398.03'	---
	2	N89°33'41"W	---	456.00'	---
TOTAL	3	N00°24'18"E	---	525.07'	---

40 20 0 40 80 120

SCALE: 1"=40'

DIAL TOLL FREE 1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
USA SERVICE ALERT OF SOUTHERN CALIFORNIA

ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE PLOTTED FROM CITY RECORDS. NO ADDITIONAL UTILITY OR SUBSTRUCTURE RESEARCH HAS BEEN PERFORMED. THE CONTRACTOR SHALL DETERMINE THE EXISTENCE AND THE TRUE HORIZONTAL AND VERTICAL LOCATION AND SIZE OF ANY UNDERGROUND UTILITIES OR STRUCTURES AND SHALL BE RESPONSIBLE FOR PROTECTION, ADJUSTMENT, OR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR NOTIFYING U.S.A./DIG ALERT AT 1-800-227-2600 FOR UNDERGROUND UTILITY MARKING AT LEAST 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION. CONSTRUCTION SHALL NOT COMMENCE PRIOR TO SAID UNDERGROUND UTILITY MARKING.

REGISTERED PROFESSIONAL ENGINEER JARED BERNARD No. 77740 CIVIL STATE OF CALIFORNIA

Michael Baker INTERNATIONAL
5 Hutton Centre Drive, Suite 500, Santa Ana, CA 92707
Phone: (949) 472-3505 · MBAKERINTL.COM

REVISIONS			
N°	DATE	BY	DESCRIPTION

DEVELOPER:
FRONTIER ENTERPRISES
CONTACT: MELISSA VALLONE
2151 E. CONVENTION CENTER WAY
ONTARIO, CA
951-354-8040
MVALLONE@FRONTEIR-ENTERPRISE.COM

TENTATIVE TRACT MAP 37544

TRACT NO.
CITY CASE NO.
DATE: 09/12/18
SHEET 1 of 2

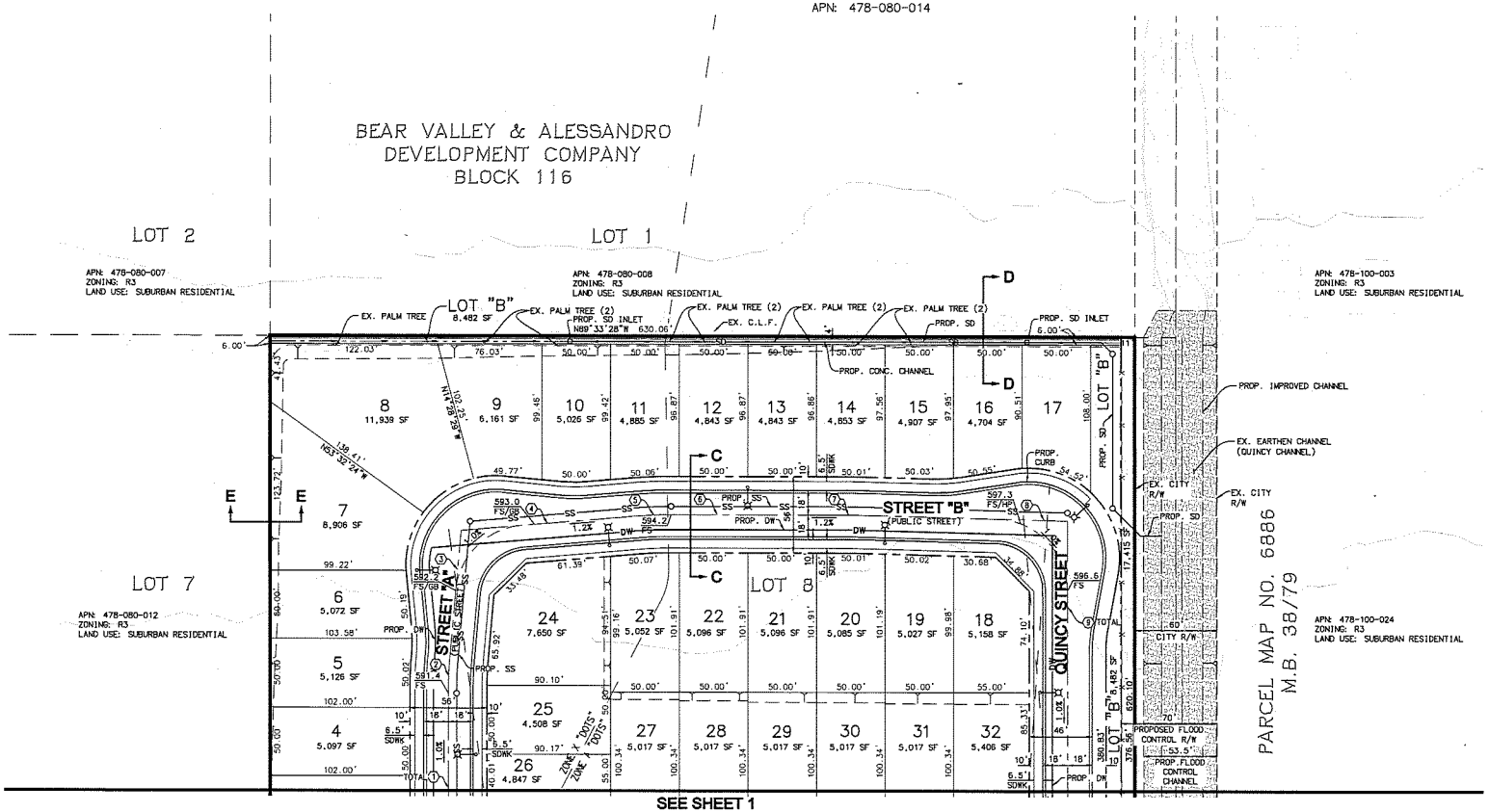
DATA\161595\CADD\LAND\XLVTM\161595-TTM-01.DWG JARED.BERNARD 9/13/18 7:26 am

Packet Pg. 1118

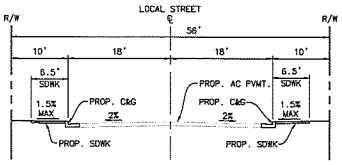
3.b

TENTATIVE TRACT MAP 37544

APN: 478-080-014



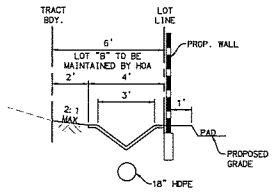
LINE/CURVE DATA					
	(#)	BEARING/DELTA	RADIUS	LENGTH	TANGENT
TOTAL	1	N00°24'18"E	—	398.03'	—
	2	05°02'22"	300.00'	26.39'	13.20'
	3	N05°26'40"E	—	93.40'	—
	4	N85°30'48"E	—	127.95'	—
	5	04°52'59"	300.00'	25.57'	12.79'
	6	N89°33'41"E	—	124.48'	—
	7	01°29'41"	300.00'	7.83'	3.91'
	8	N89°04'00"W	—	156.52'	—
TOTAL	9	N00°24'18"E	—	525.07'	—



NOTE: STREET DESIGN PER STD. MVSI-107A

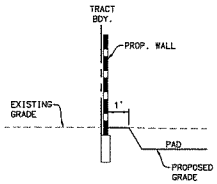
SECTION C-C

SCALE: 1"=10'



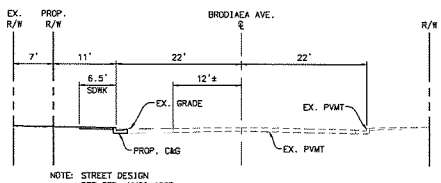
SECTION D-D

NOT TO SCALE



SECTION E-E

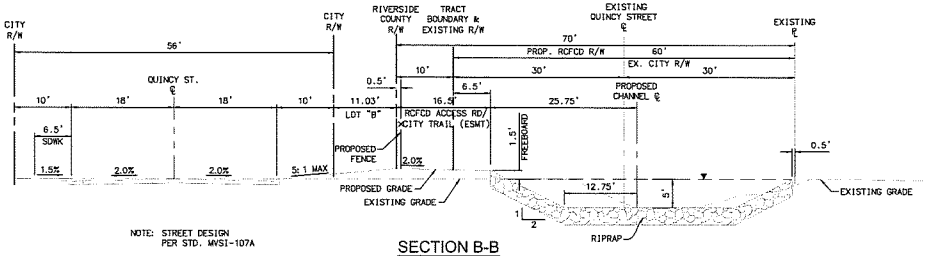
NOT TO SCALE



NOTE: STREET DESIGN PER STD. MVSI-106B

SECTION A-A

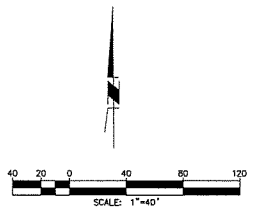
SCALE: 1"=10'



NOTE: STREET DESIGN PER STD. MVSI-107A

SECTION B-B

SCALE: 1"=10'



DIAL TOLL FREE 1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE PLOTTED FROM CITY RECORDS. NO ADDITIONAL UTILITY OR SUBSTRUCTURE RESEARCH HAS BEEN PERFORMED. THE CONTRACTOR SHALL DETERMINE THE EXISTENCE AND THE TRUE HORIZONTAL AND VERTICAL LOCATION AND SIZE OF ANY UNDERGROUND UTILITIES OR STRUCTURES AND SHALL BE RESPONSIBLE FOR PROTECTION, ADJUSTMENT, OR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR NOTIFYING U.S.A./DIG ALERT AT 1-800-227-2600 FOR UNDERGROUND UTILITY MARKING AT LEAST 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION. CONSTRUCTION SHALL NOT COMMENCE PRIOR TO SAID UNDERGROUND UTILITY MARKING.

REGISTERED PROFESSIONAL ENGINEER JARED BERNARD No. 77740 CIVIL STATE OF CALIFORNIA

Michael Baker INTERNATIONAL
5 Hutton Centre Drive, Suite 500, Santa Ana, CA 92707
Phone: (949) 472-3505 · MBAKERINTL.COM

REVISIONS			
Nº	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			
6			

DEVELOPER:
FRONTIER ENTERPRISES
CONTACT: MELISSA VALLONE
2151 E. CONVENTION CENTER WAY
ONTARIO, CA
951-354-8040
MVALLONE@FRONTEIR-ENTERPRISE.COM

TENTATIVE TRACT MAP 37544

TRACT NO.
CITY CASE NO.
DATE: 04/24/18
SHEET 2 of 2

J:\DATA\161595\CAD0\LAND\DLVLTNA\161595-TTM-02.DWG JARED.BERNARD 9/12/18 1:06 pm

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

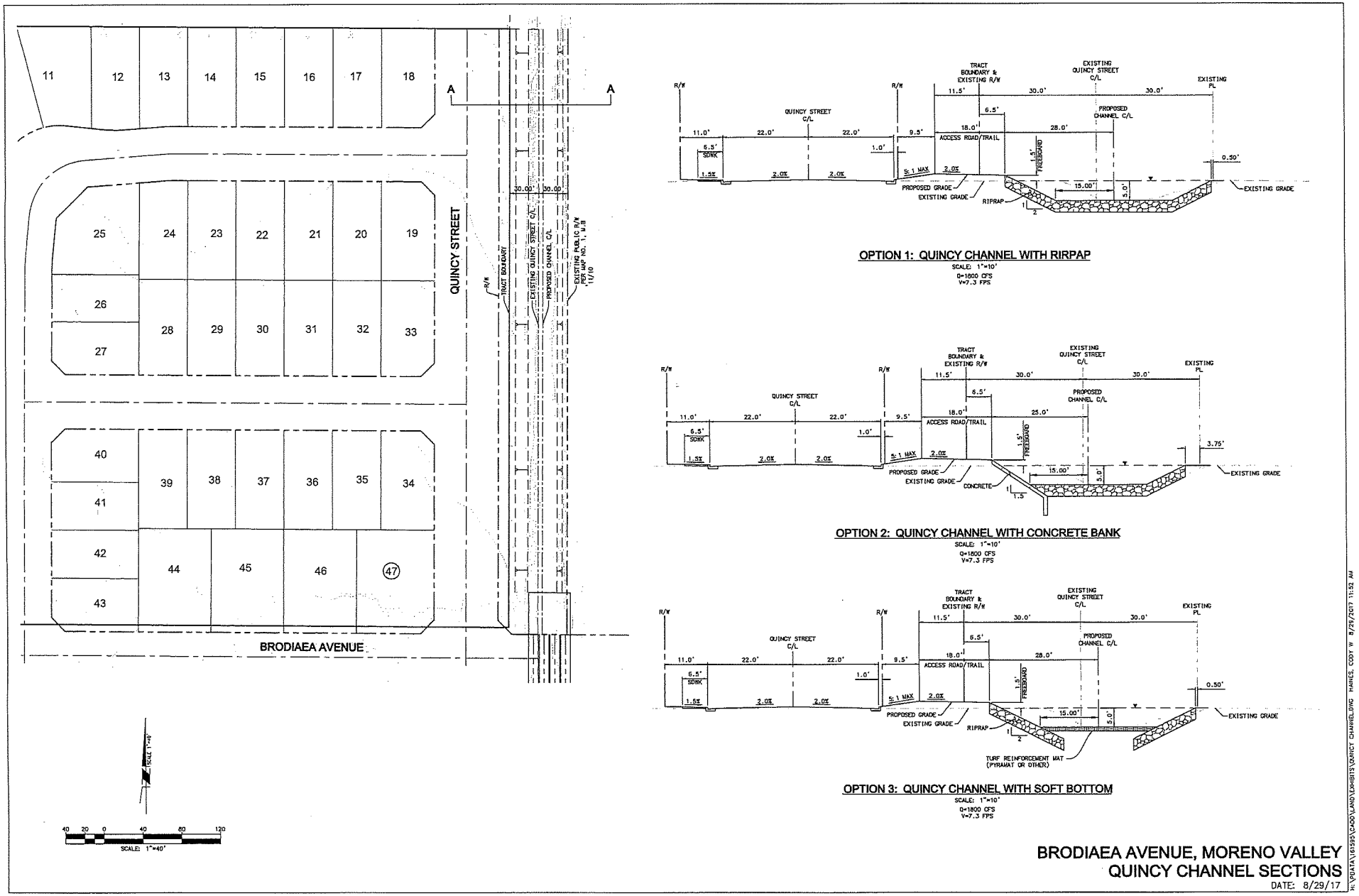
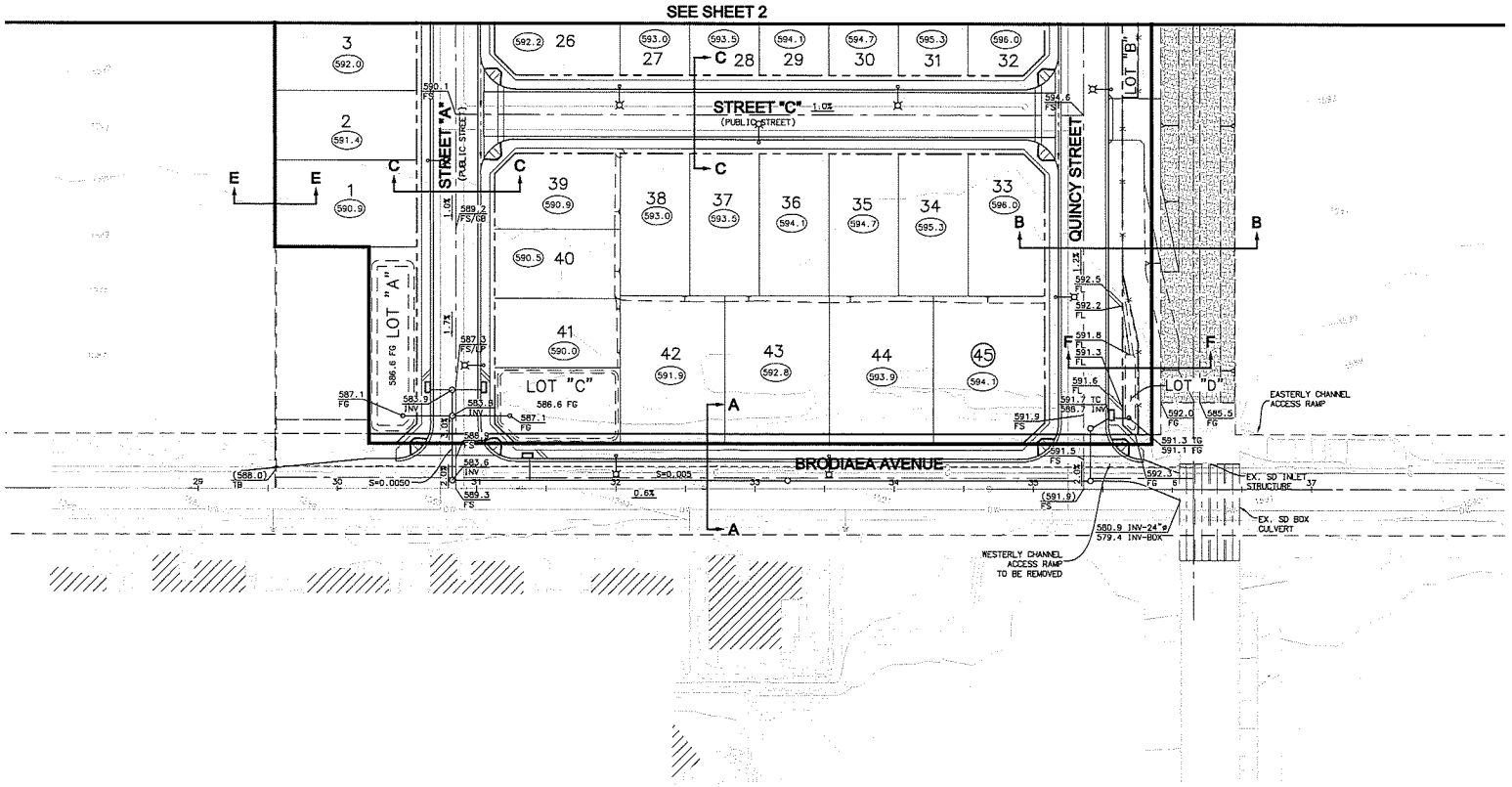
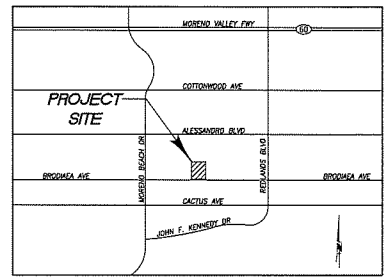
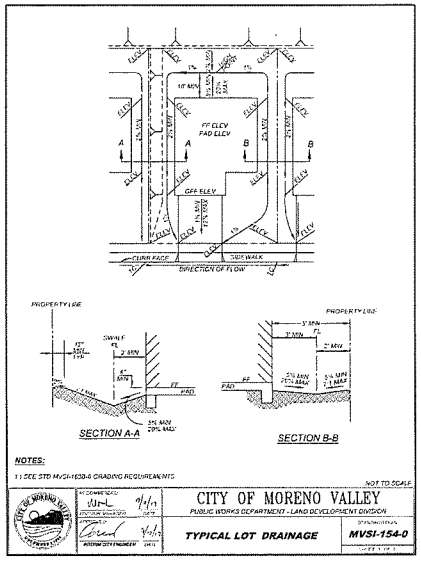


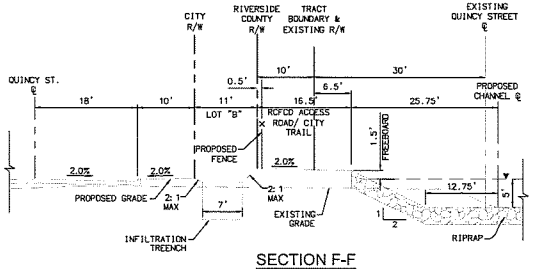
Figure 5: Quincy Channel Design Options



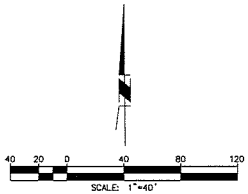


VICINITY MAP
NOT TO SCALE





SECTION F-F
SCALE: 1"=10'



DIAL TOLL FREE 1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE PLOTTED FROM CITY RECORDS. NO ADDITIONAL UTILITY OR SUBSTRUCTURE RESEARCH HAS BEEN PERFORMED. THE CONTRACTOR SHALL DETERMINE THE EXISTENCE AND THE TRUE HORIZONTAL AND VERTICAL LOCATION AND SIZE OF ANY UNDERGROUND UTILITIES OR STRUCTURES AND SHALL BE RESPONSIBLE FOR PROTECTION, ADJUSTMENT, OR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR NOTIFYING U.S.A./DIG ALERT AT 1-800-227-2600 FOR UNDERGROUND UTILITY MARKING AT LEAST 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION. CONSTRUCTION SHALL NOT COMMENCE PRIOR TO SAID UNDERGROUND UTILITY MARKING.

REGISTERED PROFESSIONAL ENGINEER JARED BERNARD No. 77740 CIVIL STATE OF CALIFORNIA

Michael Baker INTERNATIONAL
5 Hutton Centre Drive, Suite 500, Santa Ana, CA 92707
Phone: (949) 472-3505 · MBAKERINTL.COM

REVISIONS			
N°	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			
6			

DEVELOPER:
FRONTIER ENTERPRISES
CONTACT: MELISSA VALLONE
2151 E. CONVENTION CENTER WAY
ONTARIO, CA
951-354-5040
MVALLONE@FRONTEIR-ENTERPRISE.COM

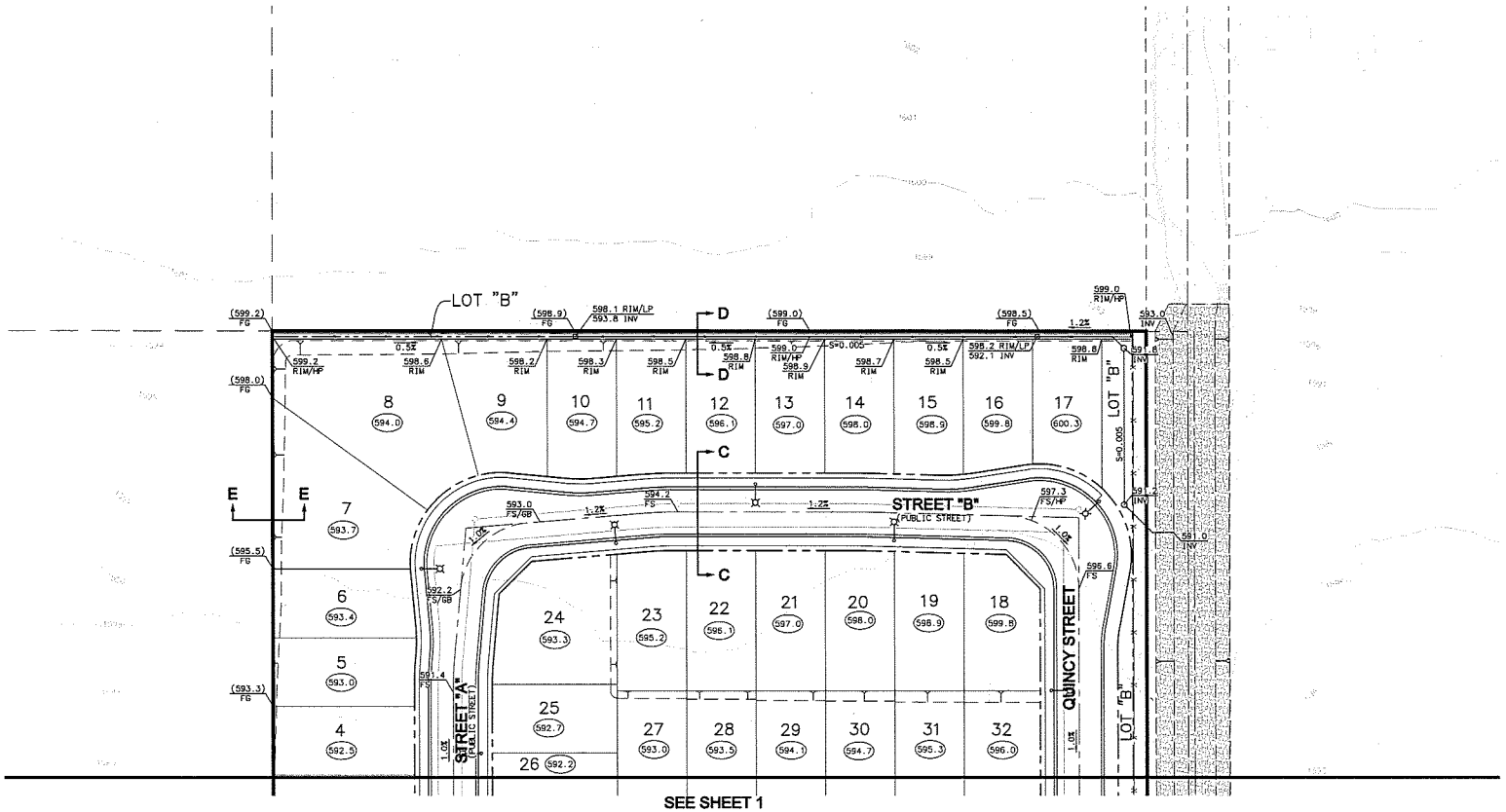
TTM 37544
PRELIMINARY GRADING PLAN

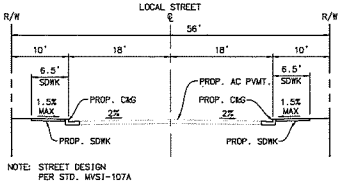
TRACT NO.
CITY CASE NO.
DATE: 09/12/18
SHEET 1 of 2

DATA\161995\CADD\LAND\LV\GRADING\PRELIM\161995-GR-01.DWG JARED.BERNARD 9/12/18 1:20 pm

Packet Pg. 1121

3.b

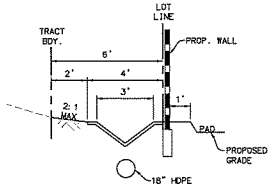




NOTE: STREET DESIGN PER STD. MVSI-107A

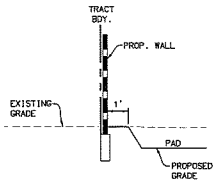
SECTION C-C

SCALE: 1"=10'



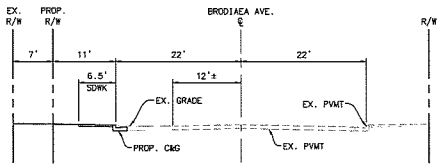
SECTION D-D

NOT TO SCALE



SECTION E-E

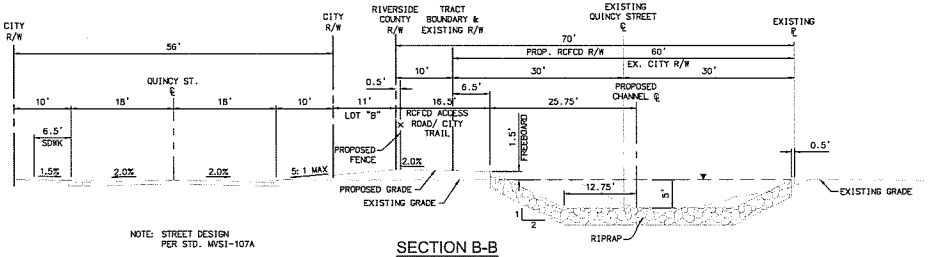
NOT TO SCALE



NOTE: STREET DESIGN PER STD. MVSI-106B

SECTION A-A

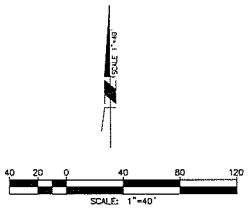
SCALE: 1"=10'



NOTE: STREET DESIGN PER STD. MVSI-107A

SECTION B-B

SCALE: 1"=10'



DIAL TOLL FREE 1-800-227-2600

AT LEAST TWO DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE PLOTTED FROM CITY RECORDS. NO ADDITIONAL UTILITY OR SUBSTRUCTURE RESEARCH HAS BEEN PERFORMED. THE CONTRACTOR SHALL DETERMINE THE EXISTENCE AND THE TRUE HORIZONTAL AND VERTICAL LOCATION AND SIZE OF ANY UNDERGROUND UTILITIES OR STRUCTURES AND SHALL BE RESPONSIBLE FOR PROTECTION, ADJUSTMENT, OR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR NOTIFYING U.S.A./DIG ALERT AT 1-800-227-2600 FOR UNDERGROUND UTILITY MARKING AT LEAST 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION. CONSTRUCTION SHALL NOT COMMENCE PRIOR TO SAID UNDERGROUND UTILITY MARKING.

REGISTERED PROFESSIONAL ENGINEER JARED BERNARD No. 77740 CIVIL STATE OF CALIFORNIA

Michael Baker INTERNATIONAL

5 Hutton Centre Drive, Suite 500, Santa Ana, CA 92707

Phone: (949) 472-3505 · MBAKERINTL.COM

REVISIONS			
Nº	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			
6			

DEVELOPER:
FRONTIER ENTERPRISES

CONTACT: MELISSA VALLONE
2151 E. CONVENTION CENTER WAY
ONTARIO, CA
951-354-8040
MVALLONE@FRONTEIR-ENTERPRISE.COM

TTM 37544
PRELIMINARY GRADING PLAN

TRACT NO.

CITY CASE NO.

DATE: 09/12/18

SHEET 2 of 2

DATA\161595\CADD\LAND\DL-V\GRADING\PRELIM\161595-GR-02.DWG JARED.BERNARD 9/12/18 1:11 pm

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below(■) would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

	Aesthetics		Greenhouse Gas Emissions		Public Services
	Agricultural Resources		Hazards & Hazardous Materials		Recreation
	Air Quality		Hydrology/Water Quality		Transportation/Traffic
	Biological Resources		Land Use/Planning		Utilities/Service Systems
	Cultural Resources		Mineral Resources		Tribal Cultural Resources
	Geology/Soils		Noise		Mandatory Findings of Significance
			Population/Housing		

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	
I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	**X**
I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	
I find that the proposed project MAY have a "potential significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	
I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	

Signature 9/20/2018 Date

SEDA YAGHOUBIAN, CITY OF MORENO VALLEY CASE PLANNER
Printed Name For

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Potentially Significant Unless Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analysis," as described in (5) below, may be cross-referenced).

5) Earlier analysis may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c) (3) (d). In this case, a brief discussion should identify the following:

   (a) Earlier Analysis Used. Identify and state where they are available for review.

   (b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   (c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The analysis of each issue should identify: (a) the significance criteria or threshold used to evaluate each question; and (b) the mitigation measure identified, if any, to reduce the impact to less than significance.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

I. **AESTHETICS.** Would the project:

a) Have a substantial adverse effect on a scenic vista?			X	

Less than Significant Impact. Scenic vistas are publicly accessible viewpoints that provide views of areas that exemplify a community's environment. Impacts to private views (e.g., individual homes, backyards, etc.) are not generally considered environmental impacts under CEQA. Scenic vistas within the eastern portion of the City (i.e., the general project area) include Box Springs Mountains and the Reche Canyon area to the northwest across the SR-60 Freeway, the "Badlands" to the east, and the Mount Russell area to the southeast.[1]

The project site is located at the northwest corner of Brodiaea Avenue and Quincy Street (a paper street) in the eastern portion of the City. Elevations in the area topography are generally flat but rise gently away to the north toward the SR-60 Freeway and the Mt. Russell area to the south. The proposed residential development will have a mixture of one- and two-story homes which would be similar in scale and appearance to the existing homes south of the site across Brodiaea Avenue and future homes being constructed to the southeast off Cactus Avenue. The project proposes five lots (#41-45, see TTM 37544) along the north side of Brodiaea Avenue with dimensions approaching those of typical RS10 lots to be more visually consistent with the existing housing zoned RS10 just south of the project site across Brodiaea Avenue. For example, the depth of the proposed detention basin and Lot #41 is 90 feet, the widths of proposed Lots 42-44 are 75 feet, and the width of Lot #45 is 65 feet compared to approximately 100 feet for the widths of the existing lots south of the project site.

Public views in the project vicinity are available to pedestrians and passengers in vehicles traveling east and west along Brodiaea Avenue. The proposed development will result in new houses along this portion of Brodiaea Avenue temporarily blocking views to the northwest (Box Spring Mountains) and the northeast (the Badlands). Views to the north for passengers in vehicles traveling along Brodiaea Avenue may be blocked for a maximum of 17.5 seconds based on the width of the project (640 feet) and assuming a vehicle speed of 25 miles per hour (36.6 feet per second). In addition, the project proposes RS10 lots that are smaller than R3 lots under existing zoning, so new houses would be closer to each other than if the houses were on larger R3 lots. This increased density would incrementally degrade public views, however, the project site and surrounding areas are planned for residential uses in general, and the blockage of identified public views to the northwest and northeast would be temporary for travelers. Additionally, potential impacts to public views would have more to do with the bulk and massing of the proposed residential units, including height and architecture, than with the lot sizes. The General Plan land use designation for the site is residential the impacts of which were analyzed in the General Plan EIR. Building massing and height would not be substantially different under the proposed RS10 as opposed to the existing R3 designation.

Due to the location of the project, no views to the east (the Badlands) or to the south (Mt. Russell area) will be blocked by the proposed residences. Although not considered an environmental impact, private views for residents living immediately south of the project will not be substantially affected because the main views are to the northwest and northeast, and the project proposes lots with dimensions along the north side of Brodiaea Avenue that approach those of the existing larger lots along the south side of Brodiaea Avenue. The proposed streets and lot layout will create gaps between buildings and reduce the blockage of public views.

Based on its location and design, development of the proposed residential project would have a less than significant impact on scenic vistas, and no mitigation is required.

b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?			X	

Less than Significant Impact. The proposed project site is currently vacant. Surrounding land uses include single-family residential to the east and south, and vacant land to the north and west. Two scenic highways are located within the City

[1] Chapter 7 – Conservation, City of Moreno Valley General Plan, July 11, 2006.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

which include State Route 60 (SR-60) and Moreno Beach Drive.[1] State Route 60 is located approximately 1.65 miles north of the project site while Moreno Beach Drive is located approximately 0.35 mile west of the project site. Development of the project site will not substantially change views to the east from Moreno Beach Drive as the overall appearance will still be residential although the proposed lots are smaller than the existing zoning (R3) so views of the project would be of incrementally higher density housing under the RS10 zoning compared to the less dense R3 zoning. The project would not be visible to travelers along the SR-60 Freeway due to the two large warehouse buildings that are currently being constructed just south of the freeway west of Redlands Boulevard (i.e., Aldi and Eucalyptus Industrial Park). The proposed project would not block views to the south from the freeway toward the Mt. Russell area due to the lower elevations of the project site and the proposed buildings and those views are already blocked by the new warehouse buildings. Therefore, the development of the proposed project will have a less than significant impact related to scenic resources and no mitigation is required.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	

Less than Significant Impact. The proposed project would convert existing vacant land to suburban residential development similar to existing uses south of the site and planned uses southeast of the site. It would not be fully consistent visually with more rural residences further to the east, west, and north. This area appears to be slowly converting to more suburban-style residential development. The construction phase of the project would introduce the use of machinery such as excavators and bulldozers. The presence of the construction equipment, as well as the construction activities, would temporarily alter the visual character of the project site. Construction staging areas, including earth stockpiling, storage of equipment and supplies, and related activities would contribute to a disturbed site, which would be a short-term visual impact.

The project site and surrounding areas to the north and west are currently vacant. Single-family residential units, similar to those of the proposed project, are located just south of the site, and similar residences are planned and under construction southeast of the site. There is existing vacant undeveloped land located to the north, west, and east, and the unimproved Quincy Channel is just east of the site (refer to Figures 2 and 3). The proposed project would introduce homes into the project area that would have smaller lots and be more dense with smaller lots (RS10) than existing houses to the southwest (R3). The proposed project would therefore result in slightly degraded views of the area than if the site was developed with larger lots. The proposed project would comply with the City of Moreno Valley General Plan policies and regulations regarding the design and appearance of the proposed residential buildings and related improvements. Therefore, the minor degradation in visual character that would result from implementation of the project (i.e., at the higher RS10 density compared to the existing R3 zoning) would be less than significant. No mitigation is required.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

Less than Significant Impact. The project site presently does not contain any source of light. Sources of light in the area include street lighting and nighttime housing lights along Brodiaea Avenue southwest of the site. There are no street lights along the more rural portion of Brodiaea Avenue southeast of the site. Streetlights are also found along Moreno Beach Drive west of the site and along Alessandro Boulevard north of the site. The development of the project site with suburban residences would create new sources of light and glare. At night, additional streets lights and residential building or landscaping lights would be visible from the adjacent single-family residential uses to the south, and to a lesser extent, from the surrounding public streets, especially Brodiaea Avenue. However, these light sources are not expected to significantly increase ambient nighttime lighting levels in the surrounding area. In addition, new construction shall comply with the City of Moreno Valley's General Plan and Municipal Code requirements in terms of night lighting. Therefore, lighting impacts would be less than significant. No mitigation is required.

Glare is daytime occurrence resulting from light reflecting off polished surfaces and affecting viewers in nearby moving vehicles. The project site is currently vacant with no sources of glare. Sources of glare that could result from project

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

implementation include windows and reflective window tinting materials, as well as vehicles parked within and traveling to and from the property. The amount of glare would depend on the location of the reflective surfaces and the direction of the sun. For residential uses, the main source of glare would be from windows. Any glare produced by the reflective surfaces would be temporary, as the location of the sun would be changing throughout the day and would be similar to those impacts experienced in other residential areas of the City. Therefore, impacts from glare would be less than significant. No mitigation is required.

II. **AGRICULTURE RESOURCES**: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project?

a) Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?			X	

Less than Significant Impact. The California Department of Conservation, Farmland Mapping and Monitoring Program (FMMP) compiles important farmland maps pursuant to the provisions of Section 65570 of the California Government Code. The maps are updated every two years using computer mapping system, aerial imagery, public review and field reconnaissance. According to the FMMP, the project site and surrounding area are classified as "Farmland of Local Importance"[2] although it is bounded by "Urban and Built-Up Land" and is in a portion of the City that has been slowly developing with suburban and rural residential uses in recent years. This general area once supported agricultural uses, but much of the surrounding land has already been developed or is planned to be developed into various suburban uses. The City's General Plan acknowledges agriculture was an important part of the City's history, but there is no zoning in the City that would preserve agricultural uses or soils suitable for agriculture over the long-term. The closest area that is designated Prime Farmland under the FMMP is located over a mile north of the project site (i.e., north of the SR-60 freeway). It should be noted that the project site is also underlain by two soil types that are considered "prime" agricultural soils[3] by the Natural Resources Conservation Service (NRCS). However, no lands designated as Prime, Unique, or Statewide Important Farmland are located within the project limits. Therefore, impacts to state designated farmland that would result from development of the proposed project would be less than significant, and no mitigation is required.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X

No Impact. The California Land Conservation Act of 1965 –commonly known as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses. In return, landowners are given a lower property tax assessment. The project site does not contain land that is enrolled in a Williamson Act contract.[4] Additionally, according to the City of Moreno Valley's Zoning Map, the project site is currently zoned for "Suburban Residential" uses. In addition, the surrounding area contained existing or planned suburban development, and the City has no agricultural land use designations in its General Plan or zoning. Since the project site is not under a Williamson Act contract or within an area zoned for agricultural uses, no impact associated with this issue would occur. No mitigation is required.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or				X

[2] Department of Conservation, Farmland Mapping and Monitoring Program, http://maps.conservation.ca.gov/ciff/ciff.html (Accessed September 19, 2017).
[3] https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx website accessed April 18, 2018
[4] California Department of Conservation, Division of Land Resource Protection, Riverside County Williamson Act FY 2015/2016, Sheet 1 of 3, website: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Riverside_w_15_16_WA.pdf (Accessed April 2, 2018).

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?				

No Impact. The proposed project site is currently vacant and undeveloped. The site does not contain any forest land, Timberland Production, nor is it zoned for such uses. Therefore, the project will have no impact on forest land, timberland, or timberland zoned Timberland Production. No mitigation is warranted.

d) Would the project result in loss of forest land or conversion of forest land to non-forest use?				X

No Impact. Please refer to Checklist Response IIc.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X

No Impact. As noted above, the project site is currently vacant and is not utilized for agricultural production or timberland. Neither the project site nor adjacent properties are being used or zoned for farmland or forest land. Please refer to Checklist Responses IIa and IIc. Therefore, the development of the proposed project will not result in the conversion of farmland to non-agricultural use or forest land to non-forest uses and no impact in this regard will occur. No mitigation is required.

III. **AIR QUALITY:** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?			X	

Less than Significant Impact. The project site is located in the South Coast Air Basin (Basin), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The Basin includes all of Orange County and portions of Los Angeles, Riverside, and San Bernardino Counties. The SCAQMD adopted an Air Quality Management Plan (AQMP), the main purpose of which is to describe air pollution control strategies to be taken by a city, county, or region classified as a nonattainment area in order to bring the area into compliance with federal and state air quality standards. A nonattainment area is considered to have air quality worse than the National Ambient Air Quality Standards (NAAQS) as defined in the Federal Clean Air Act. The Basin is in nonattainment for the federal and state standards for ozone (O3) and particulate matter less than 2.5 microns in diameter (PM2.5) and in nonattainment for the state standards for particulate matter less than 10 microns in diameter (PM10) and nitrogen dioxide (NO2). The Basin is in attainment/maintenance/unclassified status for all other federal and state criteria pollutant standards.

Consistency with the Final 2016 AQMP for the Basin means that a project will be consistent with the goals, objectives, and assumptions in the respective plan to achieve the federal and state air quality standards. Pursuant to the methodology provided in Chapter 12 of the 1993 SCAQMD Air Quality Handbook[5], consistency with the Basin 2016 AQMP is affirmed when a project (1) does not increase the frequency or severity of an air quality standards violation or cause a new violation; and (2) is consistent with the growth assumptions in the AQMP. For the proposed project to be consistent with the AQMP adopted by the SCAQMD, the pollutants emitted from the project should not exceed the SCAQMD daily threshold or cause a significant impact on air quality, or the project must already have been included in the AQMP projections. Additionally, if feasible mitigation measures are implemented and shown to reduce the impact level from significant to less than significant, a project may be deemed consistent with the AQMP.

[5] Air Quality Handbook, South Coast Air Quality Management District, 1993 http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

According to the SCAQMD's Air Quality Handbook, consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects. The project is relatively small and proposes uses generally consistent with the General Plan land use designation (i.e. suburban residential) although its density would be slightly higher than the existing zoning. The air quality assessment for the project determined project emissions would be well below SCAQMD daily standards (see checklist response 3b below). In addition, the proposed project is not considered a significant project (e.g., large-scale projects such as airports, electrical generating facilities, petroleum and gas refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and offshore drilling facilities). As discussed in checklist response 3b below, the proposed project's short-term construction and long-term pollutant emissions will not exceed the emissions thresholds established in the SCAQMD's CEQA Air Quality Handbook; therefore, the project would not result in an increase in the frequency or severity of any air quality standards violation and will not cause a new air quality standard violation. For these reasons, the proposed project is consistent with the growth projections in the City's General Plan and the regional AQMP. Therefore, impacts related to implementation of the AQMP would be less than significant.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.		X		

Less than Significant Impact. The following analysis analyzes both short-term impacts caused by construction activities and long-term impacts caused by occupancy and operation of the project as proposed.[6]

Short-Term Impacts

Grading and other construction activities would result in combustion emissions from heavy-duty construction vehicles, haul trucks, and vehicles transporting construction crews. Exhaust emissions during these construction activities will vary daily as construction activity levels change. The grading phase of construction represents the most intense construction period during which daily emissions would be at their greatest level, based on the potential amount of equipment and duration of use. Construction equipment estimates are based on default values in CalEEMod (Version 2016.3.1). The project grading would largely be balanced onsite with only a small amount (1,300 cubic yards) of soil that would need to be transported offsite for disposal or transported onsite for use in construction activities. Table A below provides a "worst-case" estimate of the short-term construction emissions for the project as prepared by Urban Crossroads in April/September of 2018. Table A indicates that the construction pollutant emissions from the proposed project would not exceed the corresponding SCAQMD daily emissions threshold for criteria pollutants. Appendix C contains air quality calculations for the proposed project.

Currently, the Basin is designated as a nonattainment area for ozone, PM_{10}, and $PM_{2.5}$. Project construction will be required to comply with regional fugitive dust reduction practices (SCAQMD Rule 403) that assist in reducing short-term air pollutant emissions. The purpose of SCAQMD Rule 403 is to reduce the amount of particulate matter in the atmosphere resulting from man-made fugitive dust sources. Among the requirements under this rule, fugitive dust must be controlled so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. This is achieved by requiring actions to prevent, reduce, or mitigate dust emissions. Adherence to Rule 403 is a standard requirement for any construction activity occurring within the Basin. As depicted in Table A, construction emissions would not exceed daily SCAQMD thresholds, so impacts are less than significant. However, to assure that project emissions remain at less than significant levels, Mitigation Measure AIR-1 is recommended.

6 Air Quality and Greenhouse Gas Emissions Analysis and Screening Health Risk Assessment Technical Memorandum, October 27, 2017.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Table A: Estimated Construction Emissions

Construction Phase	Peak Daily Pollutant Emissions (lbs/day)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Max. Daily Emissions	26.8	59.6	36.0	<0.1	9.8	6.3
SCAQMD Thresholds	75	100	550	150	150	55
Significant Emissions?	No	No	No	No	No	No

Source: Worst Case Emissions for 2018 or 2019, whichever is higher, rounded to one decimal, Urban Crossroads, September 2018 (Appendix C).

CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides
ROG = reactive organic gases (similar to volatile organic compounds or VOC)

AIR-1 **Construction Emissions.** The following actions shall be implemented to help reduce project construction-related emissions to the greatest extent feasible. The project shall comply with the requirements of SCAQMD Rules 402 and 403, Fugitive Dust, which require the implementation of Reasonable Available Control Measures (RACM) for all fugitive dust sources, and the AQMP, which identifies Best Available Control Measures (BACM) and Best Available Control Technologies (BACT) for area sources and point sources, respectively. This includes the following actions:

1. The project proponent shall ensure that construction equipment is properly maintained and serviced to minimize exhaust emissions.
2. The project proponent shall ensure that existing power sources are utilized where feasible via temporary power lines to avoid on-site power generation.
3. The project proponent shall ensure that construction employees be informed of ride-sharing and transit opportunities.
4. The project proponent shall ensure that any portion of the site to be graded shall be pre-watered to a depth of three (3) feet prior to the onset of grading activities.
5. The project proponent shall ensure that twice daily watering of the site or other soil stabilization methods shall be employed on an ongoing basis after the initiation of any on-site grading activity. Portions of the site that are actively being graded shall be watered regularly to ensure that a crust is formed on the ground surface, and shall be watered at the end of each workday.
6. The project proponent shall ensure that all disturbed areas are treated to prevent erosion until the site is constructed.
7. To reduce the potential for wind erosion, the project proponent shall ensure that landscaped areas are installed as soon as possible.
8. The project proponent shall ensure that SCAQMD Rule 403 is adhered to, ensuring the cleanup of construction-related dirt on approach routes to the project site.
9. The project proponent shall ensure that all grading activities are suspended during first and second stage ozone episodes or when wind speeds exceed 25 miles per hour.
10. Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 m (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code (CVC) Section 23114.
11. Limit all onsite traffic speeds to 15 mph or less.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

12. The construction contractor shall use construction equipment that have Tier 4 compliant engines and Level 3 diesel particulate filters (DPF) with oxidations catalyst that impart a 20% reduction.

Long-Term Impacts

Operational emissions from area sources include vehicular exhaust, the combustion of natural gas for heating and hot water, engine emissions from landscape maintenance equipment, and the use of appliances. Mobile source emissions are associated with project-related vehicle trip generation. Based on the CalEEMod (Version 2016.3.1) default mode at full buildout, the project would generate approximately 444 average daily trips (ADT). The long-term operational emissions associated with the proposed project, calculated using the CalEEMod 2016.3.1 model, are shown in Table B which demonstrates operational activities associated with the project would be below SCAQMD thresholds (Appendix C). The table includes the highest unmitigated emissions for either summer or winter, whichever is higher. Therefore, project-related long-term air quality impacts would be less than significant, and no mitigation is required.

Table B: Operational Emissions

Source	Pollutant Emissions (lbs/day)					
	ROG	**NOx**	**CO**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Area Sources	14.3	1.0	27.8	<0.1	3.6	3.6
Energy Sources	<0.1	0.4	0.1	0.0	<0.1	<0.1
Mobile Sources	1.0	5.3	13.9	<0.1	3.4	1.0
Total Project Emissions	**15.3**	**6.7**	**41.8**	**0.1**	**7.1**	**4.6**
SCAQMD Thresholds	55	55	550	150	150	55
Significant Emissions?	No	No	No	No	No	No

Source: Worst Case Summer or Winter Emissions (Unmitigated), whichever is higher, rounded to one decimal, Urban Crossroads, September 2018 (Appendix C).

CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides
ROG = reactive organic gases (similar to volatile organic compounds or VOC)

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	

Less Than Significant Impact. The majority of the project-related operational emissions would be due to resident vehicle trips to and from the project, as well as natural gas for space and hot water heating. Tables A and B indicate that all emissions of criteria pollutants from the proposed project would not exceed the applicable SCAQMD thresholds over both the short and long term, therefore, project- and cumulative air quality impacts are considered to be less than significant and no mitigation is required.

d) Expose sensitive receptors to substantial pollutant concentrations?			X	

Less Than Significant Impact. Localized Significance Thresholds (LSTs) represent the maximum emissions from a project that would not result in an exceedance of the national or state ambient air quality standards. LSTs are based on the ambient concentrations of that pollutant within the project source receptor area (SRA) and the distance to the nearest sensitive receptor. For this project, the appropriate SRA is the Perris Valley Area (SRA 24)(Appendix C).

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Short-Term LST Impacts

As previously described, it is expected that construction would occur in one phase and it is expected that less than 5 acres would be actively worked on during any given day. The closest sensitive receptors to the site are existing residences south of the project site, the closest of which would be approximately 100 feet from the construction area. Table C shows that emissions are well below LST thresholds and thus would be less than significant and not require mitigation.

Table C: Construction Localized Impacts Analysis

Emissions Sources	NOx	CO	PM_{10}	$PM_{2.5}$
Onsite Emissions (lbs/day)	21.0	14.0	3.2	2.0
Local Significance Thresholds (lbs/day)	**125.0**	**670.0**	**5.9**	**3.2**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: Urban Crossroads, September 2018 (Appendix C).

Note: Source Receptor Area 24 – Perris Valley, 1 acre, 31 meter distance

CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Long-Term LST Analysis

The potential long-term daily air pollutant emissions from the operational activities of the proposed residential uses were calculated and compared with the appropriate LSTs from the SCAQMD based on CalEEMod 2016.3.1 model data from the project air quality assessment (Appendix C). As shown in Table D, the calculations determined that the operational emission rates would not exceed the LST thresholds for the closest sensitive receptors. Therefore, the proposed operational activity would not result in a localized significant air quality impact and no mitigation is required.

Table D: Long-Term Operational Localized Impacts Analysis

Emissions Sources	NOx	CO	PM_{10}	$PM_{2.5}$
Onsite Emissions (lbs/day)	0.3	1.4	0.07	0.04
Local Significance Thresholds (lbs/day)	**125.0**	**670.0**	**1.50**	**1.00**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: Urban Crossroads, September 2018 (Appendix C).

Note: Source Receptor Area 24 – Perris Valley, 1 acre, 31 meter distance.

CO = carbon monoxide
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

e) Create objectionable odors affecting a substantial number of people?			X	

Less Than Significant Impact. Project construction will generate limited odors over the short-term, mainly fumes from gasoline- and diesel-powered construction equipment. These odors would be temporary and not likely to be noticeable beyond the project limits. The painting of buildings or the installation of concrete paving may also create temporary odors. SCAQMD Rule 1113 outlines standards for paint applications, while Rule 1108 identifies standards regarding the application of asphalt. Adherence to the standards identified in these SCAQMD Rules would reduce temporary odor impacts to a less than significant level, and no mitigation is required.

Land uses generally associated with long-term objectionable odors include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting operations, refineries, landfills, dairies, and fiberglass molding facilities. The proposed project is residential in nature and would not be expected to result in significant odor impacts. Because the project would not involve any substantial short-term or long-term sources of strong negative odors, impacts are considered to be less than significant and no mitigation is required.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. **BIOLOGICAL RESOURCES**. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U. S. Fish and Wildlife Service?		X		

Less Than Significant With Mitigation. A Biological Resource Assessment was prepared in March of 2018 by RCA Associates, Inc.[7] (see Appendix D). The survey determined the site had been repeatedly disked for weed abatement and presently contained mainly isolated non-native weedy plant species, including California buckwheat (native), fiddlenecks, brome grasses, annual bursage, and erodium. A number of California fan palm trees also border the site and may be remnants of former agricultural windrows. The site may support a variety of wildlife species but only a few were actually observed, including jackrabbit, cottontail, and California ground squirrel. Birds observed onsite include raven, red-tailed hawk, Anna's hummingbird, and a variety of songbirds tolerant of human activity. Reptiles not observed but expected to occur onsite include the desert spiny lizard, side blotched lizard, western whiptail lizard, and rattlesnake.

The biology report indicated that 31 special status species had been documented in the surrounding region, but only two listed species, the Stephen's kangaroo rat (SKR) and San Bernardino kangaroo rat (SBKR) had any potential to occur in the immediate project area. The report concluded the site contained marginal habitat for SKR but it was not observed onsite, and SBKR has little or no potential to occur on the project site itself (pages 6, 8-9, RCA 2018a). In addition, the report concluded it was possible that a number of special status plants or animals could also be present in the project area (see Table 4-1 in the project biological survey). Sensitive species included tricolored blackbird, burrowing owl, Cooper's hawk, coast horned lizard, red-diamond rattlesnake, short-joint beavertail cactus, and the smooth tarplant (pages 9-10, RCA 2018), but the report concluded these species had little or no potential to actually occur onsite due to repeated disturbance of the site. Because the site is highly disturbed and lacking appropriate vegetation, there is only a low potential for any of these species to actually occur onsite (see Appendix D). The site is within the established Stephen's kangaroo rat (SKR) Habitat Conservation Plan (HCP) area and so the project will be required to pay the established SKR habitat mitigation fee.

The project site lies within the County's Multiple Species Habitat Conservation Plan (MSHCP) but does not contain any Criteria Cells, Constrained Linkages, Public or Quasi-Public Land, or other identified resources or resource areas. However, the site is within the MSHCP survey area for burrowing owl. The project site has been recently plowed for weed abatement and is largely un-vegetated. Because the project site lies within the MSHCP survey area for burrowing owl, a burrowing owl habitat assessment was conducted in March of 2018 by RCA Associates, Inc. which found no evidence of owls or owl sign, and no evidence of usable burrows (page 6, RCA 2018b). However, burrowing owls are mobile and seasonally migratory birds, Mitigation Measure BIO-1 is incorporated which will reduce impacts to a less than significant level. No additional mitigation measures are required in regard to listed or otherwise sensitive species.

BIO-1 **Burrowing Owl Survey.** Prior to the issuance of a grading permit, a pre-construction survey for burrowing owl shall be conducted by a qualified biologist no more than 30 days before the commencement of vegetation removal or ground disturbing activities to confirm the absence of burrowing owl onsite. If burrowing owl(s) are detected during the focused surveys, a Burrowing Owl Mitigation and Monitoring Plan ("Plan") shall be prepared by a qualified biologist and submitted to the California Department of Fish and Wildlife for review and approval prior to commencement of project activities. The Plan shall describe appropriate avoidance, minimization, and mitigation measures to reduce impacts to burrowing owls and ensure the implementation of appropriate and commensurate compensatory mitigation for the loss of burrowing owl nesting and foraging habitat. No further action is required if the 30-day pre-construction survey does not result in burrowing owl sign or observations.

[7] Biological Resources Assessment, Frontier Communities Brodiaea Avenue Residential Project, RCA Associates, Inc. March 14, 2018 (Appendix C).

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Have a substantially adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U. S. Wildlife Service?		X		

Less Than Significant With Mitigation. No riparian or riverine habitats were identified within the project site, but the unimproved Quincy (flood control) Channel lies offsite adjacent to the eastern boundary of the project site.[8] The project site has been repeatedly disked for weed abatement and is largely unvegetated except for remnant perimeter windrows of California fan palm trees (see Figures 2 and 3). The site supports a limited amount of weedy non-native mainly invasive plants with isolated California buckwheat as the main native plant present.

The adjacent Quincy Channel supports riparian habitat which includes tree tobacco (non-native), California buckwheat, arroyo willow, and coyote brush. Although the channel is offsite, the project may have indirect impacts on that waterway which could fall under the jurisdiction of one or more resource agencies (e.g., U.S. Army Corps of Engineers, California Department of Fish and Wildlife, etc.). The project plans show a low berm is to be constructed just east of Quincy Street, on what is the west bank of the Quincy Flood Control Channel. A final design for this portion of the channel has not been selected, but whatever design is selected it will require coordination by the City of Moreno Valley, the Riverside County Flood Control and Water Conservation District, the California Department of Fish and Wildlife, and possibly the U.S. Army Corps of Engineers during related and subsequent permitting processes. Figure 5 shows three options for the channel design; riprap bank, concrete bank, and soft bottom. While development of the project site is not physically dependent on improvements to this portion of the Quincy Channel, improvements to the channel are proposed to address indirect project impacts prior to occupancy of the project[9]. Mitigation Measure BIO-2 addresses potential impacts to the channel. With mitigation, potential impacts to riparian resources will be reduced to less than significant levels.

BIO-2 **Quincy Channel Improvements.** Prior to issuance of the first occupancy permit, the applicant shall demonstrate to the City of Moreno Valley Planning Division that a final improvement plan has been approved for that portion of the Quincy Channel adjacent to the project site by the City Public Works Division, the Riverside County Flood Control and Water Conservation District, the California Department of Fish and Wildlife, and possibly the U.S. Army Corps of Engineers (if federal jurisdiction is determined to apply to the project or channel). The applicant shall make appropriate improvements to the channel to the satisfaction of the City Engineer per the approved improvement plan and prior to the issuance of the first occupancy permit.

Regarding natural communities, the project site lies within the County's Multiple Species Habitat Conservation Plan (MSHCP) for western Riverside County but does not contain any Criteria Cells, Constrained Linkages, Public or Quasi-Public, or other identified habitat resources. No MSHCP Narrow Endemic Plant Species (NEPS) are known to occur within the project area, and the site is not within an MSHCP survey area for NEPS. As a result, a focused NEPS survey is not required. There would be no impact in this regard and no mitigation is required.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		X		

Less Than Significant with Mitigation. The project site itself does not contain any federal wetlands or water resources under federal jurisdiction. However, the nearby Quincy Channel may fall under the jurisdiction of the U.S. Army Corps of Engineers (USACE). To err on the side of caution, it is concluded the channel may be under federal jurisdiction. If the USACE exercises jurisdiction over this channel, implementation of Mitigation Measure BIO-3 requires coordination of

[8] IBID.

[9] May 9, 2014 Project Review Staff Committee meeting minutes, attached memo dated April 22, 2014 from Vince, Assoc. Engineer regarding future improvements to the Quincy Channel

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

channel design and improvements with USACE prior to project occupancy due to indirect impacts on the channel from project development. Therefore, potential impacts in this regard are less than significant with mitigation.

d) Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X		

Less Than Significant with Mitigation. The project is currently vacant and is surrounded by residential uses. The project will not affect wildlife movement since the parcel is surrounded by urban development and species associated with urban environments are able to navigate these areas. The Quincy Channel may provide for some movement of birds or mammals tolerant of human activity (e.g., coyote). Due to ongoing disturbance, the project site does not provide suitable foraging ground or localized movement for wildlife. However, nesting habitat may be indirectly affected by proposed project activities. Palm trees and low shrubs on the site or in the adjacent Quincy Channel may provide nesting habitat for birds using the site and surrounding areas. Increased noise and human presence as a result of construction activities may cause birds to abandon nests or negatively affect nestlings. Typically, the CDFW requires construction activities within 300 feet of trees and shrubs be scheduled outside of the avian nesting season. If construction activities are planned during the avian nesting season (February 1 through September 15), a pre-construction nesting bird survey should be conducted within three days prior to commencement to avoid impacts to birds protected under the Migratory Bird Treaty Act (MBTA). Mitigation Measure BIO-3 will ensure that potential impacts are less than significant.

BIO-3 **Nesting Bird Survey.** If project activities are planned during the avian nesting season (approximately February 1 through September 15), a nesting bird survey shall be conducted onsite within ten days prior to disturbance to ensure birds protected under the MBTA are not disturbed by construction-related activities such as noise and increased human presence. Any active nests detected in the area shall be flagged and an appropriate buffer around the nest location will be established, as determined by the CDFW. The buffer area is to be avoided until the nesting cycle is complete or it is determined by the biologist that the nest has failed. This measure shall be implemented to the satisfaction of the City Planning Division.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?		X		

Less Than Significant Impact. The site contains no native vegetation, drainages, or other biological resources and is not subject to the City's tree protection ordinance 9.16.210. The project site is located within the County's Multiple Species Habitat Conservation Plan (MSHCP) but is not located in a Criteria Cell and is not adjacent to Public-Quasi-Public or Conservation Land. Therefore, it is not subject to possible land conservation requirement under the MSHCP. However, the project will be required to pay the established MSHCP impact fee and will implement Mitigation Measures BIO-1 through BIO-3 which will also help address potential impacts to listed or sensitive species. For these reasons, the project will have less than significant impacts related to local biological ordinances and policies, and any Habitat Conservation Plans. No mitigation is required (see Appendix D).

V. **CULTURAL RESOURCES**. Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?		X		

Less than Significant Impact with Mitigation. There are no sites within Moreno Valley study area listed as a state landmark, nor are there any sites on the National Register of Historic Places, although the old Moreno Schoolhouse was designated a

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

City landmark[10] in 1988 - it is located two miles northeast of the project site. According to the Cultural Resource Assessment[11] prepared for the Project one cultural resource was noted within a half mile radius of the project site, and six cultural resource reports have been previously completed within the half mile buffer surrounding the Project site. During the field reconnaissance, no "historical resources" as defined under CEQA were discovered onsite. However, numerous prehistoric resources lie in the uplands to the south and southwest. To assure there will be no significant impacts to any potential buried cultural resources, Mitigation Measures CUL-1 through CUL-6 shall be implemented to reduce impacts related to historical resources to less than significant with mitigation. These measures are consistent with the recommendations of the project cultural report and standard measures required by the City of Moreno Valley based on input from various Native American tribes.

CUL-1 **Project Archaeologist.** Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. Project grading and development scheduling;

b. The Project archeologist and the Consulting Tribes(s) as defined in CUL-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

CUL-2 **Tribal Monitoring.** Prior to the issuance of a grading permit, the City of Moreno Valley shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2. (only applicable if tribes require monitoring)

[10] Chapter 7 – Conservation, City of Moreno Valley General Plan, July 11, 2006.
[11] Cultural Resource Assessment, Frontier Communities Brodiaea Avenue Residential Project, RCA Associates, Inc. September 6, 2018.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

CUL-3 **Finds During Grading.** In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Division:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.

ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CUL-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CUL-1. The location for the future reburial area shall be identified on a confidential exhibit on file with the City and concurred to by the Consulting Native American Tribal Governments prior to certification of the environmental document.

CUL-4 **Grading Plan Note.** The City shall verify that the following note is included on the Grading Plan:

"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

CUL-5 **Accidental Finds.** If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CUL-1 before any further work commences in the affected area.

CUL-6 **Human Remains.** If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		X		

Less than Significant with Mitigation. According to the Eastern Information Center, there have been thirty (30) reported cultural resource areas within 1-mile of the project, one prehistoric site within the project's boundary. With Mitigation Measures CUL-1 through CUL-6 noted in CEQA Checklist V(a) discussion above would reduce the impact to less than significant levels. No additional mitigation measures are required (see Appendix E).

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

Less than Significant with Mitigation. The project site contains Alluvial Fan Deposits which consist of unconsolidated gravel, sand, and silt. Cobble- and boulder-sized clasts are also present and become more abundant closer to the hills and mountains. These sediments were eroded from higher elevations, carried by flooding streams and debris flows, and deposited in a fan or lobe shape at the base of the nearby hills. Based on the geology of the site, construction of the project would not impact, either directly or indirectly, any known unique paleontological resource or site of unique geologic features. Given the site's history of disturbance, the potential for undiscovered paleontological or geological resources is considered low. However, ground-disturbing activities at the project site still have the potential to disturb previously unknown resources. With implementation of Mitigation Measures CUL-7 through CUL-10, a less than significant impact to paleontological resources would occur.

CUL-7 **Paleontological Resources.** Prior to the issuance of a grading permit, the Project Applicant shall provide evidence to the City of Moreno Valley that a qualified paleontologist has been retained by the Project Applicant to conduct monitoring of excavation activities and has the authority to halt and redirect earthmoving activities in the event that suspected paleontological resources are unearthed.

CUL-8 **Paleo Monitor.** The paleontological monitor shall conduct full-time monitoring during grading and excavation operations in undisturbed, very old alluvial fan sediments at or below four (4) feet below ground surface and shall be equipped to salvage fossils if they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The paleontological monitor shall be empowered to temporarily halt or divert equipment to allow of removal of abundant and large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources.

CUL-9 **Paleo Curation.** Recovered specimens shall be properly prepared to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage, such as the Western Science Museum in Hemet, California, is required for significant discoveries.

CUL-10 **Paleo Report.** A final paleontological monitoring and mitigation report of findings and significance shall be prepared, including lists of all fossils recovered and written repository agreements, if any, and necessary maps and graphics to accurately record the original location of the specimens. The report shall be submitted to the City of Moreno Valley prior to building final.

d) Disturb any human remains, including those interred outside of formal cemeteries?		X		

Less than Significant with Mitigation. California Health and Safety Code §7050.5, Public Resources Code § 5097.98, and § 15064.5 of the California Code of Regulations (CEQA Guidelines) mandate procedures to be followed, including that, if human remains are encountered during excavation, all work must halt, and the County Coroner must be notified (Section 7050.5 of the California Health and Safety Code). The coroner will determine whether the remains are of forensic interest. If the coroner, with the aid of the supervising archaeologist, determines that the remains are prehistoric, the coroner will contact the Native American Heritage Commission (NAHC).

The NAHC will be responsible for designating the most likely descendant (MLD) responsible for the ultimate disposition of the remains, as required by Section 5097.98 of the Public Resources Code. The MLD should make his/her recommendations within 48 hours of their notification by the NAHC. This recommendation may include A) the non-

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

destructive removal and analysis of human remains and items associated with Native American human remains; (B) preservation of Native American human remains and associated items in place; (C) relinquishment of Native American human remains and associated items to the descendants for treatment; or (D) other culturally appropriate treatment. Section 7052 of the Health & Safety Code also states that disturbance of Native American cemeteries is a felony. With adherence to these existing regulation and Mitigation Measure CUL-6 impacts would be less than significant.

VI. **GEOLOGY AND SOILS**. Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:

(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	

Less Than Significant Impact. The project site is located within the Peninsular Range Geomorphic Province, an area characterized by active northeast trending strike slip faults, including the San Jacinto Fault and the Elsinore Fault (see Appendix F).[12] The project site is not located within the boundaries of an Earthquake Fault Zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act of 1972 (California Geological Survey 2005). There are no known active or potentially active faults that traverse the project site and the risk of ground rupture due to a fault displacement beneath the site is low. The closest known fault is the San Jacinto-Claremont Fault zone approximately 3.1 miles east of the project site.[13] Therefore, impacts related to earthquake faults would be less than significant. No mitigation is required (see Appendix F).

(ii) Strong seismic ground shaking?			X	

Less than Significant Impact. Like all of Southern California, the project site will continue to be subject to ground shaking generated from activity on local and regional faults. In addition, the site lies in relative close proximity to an active fault. Therefore, during the life of the proposed improvements, the property will probably experience moderate to occasionally high ground shaking from these fault zones, as well as some background shaking from other seismically active areas of the Southern California region. However, the design and construction in accordance with the current California Building Code (CBC) requirements is anticipated to address the issues related to potential ground shaking. In addition, the site specific geotechnical report evaluated potential ground shaking from a variety of potential sources. With the implementation of California Building Code (CBC) requirements and those outlined in the project geotechnical report[12], seismic-related impacts would be less than significant. No mitigation is required.

(iii) Seismic-related ground failure, including liquefaction?		X		

Less than Significant with Mitigation. Liquefaction describes the phenomenon where ground shaking works cohesionless soil particles into a tighter packing, which induces excess pore pressure. There are three basic factors that must exist concurrently in order for liquefaction to occur. These factors include:

- A source of ground shaking, such as an earthquake, capable of generating soil mass distortions;
- A relatively loose silty and/or sandy soil; and
- A relatively shallow groundwater table (within approximately 50 feet below ground surface) or completely saturated soil conditions that will allow positive pore pressure generation.

According to County data, the site has a moderate potential for liquefaction[13,14] and is considered susceptible to subsidence The proposed project would be required to adhere to applicable regulations ensuring building safety, and a less than

[12] Geotechnical Investigation and Infiltration Study, Geotek, Inc. February 12, 2014.
[13] Figure 6-3: Geologic Faults and Liquefaction, City of Moreno Valley General Plan, July 11, 2006.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

significant impact would result from the construction and operation of the proposed onsite uses with implementation of all applicable regulations and Mitigation Measure GEO-1 (see Appendix F) relative to liquefaction and subsidence.

GEO-1 **Geotech Report.** Prior to issuance of building permits, the project applicant or its designee shall demonstrate all recommendations contained in project-specific geotechnical and/or soils and foundation evaluation report by Geotek, Inc. dated February 12, 2014 are implemented. This measure shall be implemented to the satisfaction of the City Engineer.

(iv) Landslides?			X	

Less than Significant. The geologic and topographic characteristics of an area, often determine its potential for landslides. Steep slopes, the extent of erosion, and the rock composition of a hillside all contribute to the potential for slope failure and landslide events. In order to fail, unstable slopes typically need to be disturbed, and the most common triggering mechanisms of slope failure include undercutting of slopes by erosion or grading, saturation of marginally stable slopes by rainfall or irrigation, and shaking of marginally stable slopes during earthquakes. Although there are uplands further to the south, the project site and surrounding areas are not generally susceptible to landslides[13] based on soils data from the federal government. Therefore, impacts related to landslides would be less than significant. No mitigation is required.

(b) Result in substantial soil erosion or the loss of topsoil?		X		

Less than Significant with Mitigation. The project site is mostly underlain by San Emigdio loam (SgC) with 2-8% slopes, although the southeast corner of the site has Metz loamy find sand (MhB) with 0-5% slopes[15] which is most likely associated with past overflow of the adjacent Quincy Channel. These soils are considered suitable for urban and suburban development but are subject to moderate erosion by wind and water, as supported by the project geotechnical report. Prior to the issuance of grading permits, the project proponent would be required to prepare and submit detailed grading plans for the project site. These plans must be prepared in conformance with applicable standards of the City's Grading Ordinance.

Construction activities associated with the development of the proposed project would expose underlying soils, thus increasing their susceptibility to erosion until the project is fully developed. Development of the site would involve more than one acre of ground disturbance, therefore, the proposed project is required to obtain a National Pollutant Discharge Elimination System (NPDES) permit. A Storm Water Pollution Prevention Plan (SWPPP) would also be required to address erosion and discharge impacts associated with the proposed onsite grading by implementing appropriate best management practices (BMPs). Adherence to the BMPs contained in the SWPPP and Mitigation Measures HYD-1 through HYD-3 would ensure that the potential for soil erosion impacts would be reduced to less than significant levels by implementation of existing water quality regulations and the proposed mitigation measures.

(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?		X		

Less than Significant with Mitigation. Subsidence is the sudden sinking or gradual downward settling of the earth's surface with little or no horizontal movement. Subsidence is caused by a variety of activities, which include, but are not limited to, withdrawal of groundwater, pumping of oil and gas from underground, the collapse of underground mines, liquefaction, and hydrocompaction. The project site is generally flat and slopes gently down to the south. Onsite soils primarily consist of upper 3 to 4 feet of dry, loose and compressible loamy sand and fine sand, overlying gravelly fine to medium coarse sand of moderate consistency with scattered rock fragments and rocks at depth. Due to the absence of groundwater within

[15] Web Soil Survey for Western Riverside County, United States Department of Agriculture, Natural Resources Conservation Service. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (Website accessed April 18, 2018).

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

50 feet and the relatively flat site topography, the potential susceptibility for onsite liquefaction and lateral spreading of soils due to groundshaking from earthquakes is considered low.[16]

No structural fills and/or load bearing foundations and concrete slabs should be constructed bearing directly on the surface soils currently existing on the project site.[16] Therefore, implementation of Mitigation Measure GEO-1 will ensure a less than significant impact with development of the proposed project. The project site is also not located within an area that is susceptible to landslides.[10] The proposed project would be required to adhere to applicable regulations ensuring building safety; a less than significant impact would result from the construction and operation of the proposed onsite uses with implementation of all applicable regulations and Mitigation Measure GEO-1 (see Appendix F).

(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?		X		

Less Than Significant with Mitigation. Expansive soils are fine-grained silts and clays which are subject to swelling and contracting. The swelling and contracting is due to the amount of fine-grained clay materials present in the soils and the amount of moisture either introduced or extracted from the soils. According to the project geotechnical study,[16] onsite soils are considered non-expansive, however, there is a potential for corrosion for metal pipes buried onsite. The project geotechnical study recommended consulting a soils engineer prior to installation of underground pipes. Implementation of Mitigation Measure GEO-2 will ensure that impacts related to corrosive or other soil limitations are reduced to less than significant levels (see Appendix F).

GEO-2 **Soil Limitations.** Prior to the issuance of a grading permit, the project applicant shall provide proof to the City that a soils engineer has evaluated onsite soils and recommended appropriate construction techniques to adequately protect buried metal pipes or other onsite improvement from onsite soil conditions. This measure shall be implemented to the satisfaction of the City Engineer.

(e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X

No Impact. The proposed project is expected to connect to existing sewer main lines and service lines. The project would not use septic tanks or other alternative wastewater disposal system. Therefore, the development of the project would have no impact related to this issue. No mitigation measures are required.

VII. **GREENHOUSE GAS EMISSIONS.** Would this project?

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?		X		

This section provides an analysis of greenhouse gas (GHG) emissions associated with the proposed project. This analysis examines the short-term construction and long-term operational impacts of the proposed project as it relates to greenhouse gases. A detailed assessment of project-related GHG emissions is included in Appendix C. Gases that trap heat in the atmosphere are called greenhouse gases and include carbon dioxide, methane, nitrous oxide, and water vapor. Carbon dioxide (CO_2) is mainly produced by burning fossil fuels (coal, natural gas, and oil), solid waste, trees and wood products, and also as a result of certain chemical reactions (e.g., manufacture of cement). CO_2 is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle. Methane (CH_4) results from the production and transport of coal, natural gas, and oil as well as from livestock, other agricultural practices, and the decay

[16] Geotechnical Investigation and Infiltration Study, Geotek, Inc. February 12, 2014.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

of organic waste in municipal solid waste landfills. Nitrous oxide (N_2O) is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

Since the mid 1990's California has encouraged and mandated a variety of programs, plans, and requirements to reduce GHG emissions from various sources. Similarly, the City of Moreno Valley has prepared an "Energy Efficiency and Climate Action Strategy" for its residents and businesses to help reduce GHG emissions within the City.

Calculation of Greenhouse Gas Emissions

The project's GHG emissions during construction and mobile sources during project operation were estimated by Urban Crossroads (Appendix C) using the CalEEMod 2016.3.1 computer model developed and maintained by the South Coast Air Quality Management District (SCAQMD). The project's GHG emissions from onsite equipment were estimated using the emission factors found on the SCAQMD website. The proposed project would generate a total of 975 metric tons (MT) of CO2e GHGs during operation (i.e., max. project occupancy) including 18.7 metric tons of CO2e each year for construction, amortized over a 30-year period consistent with SCAQMD methodologies. It should be noted that the long-term GHG emissions if the site were to be built at its present General Plan/zoning density would be 565 metric tons of CO2e per year (Appendix C). For comparison, the existing emissions from the entire SCAG region are estimated to be approximately 176.79 MMT/year of CO2e, and the existing emissions for the entire State are estimated at approximately 496.95 MMT/year of CO2e. The carbon dioxide, methane, and nitrous oxide emissions that would be associated with the proposed project is less than a thousandth of one percent of California's total emissions for carbon dioxide, methane, and nitrous oxide.

According to the Air Quality Analysis, the project's long-term (annual) operational GHG emissions would be 974.56 MT of CO2E which is lower than the SCAQMD's interim Tier 3 GHG emissions "small projects" screening threshold of 3,000 MT/year of CO_2E for residential projects even assuming worst-case conditions, as shown in Table E.

Table E: Annual Greenhouse Gas Emissions from Project Operation

Source	CO_2	CH_4	N_2O	Total CO^2E
Annual construction-related emissions amortized over 30 years	18.56	0.00	0.00	18.68
Area	15.38	0.02	0.00	15.87
Energy	207.27	0.01	0.00	208.19
Mobile	679.50	0.04	0.00	680.41
Waste	11.15	0.66	0.00	27.63
Water Usage	20.51	0.10	0.00	23.78
Total CO_2E (all sources)	**974.56**			
SCAQMD Residential Screening Threshold (CO_2E)	3,000			
Exceeds Threshold?	No			

Source: Urban Crossroads, September 12, 2018 (Appendix C)

Since projected short- and long-term GHG emissions are below the SCAQMD's residential screening threshold, cumulative GHG impacts are less than significant and no mitigation measures are required.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Less Than Significant Impact. The City of Moreno Valley has adopted the following goals and policies under the City's General Plan to reduce greenhouse gas emissions relative to the proposed project:

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Community Development Element

Policy 2.10.4 Landscaping and open spaces should be provided as an integral part of project design to enhance building design, public views, and interior spaces; provide buffers and transitions as needed; and facilitate energy and resource conservation.

Safety Element

Policy 6.7.6 Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code.

Conservation Element

Policy 7.5.1 Encourage building, site design, and landscaping techniques that provide passive heating and cooling to reduce energy demand.

Policy 7.5.4 Encourage the use of solar power and other renewable energy systems.

In addition, the City adopted a "Final Energy Efficiency and Climate Action Strategy" (EECAS), along with a related greenhouse gas analysis, on October 9, 2012. The EECAS requires the following GHG reduction measures within the City:

R2-T1: Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.
R2-T3: Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.
R2-E1: New Construction Residential Energy Efficiency Requirements. Require energy efficient design for all new residential buildings to be 10% beyond the current Title 24 standards. (Reach Code)
R2-E2: New Construction Residential Renewable Energy. Facilitate the use of renewable energy (such as solar (photovoltaic) panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources offsite.
R2-E5: New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10% beyond the current Title 24 standards. (Reach Code)
R3-E1: Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining. Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy efficient projects.
R3-L2: Heat Island Plan. Develop measures that address "heat islands." Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking. _
R2-W1: Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.
R3-W1: Water Efficiency Training and Education. Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.
R2-S1: City Diversion Program. For Solid Waste, consider a target of increasing the waste diverted from the landfill to a total of 75% by 2020.

With the implementation of GHG reduction measures in the EECAS, "Moreno Valley is projected to reduce its community-wide emissions to a total of 798,137 MT CO2e, which is 556 MT CO2e below the 2020 reduction target. This is a decrease of 38.5 percent from the City's 2020 BAU emissions inventory and 13 percent from the 2010 emissions. The reduction

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

measures reduce GHG emissions from all sources of community-wide GHG emissions including transportation, energy, area sources, water, and solid waste." (pages 6-7, EECAS 2012).

At a minimum, state law requires the project to meet Title 24 energy conservation requirements and all applicable Green Building Code requirements regarding energy and water conservation. As outlined above, project-related GHG emissions are considered to be less than significant compared to the SCAQMD's GHG thresholds. Compliance with the EECAS and the SCAQMD GHG thresholds also helps assure the project will be consistent with the SCAG Regional Transportation Plan (RTP) and its Sustainable Community Strategy (SCS). Therefore, the project will not conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. However, the proposed project includes a General Plan Amendment and Change of Zone, so the following mitigation is recommended to help this higher density residential project achieve the identified goals of the City's Energy Efficiency and Climate Action Strategy (EECAS). Since the project is under the SCAQMD threshold and consistent with the City's EECAS, it is considered to be consistent with the requirements of AB 32, SB 32, and the CARB Scoping Plan. With implementation of Mitigation Measure GHG-1, potential GHG impacts of the project relative to an adopted plan, policy, or regulation will be less than significant.

GHG-1 **GHG Emissions.** To ensure that the proposed project complies with and would not conflict with or impede the implementation of state and local greenhouse gas (GHG) reduction goals, the project will implement the following measures to help reduce its GHG emissions to the extent feasible. Prior to issuance of any occupancy permits, these measures shall be incorporated into the design and construction of the project to the satisfaction of the City:

Construction and Building Materials

(a) Divert at least 50 percent of the demolished and/or grubbed construction materials (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).

Energy Efficiency

(a) Design all project buildings to exceed the current California Building Code Title 24 energy standard by ten (10) percent, such as by installing energy-efficient heating and cooling systems, appliances and equipment, and control systems.

(b) Install electrical to allow for future installation of roof-mounted photovoltaic solar equipment and electric vehicle charging equipment in garages.

Water Conservation and Efficiency

(a) Install water-efficient landscaping within parkways and common areas of the development.

(b) Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls, within parkways and common areas of the development.

(c) Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff from parkways and common areas within the development.

VIII. **HAZARDS AND HAZARDOUS MATERIALS.** Would the project?				
a) Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?			X	

Less than Significant Impact. There is an existing 30-inch high pressure gas line in Brodiaea Avenue that will be protected in place as part of project construction. This gas line represents an existing potential hazard for this portion of the City (i.e., accidental explosion or fire). The line is within the existing right-of-way for Brodiaea Avenue and no occupied structures will be constructed over the pipeline alignment. The proposed project would not increase the inherent risk of this facility, but it would introduce additional residents into the area which would then be subject to this potential hazard. No houses

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

would be built on top of the pipeline and it would represent a potential safety risk to any residential project that were to be built in this location. The requested higher density project would only incrementally increase this risk by introducing more residents into the area than if the project were built to R3 standards. Potentially hazardous materials such as fuels, lubricants, and solvents would be used during project construction. The transport, use, and storage of hazardous materials during construction of the project would be conducted in accordance with all applicable State and federal laws, such as the Hazardous Materials Transportation Act, Resource Conservation and Recovery Act, the California Hazardous Material Management Act, and the California Code of Regulations, Title 22. Compliance with all applicable laws and regulations during project construction would reduce the potential impact associated with the routine transport, use, storage, or disposal of hazardous materials to a less than significant level. No mitigation is required.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	

Less Than Significant Impact. A Phase I Environmental Site Assessment (ESA)[17] was completed for the project site by Geotek in March of 2014 (see Appendix G). There are indications the project site was once used for agricultural purposes. The site has been vacant and undeveloped[18] since 1953. According to the EnviroStor website[19] and the Phase I ESA, no hazardous material sites or recognized environmental conditions were identified on or adjacent to the proposed project site[15]. Based on available information, the site is expected to have a less than significant impact on the release of hazardous materials and no mitigation is required.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	

Less Than Significant Impact. The closest school is the Landmark Middle School located at 15261 Legendary Drive approximately 0.2 mile north of the project site. The City does not have jurisdiction with respect to the location, design, or construction of school facilities. However, the City works with the Moreno Valley Unified School District concerning the design of roads and other public improvements in and around school sites, and is responsible for fire, police, and public safety concerns involving all facilities within the City, including schools. The handling of hazardous materials or emission of hazardous substances, if present, will be in accordance with a Hazardous Materials Business Emergency Plan administered by the City Fire Prevention Bureau, as applicable, in accordance with California Health and Safety Code Section 25507 and other local, state, and federal standards, ordinances, and regulations.

Compliance with Health and Safety Code Section 25507 will ensure that impacts associated with environmental and health hazards related to an accidental release of hazardous materials or emissions of hazardous substance near existing or proposed schools are less than significant. No mitigation is required.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result would it create a significant hazard to the public or the environment?				X

No Impact. According to the Phase I ESA,[17] the proposed project site is not located on a list of hazardous material sites pursuant to Government Code Section 65962.5. Additionally, the project site is not located on the EnviroStor website.[19] Therefore, no impact related to this issue will occur and no mitigation is required.

[17] Phase I Environmental Site Assessment, APN 478-080-013, Moreno Valley, Riverside County, CA. Geotek, March 3, 2014.
[18] Cultural Resource Assessment, Frontier Communities Brodiaea Avenue, City of Moreno Valley, RCA Associates Inc., April 2018.
[19] EnviroStor, Department of Toxic Substances Control, www.dtsc.ca.gov, site accessed April 2018.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			X	

Less Than Significant Impact. The closest airport is the March Air Reserve Base located approximately 5.5 miles southwest of the project site. The project site is not located within a Compatibility Zone of the March Air Reserve Base.[20] Because the project site lies outside the Compatibility Zones, no impact would occur related to the safety of people within an airport land use plan. No mitigation is required.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X

No Impact. The project does not lie within the vicinity of a private airstrip. Therefore, the project will have no impact related to the safety of people near a private airstrip. No mitigation is required.

g) Impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	

Less Than Significant Impact. The Project site is currently vacant and unoccupied. Police, fire, and paramedic services are currently provided by the City to the entire area, including the project site. The project site will be accessible via Brodiaea Avenue to the east and west, although a short portion of the roadway to the east currently has a gravel surface. Emergency access to the project site would be available via Brodiaea Avenue from the west and eventually from the east when it is improved to Redlands Boulevard. Since the project site has adequate existing and future access for emergency vehicles, and would allow project residents to evacuate efficiency, the project will have a less than significant impact related to emergency plans and access.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			X	

Less Than Significant Impact. The project in and of itself is not located within a wildfire susceptibility area and it not adjacent to any wildland areas which would increase the project's susceptibility to wildland fires. In the event of a fire emergency within the proposed project, the Moreno Valley Fire Department would provide initial fire protection services. The closest stations to the project site are the Fire Station at 28040 Eucalyptus Avenue (2.5 miles north of the site) and Fire Station 99 located at 13400 Morrison Street approximately 2.75 miles northwest of the project site. Response time from either station to the project site is estimated at under 5 minutes based on a travel speed of 35 miles per hour. Due to the proximity of the Moreno Valley Fire Department stations, a less than significant impact would occur related to wildland fire. The project would use building materials required by the Fire Department appropriate for the fire risk of this specific area, therefore, no mitigation is required.

IX. **HYDROLOGY AND WATER QUALITY**. Would the project: a) Violate any water quality standards or waste discharge requirements?		X		

Less Than Significant with Mitigation. The proposed project site is vacant and located within the Santa Ana River Watershed. The surface of the site is currently 100 percent pervious and has been routinely disked for weed abatement. The Preliminary Hydrology Study prepared for the project by Michael Baker International in April 2018 indicates the site has 2 watershed sub-areas with a total of 18.1 acres that would have a 10-year flood (Q_{10}) runoff of 13.1 cubic feet per

[20] Map MA-1: Compatibility Map, March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, Riverside County Airport Land Use Commission, November 13, 2017.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

second (cfs) and a 100-year flood (Q_{100}) runoff of 22.1 cfs under developed conditions (see Appendix H). Construction of the project will involve site clearing, rough grading and compaction, pouring of concrete and asphalt, and construction of the various residential structures. The project site clearing/grubbing and grading phases will disturb vegetation and surface soils, potentially resulting in erosion and sedimentation. If left exposed and with no vegetative cover, the project site's bare soil could be subject to additional wind and water erosion. Since the proposed project involves over one acre of ground disturbance, it is subject to National Pollution Discharge Elimination System (NPDES) requirements and must implement a Storm Water Pollution Prevention Plan (SWPPP). Implementation of site-specific best management practices (BMPs), as established by the SWPPP, will ensure all impacts related to erosion and sedimentation from ground disturbance are less than significant (see Appendix G).

Under existing conditions, the project site drains in a southerly direction toward Brodiaea Avenue. The proposed project includes one lot in the southwest corner of the property (Lot A with 6,105 square feet) to be used for runoff retention and bio-filtration for water quality purposes. The project hydrology study determined the size and depth of this basin was sufficient to retain expected runoff during Q_{10} and Q_{100} events without increasing offsite (i.e., downstream) runoff.

A project specific Water Quality Management Plan (WQMP) was prepared by Michael Baker International (MBI) on April 24, 2018 (see Appendix H). To address potential water contaminants, the project is required to comply with applicable federal, state, and local water quality regulations in accordance with the project-specific NPDES and SWPPP. Given compliance with all applicable federal, state, and local laws regulating surface water quality, and with implementation of Mitigation Measures HYD-1 through HYD-3, the proposed project as designed will result in less than significant impacts to water quality standards or waste discharge.

HYD-1 **File NOI.** Prior to the issuance of a grading permit, the project applicant shall file and obtain a Notice of Intent (NOI) with the Regional Water Quality Control Board (RWQCB) in order to be in compliance with the State NPDES General Construction Storm Water Permit for discharge of surface runoff associated with construction activities. Evidence that this has been obtained (i.e., a copy of the Waste Discharger's Identification Number) shall be submitted to the City for coverage under the NPDES General Construction Permit. The NOI shall address the potential for an extended and discontinuous construction period based on funding availability.

HYD-2 **Prepare SWPPP.** Prior to the issuance of a grading permit, the project applicant shall prepare a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall include a surface water control plan and erosion control plan citing specific measures to control on-site and off-site erosion during the entire grading and construction period. In addition, the SWPPP shall emphasize structural and nonstructural Best Management Practices (BMPs) to control sediment and non-visible discharges from the site. The SWPPP will include inspection forms for routine monitoring of the site during construction phase to ensure NPDES compliance and additional BMPs and erosion control measures will be documented in the SWPPP and utilized if necessary. The SWPPP shall address the potential for an extended and discontinuous construction period based on funding availability. The SWPPP will be kept on site for the entire duration of project construction and will be available to the local RWQCB for inspection at any time. BMPs included in the SWPPP may include the following:

- Sediment discharges from the site may be controlled by the following: sandbags, silt fences, straw wattles and temporary basins (if deemed necessary), and other discharge control devices. The construction and condition of the BMPs will be periodically inspected during construction and repairs will be made when necessary as required by the SWPPP.
- Materials that have the potential to contribute to non-visible pollutants to storm water must not be placed in drainage ways and must be contained, elevated, and placed in temporary storage containment areas.
- All loose piles of soil, silt, clay, sand, debris, and other earthen material shall be protected in a reasonable manner to eliminate any discharge from the site. Stockpiles will be surrounded by silt fences and covered with plastic tarps.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

- In addition, the construction contractor shall be responsible for performing and documenting the application of BMPs identified in the SWPPP. Weekly inspections shall be performed on sandbag barriers and other sediment control measures called for in the SWPPP. Monthly reports and inspection logs shall be maintained by the Contractor and reviewed by the City and the representatives of the State Water Resources Control Board. In the event that it is not feasible to implement specific BMPs, the City can make a determination that other BMPs will provide equivalent or superior treatment either on or off site.

HYD-3 **Prepare WQMP.** Prior to the issuance of a grading permit, the applicant shall submit a Water Quality Management Plan (WQMP) to the City for review and approval. The project shall implement project design features identified in the Water Quality Management Plan (draft by MBI submitted April 24. 2018). This measure shall be implemented to the satisfaction of the City Public Works Department.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			X	

Less Than Significant Impact. Groundwater in the project area is managed and distributed by the Eastern Municipal Water District (EMWD). The EMWD is required by state law (Urban Water Planning Management Act or AB 797 in 1983) to prepare an Urban Water Management Plan (UWMP) to identify its sources/supplies of potable water, its historical and projected consumption by its customers, and evaluate various mandated scenarios for water shortages (e.g., single dry year, and multiple dry years) to assure its customers and the state that it will have adequate water supplies now and in the future, even under expected drought conditions.

The 2015 UWMP concluded EMWD could supply water to its customers until at least 2040 under single dry and multiple drought year scenarios. The project does involve a General Plan Amendment and Zone Change, but the unit increase for this project is incremental and the EMWD UWMP has accounted for future water consumption of existing and planned land uses including residential uses such as the proposed project which is within the overall growth anticipated in the City's General Plan.

The project is also subject to NPDES requirements and will be designed and constructed to ensure compliance with the water quality standards and waste discharge requirements. Surface runoff from the project site will be directed toward the onsite detention basin in the southwest corner of the site and the underground water quality basin near the southeast corner of the site, then into the storm drain in Brodiaea Avenue and west away from the Quincy Channel. This will prevent onsite runoff, which would have some level of urban contaminants, from reaching the local groundwater. Compliance with state and local regulations, along with all City water supply requirements, will ensure there will be no significant impacts related to groundwater supply or recharge resulting from the proposed project. A less than significant impact would occur related to this issue and no mitigation is required.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?		X		

Less Than Significant with Mitigation. As outlined in Section IX.a above, the project hydrology study indicates the site covers two sub-area watersheds with a total of 18.1 acres. The project hydrology study determined the proposed detention/water quality basin in the southwest corner of the site (Lot A with 6,105 square feet) as shown on the tract map and is of sufficient size and depth to accommodate bio-retention and infiltration needs of the project (see Appendix H).

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

The following mitigation is proposed to help assure there will be no significant flooding-related impacts from implementation of the proposed project:

HYD-4 **Drainage Improvements.** Prior to issuance of grading and building permits, as appropriate, the developer and project engineer shall demonstrate the project has installed the various drainage and flood control improvements outlined in Tentative Tract Map 37544, the project hydrology report (MBI April 2014), and the project Water Quality Management Plan (MBI April 24, 2018) to the satisfaction of the City Engineer.

Development of the proposed project (homes, landscaping, and pavement) will alter the amount of existing impervious surface area and the amount of generated runoff. Currently, runoff generally drains toward the southwest along Brodiaea Avenue. No streams, rivers, or other drainage features are located onsite, although the Quincy Channel is immediately east of the site. The proposed project would implement structures and impervious surfaces that could potentially alter the current drainage pattern. Pursuant to the requirements of the NPDES permit, as discussed previously, excess flows and sediment would be captured by BMPs identified in the SWPPP and WQMP. With implementation of required BMPs and Mitigation Measures HYD-1 through HYD-3 and BIO-2 (regarding improvements to the Quincy Channel), the proposed project is not expected to result in substantial erosion or siltation or local drainages. Impacts would be less than significant with the proposed mitigation.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or surface runoff in a manner which would result in flooding on- or off site?		X		

Less Than Significant with Mitigation. No streams, rivers, or other drainage features are located onsite, although the Quincy Channel is immediately east of the site. Pursuant to the requirements of the NPDES permit, as discussed previously, excess flows and sediment would be captured by BMPs identified in the SWPPP and WQMP. With implementation of required BMPs and Mitigation Measures HYD-1 through HYD-4 and BIO-2 (regarding improvements to the Quincy Channel), the project would not result in a significant increase in offsite stormwater flows, so a less than significant impact related to flooding would occur. As a regulatory note, the project will be required to obtain a Conditional Letter of Map Revision (CLMR) or a Letter of Map Revision (LMR), and future residents will have to comply with federal flood insurance requirements.

e) Create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?		X		

Less Than Significant with Mitigation. Runoff from the currently vacant site flows generally south and flows west along Brodiaea Avenue via curb and gutter at the southwest corner of the site. The project hydrology study determined that the proposed detention/water quality basin in the southwest corner of the site was of sufficient size and depth to prevent offsite (downstream) flows under developed conditions to exceed those under current (undeveloped) conditions (see Appendix H). The project will not contribute any increased runoff directly into the nearby Quincy Channel. The project will incorporate BMPs that will moderate flows into the existing City storm drain system, connecting at the southwest corner of the site into the existing line in Brodiaea Avenue. In addition, Mitigation Measure HYD-4 will assure all project-related drainage and flood control improvements are installed as proposed. As the project would maintain drainage patterns and flow rates comparable to the existing condition, a less than significant impact would occur with the development of the proposed project.

f) Otherwise substantially degrade water quality?		X		

Less Than Significant Impact. The proposed project is in a developed urban setting and through adherence to City water quality regulations and Mitigation Measures HYD-1 through HYD-3 would not substantially degrade water quality. A

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

less than significant impact would occur with implementation of the recommended mitigation measures. No additional mitigation measures are required.

g) Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?		X		
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?		X		

Less Than Significant with Mitigation. The Project will introduce additional housing into an area with identified flooding issues. As shown in FEMA Flood Insurance Rate Map (FIRM) 06065C0770G (#065074, panel 0770 of 3805 dated 8-28-08), the site is in FEMA Flood Zone A which means…"areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply" (FEMA)[21]. The project hydrology study, and the proposed site plan and grading plan indicate the site will be raised at least one foot above the 100-year flood elevation to remove the planned housing from the identified flood zone. As a regulatory note, the project will be required to obtain a Conditional Letter of Map Revision (CLMR) or a Letter of Map Revision (LMR), and future residents will have to comply with federal flood insurance requirements. In addition, Mitigation Measure HYD-4 requires the project to install the proposed onsite drainage improvements, while Mitigation Measure BIO-2 requires the project to make appropriate improvements to the adjacent Quincy Channel which will incrementally improve overall flood protection for this area. With implementation of these project characteristics and mitigation, the proposed project will have less than significant impacts related to flooding and no additional mitigation is required.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X

No Impact. Two locations of concern exist within the City of Moreno Valley: Poorman Reservoir (Pigeon Pass Reservoir) and Lake Perris. Dam failure at Portman's Reservoir could result in extensive flooding along the downstream watercourse in the western portion of the City. Dam failure at Lake Perris would only affect a very small area south of Nandina Avenue along the Perris Valley Storm Drain and the Mystic Lake area in the southeast corner of the City.[22] According to the City's General Plan,[20] the project site will not expose people or structures to a risk of loss, injury or death involving the failure of a levee or dam. No impact would occur and no mitigation is required.

j) Inundation by seiche, tsunami, or mudflow?				X

No Impact. The Project site is located approximately 2 miles north of Lake Perris. At this distance, the Project site is not considered susceptible to seiche-related hazards originating at Lake Perris. The reservoir has an approximate water surface elevation of 1,566 feet above mean sea level (amsl) while the Project site is at an elevation of approximately 1,592 feet amsl. The site is at a higher elevation with intervening slopes of the Mt. Russell area, so the potential for seiche-related flooding or mudflows down the slopes north of the lake (i.e. toward the project site) are very low. In addition, the site is 43 miles from the Pacific Ocean and is at an elevation of approximately 1,592 feet amsl (versus sea level), therefore, the project is not subject to tsunami hazards and no impact would occur.

21 https://www.fema.gov/zone FEMA website accessed April 24, 2018.
22 Chapter 6-Safety, City of Moreno Valley General Plan, July 11, 2006.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. **LAND USE AND PLANNING**. Would the project:				
a) Physically divide an established community?				X

No Impact. The project proposes development of 45 single family residences on 8.55 gross acres under the proposed zoning (change from R3 to RS10). To the north and west is vacant land while residential communities are located to the south and east. The project would not introduce features such as highways or transit lines that would divide an established community. In addition, the project will construct the southern portion of Quincy Street, and the northern segment will be constructed when the property north of the project site is developed. Once Quincy Street is completed (between Brodiaea Avenue and Alessandro Boulevard), the surrounding area will have improved accessibility and will be less divided physically. Therefore, **no impact** regarding dividing an established neighborhood would occur and no mitigation is required.

b) Conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X	

Less Than Significant Impact. The Project proposes the development of 45 single-family residences which would be expected to generate approximately 176 residents[23], although it is likely not all of them would be new residents to the City (i.e., some portion would be expected to relocate within the City, but the exact proportion is not known at this time). The existing General Plan and zoning (R3) allows up to 3 units/acre or approximately 25 units (estimated 98 residents), so the proposed project would represent an increase of 20 units or 78 residents over existing designations. The developer has indicated the additional density will be consistent with regional housing and demographic trends and will provide a wider range of housing opportunities than are currently available in this portion of the City, as well as help to fund the required improvements to the adjacent Quincy Channel. The proposed zoning (RS10) would allow up to 10 units per acre while the tentative tract map/site plan proposes 45 units (5.3 units/acre). The existing residential neighborhood just south of the project site has a General Plan land use designation of Residential: Max. 10 units/acre and is zoned RS10 (max. 10 units/acre) and the lands west and east of the existing residences are zoned R5 (5 units/acre). The surrounding vacant land to the east, north, and west is zoned R3, although it should also be noted the property southeast of the site is zoned R5 and is being developed with 159 units on 35 acres (4.5 units/acre) versus up to 175 units that could be built under the existing zoning (5 units/acre).

The project will require a General Plan Amendment (PEN18-0053) from Residential: Max. 3 units/acre to RS10: Max. 10 units/acre to accommodate the proposed 5.09 units/acre (gross) and 7.75 units/acre (net) under TTM37544. The project will also require a Change of Zone (CZ PEN18-0054) from R3 to RS10 for similar reasons. The vacant land east, west, and north of the site is designated R3, while the land south of the site (i.e., south of Brodiaea Avenue) is designated RS10 (including the existing residences) and R5 to the west of the existing residential neighborhood. The proposed changes are consistent with the General Plan and zoning designations south of the site but would not be consistent with existing designations to the east, west, and north. Therefore, it is possible this project, by changing the existing zoning from R3 to RS10, may indirectly induce some additional growth into the area in the future because the surrounding vacant properties (approximately 130 acres between Alessandro Blvd. on the north, Moreno Beach Drive on the west, Brodiaea Ave. on the south, and Wilmot St. on the east) are currently zoned at a lower density. If the entire 130 acres of vacant land were to be changed to RS10 zoning, the vacant land would generate up to 1,300 units (max. 10 units/acre) versus 390 units under the existing R3 zoning (3 units/acre). If the remaining vacant land in the area were to be developed at the density of the proposed project (5.09 units/acre gross and 7.75 units/acre net), it would only generate 684 units (versus 390 units under the existing R3 zoning). However, although the proposed Project would be inconsistent with the subject property's existing General Plan land use and Zoning designations, such inconsistency would only be significant if it were to result in significant, adverse effects to the environment that would not otherwise occur with the implementation of the R3 designation. As disclosed in this MND, implementation of the Project would result in the development of a residential project that could result in several adverse effects to the environment. This MND provides mitigation measures that would

[23] 45 units times the average household size in the City (3.91 persons per household per U.S. Census data) equals 176 new residents.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

reduce all of the Project's effects on the environment to less than significant levels. Therefore, after mitigation, the Project's conflict with the site's existing General Plan land use and Zoning designations would be less than significant. The Project would not conflict with any goals, objectives, policies or regulations of land use and planning documents applicable to the Project area, including SCAQMD AQMP, SCAG RTP/SCS, and SCAG Regional Comprehensive Plan. Since the project involves a General Plan Amendment and Change of Zone, Table F demonstrates that the proposed project is generally consistent with applicable goals and objectives of the City's General Plan. Due to the presence of RS10 and R5 zoning immediately south of the site, the proposed change in land use designations/intensity would result in less than significant land use impacts. It should be noted the special amenity required by the Municipal Code for RS10 housing is the linear park and trail improvements along the portion of the Quincy Channel adjacent to the project site.

Table F: General Plan Consistency Analysis

General Plan Goals and Objectives[1]	Consistency Analysis
2. COMMUNITY DEVELOPMENT ELEMENT	
Goal 2.1: A pattern of land uses, which organizes future growth, minimizes conflicts between land uses, and which promotes the rational utilization of presently underdeveloped and undeveloped parcels.	**Consistent.** The proposed project is residential and consistent with surrounding residential uses, although it proposes a higher density than currently allowed under the GP and zoning.
Objective 2.1: Balance the provision of urban and rural lands within Moreno Valley by providing adequate land for present and future urban and economic development needs, while retaining the significant natural features and the rural character and lifestyle of the northeastern portion of the community.	**Consistent.** The proposed project is suburban residential and consistent with existing residential uses to the south and southeast. Surrounding land contains scattered and more rural (i.e., larger lot) residential uses.
Goal 2.2: An organized, well-designed, high quality, and functional balance of urban and rural land uses that will meet the needs of a diverse population, and promote the optimum degree of health, safety, well-being, and beauty for all areas of the community, while maintaining a sound economic base.	**Consistent.** The project proposes higher density than currently allowed under the GP or zoning consistent with regional housing and demographic trends and will provide a wider range of housing opportunities than are currently available in this portion of the City, as well as help to fund improvements to the nearby Quincy Channel so the City does not have to construct or fund construction of these improvements.
Objective 2.2: Provide a wide range of residential opportunities and dwelling types to meet the demands of present and future residents of all socioeconomic groups.	**Consistent.** The project will provide smaller lots and more opportunities for a larger portion of the home-buying community.
Policy 2.2.1: In determining allowable density for residential parcels an "adjusted net acreage" shall be used. Adjusted net acres shall mean the land area that would remain after dedication of ultimate rights-of-ways for arterial streets, freeways and park dedications.	**Consistent.** The proposed project has a density of 5.26 units/acre gross and 7.75 units/acre (net). This is consistent with the RS10 zone being requested under the GPA and CZ.
Policy 2.2.6: The primary purpose of areas designated Residential 3 is to provide a transition between rural and urban density development areas, and to provide for a suburban lifestyle on residential lots larger than those commonly found in suburban subdivisions. The maximum allowable density shall be 3.0 dwelling units per acre.	**Generally Consistent.** The site is currently designated R3 but there are existing RS10 uses immediately south of the site and a new residential project zoned R5 southeast of the site The surrounding vacant land north of Brodiaea Ave. is vacant and zoned R3 while the vacant land south of Brodiaea and just east of Moreno Beach Drive is zoned R5. The project is consistent with the RS10 lot size limitations but proposes lots with widths that are similar to but still smaller than the existing residences south of Brodiaea Ave. (just south of the site).
Policy 2.2.7: The primary purpose of areas designated Residential 5 is to provide for single-family detached housing on standard sized suburban lots. The maximum allowable density shall be 5.0 dwelling units per acre.	
Policy 2.2.8: The primary purpose of areas designated Residential 10 is to provide for a variety of residential products and to encourage innovation in housing types. Developments within Residential 10 areas are typically expected to provide amenities not generally found in suburban subdivisions, such as common open space and recreational areas. The maximum allowable density shall be 10.0 dwelling units per acre.	
Policy 2.2.13: Discourage costly "leap-frog" development patterns by encouraging in-fill development wherever feasible, thereby reducing overall housing costs…	**Consistent.** Although there is vacant land in the surrounding area, the project is just north of an existing residential neighborhood and a new residential development (Bella Cortina by KB Homes) is being built just southeast of the site.
Objective 2.3: Promote a sense of community and pride within residential areas through increased neighborhood interaction and enhanced project design.	**Consistent.** Residents of the proposed project will be able to interact with existing residents in the homes just south of the project across Brodiaea Avenue.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Policy 2.3.1: Within individual residential projects, a variety of floor plans and elevations should be offered.	**Consistent.** The project offers a variety of floor plans and elevations.
Policy 2.3.2: Encourage building placement variations, roofline variations, architectural projections, and other embellishments to enhance the visual interest along residential streets.	**Consistent.** The project will have a variety of styles and architectural variety to add visual interest within the new neighborhood.
Policy 2.3.3: Discourage the development of single-family residences with a bulk (building mass) that is out of scale with the size of the parcels on which they are located.	**Consistent.** The units of the proposed project will be consistent with City Municipal Code, Table 9.03.040-6, Residential Site Development Standards, which allows up to 50% lot coverage in the RS10 zone. Note that the average lot size in the project is 5,624 square feet.
Objective 2.13: Coordinate development activity with the provision of public infrastructure and services to eliminate possible gaps in service provision.	**Consistent.** The project will improve the adjacent half-width of Brodiaea Avenue, the portion of the Quincy Channel adjacent to the site, and various utility lines within Brodiaea Avenue to connect to the new housing.
Policy 2.13.1: Limit the amount of development to that which can be adequately served by public services and facilities, based upon current information concerning the capability of public services and facilities.	**Consistent.** According to available information, the project as proposed can be adequately served by local fire, police, and other public services.
Policy 2.13.2: Unless otherwise approved by the City, public water, sewer, drainage and other backbone facilities needed for a project phase shall be constructed prior to or concurrent with initial development within that phase.	**Consistent.** The project plans indicate connections to various existing utility lines within Brodiaea Avenue which will be made prior to occupancy of the project. The project has obtained or will obtain appropriate "will serve" letters from the local utility agencies.
5. CIRCULATION ELEMENT	
Goal 5.1: Develop a safe, efficient, environmentally and financially sound, integrated vehicular circulation system consistent with the City General Plan Circulation Element Map, Figure 9-1, which provides access to development and supports mobility requirements of the system's users.	**Consistent.** The project site has access to major arterial streets in all directions and can access the SR-60 Freeway via Moreno Beach Drive to the west and Redlands Boulevard to the east. In addition, the project will improve the adjacent half-width of Brodiaea Ave.
Goal 5.2: Maintain safe and adequate pedestrian, bicycle, and public transportation systems to provide alternatives to single occupant vehicular travel and to support planned land uses.	**Generally Consistent.** The project will make roadway improvements to this portion of Brodiaea Avenue but full pedestrian access will not be available to project residents until the properties east and west of the site are developed.
Policy 5.2.1: Locate residential units with access from local streets. Minimize direct residential access from collectors. Prohibit direct single-family driveway access on arterials and higher classification roadways.	**Consistent.** The project will limit access to its lots from local streets and will not create any lots that front on arterial or higher classified roadways.
Policy 5.2.2: Feed short local streets into collectors.	**Consistent.** The project will have two short north-south and one short east-west residential streets, all connecting directly to Brodiaea Avenue on the south. None of the internal streets are close to half a mile long and will have a curb-to-curb width of 36 feet according to TTM 37544.
Policy 5.2.4: Design new subdivisions to minimize the disruptive impact of motor vehicles on local streets. Long, broad and linear streets should be avoided. Residential streets should be no wider than 40 feet, and should have an uninterrupted length of less than one half mile. Curvilinear streets and cul-de-sacs are preferred. Streets within the subdivision should be designed to facilitate access to residences and to discourage through traffic.	
Objective 5.3: Maintain Level of Service (LOS) "C" on roadway links, wherever possible, and LOS "D" in the vicinity of SR 60 and high employment centers. Figure 9-2 depicts the LOS standards that are applicable to all segments of the General Plan Circulation Element Map.	**Consistent.** The City determined the project would not generate traffic in volumes that would exceed the requirements of the County Congestion Management Plan (CMP)(i.e, more than 50 peak hour trips at any intersection covered by the CMP). Therefore, the project does not need to prepare a detailed Traffic Impact Assessment (TIA) and its traffic generation is anticipated to be within City standards since the project area is bounded by major arterials in all directions.
Objective 5.7: Design roads to meet the needs of the residents of the community without detracting from the "rural" atmosphere in designated portions of Moreno Valley. (Designated "rural" areas include those encompassed by the Residential Agriculture 2, Residential 1, Rural Residential and Hillside Residential zoning districts. "Urban" areas encompass all other zoning districts.)	**Consistent.** The project and surrounding area are considered "urban" under this objective and the local roadways are located and sized to accommodate suburban level traffic, including the proposed higher density of the project (R3 changed to RS10).
Objective 5.9: Support and encourage development of safe, efficient and aesthetic pedestrian facilities.	**Consistent.** The project will construct internal sidewalks to accommodate project residents and will eventually connect to sidewalks both east and west of the site on the north side of Brodiaea Ave. (i.e., when current vacant land is developed).
Policy 5.9.1: Encourage walking as an alternative to single occupancy vehicle travel, and help ensure the safety of the pedestrian as follows: (a) All new developments shall provide sidewalks in conformance with the City's streets cross section standards, and applicable policies for designated urban and rural areas…	

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Objective 5.11: Eliminate obstructions that impede safe movement of vehicles, bicyclists, and pedestrians.	**Consistent.** The project will improve the adjacent half-width of Brodiaea Avenue and construct sidewalks internal to the project. These will eventually connect to sidewalks both east and west of the site on the north side of Brodiaea Ave. (i.e., when current vacant land is developed).
6. SAFETY ELEMENT	
Goal 6.1 To achieve acceptable levels of protection from natural and man-made hazards to life, health, and property	**Consistent.** Section VIII of the Initial Study concludes project residents will be protected from existing and future hazards, although the 30-inch high pressure gas line in Brodiaea Ave. will remain in place.
Objective 6.1: Minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage due to seismic ground shaking and secondary effects.	**Consistent.** A geotechnical constraints report has been prepared specifically for this project, and design and construction will be consistent with the recommendations of that report. Section VI of the Initial Study concludes project residents will be protected from anticipated geologic and soil constraints in the area.
Objective 6.2: Minimize the potential for loss of life and protect residents, workers, and visitors to the City from physical injury and property damage, and to minimize nuisances due to flooding.	**Consistent.** Section IX of the Initial Study concludes project residents will be protected from existing and future flood hazards.
Policy 6.2.2: Permit only that development in 100- year floodplain that represents an acceptable use of the land in relation to the hazards involved and the costs of providing flood control facilities…	**Consistent.** The project will make improvements to the adjacent Quincy Channel to improve overall flood protection in this portion of the City. Prior to occupancy, the site will be raised by grading at least one foot above the 100-year flood limit, per applicable federal standards.
Objective 6.3: Provide noise compatible land use relationships by establishing noise standards utilized for design and siting purposes.	**Consistent.** Section XII of the Initial Study concludes project and area residents will be protected from expected noise impacts, including during construction.
Objective 6.4: Review noise issues during the planning process and require noise attenuation measures to minimize acoustic impacts to existing and future surrounding land uses.	
Objective 6.6: Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.	**Consistent.** The project site is a half mile from commercial uses along the west side of Moreno Beach Drive at Brodiaea Ave. which will help minimize shopping trip lengths. Eventually when the pedestrian network in the surrounding area is completed, local residents will be able to better access work, shopping, schools, and recreational facilities.
Objective 6.8: As feasible given budget constraints, strive to maintain a police force with a ratio of one sworn officer for each 1,000 residents.	**Generally Consistent.** The City maintains a police force of 160 sworn and 45 civilian workers to serve the 205,499 current (2016) City residents. This equals an existing ratio of 0.78 sworn officer per 1,000 residents which below the City service goal. However, the project will not substantially degrade this existing level of service.
Objective 6.10: Protect life and property from the potential short-term and long-term deleterious effects of the necessary transportation, use, storage treatment and disposal and hazardous materials and waste within the City of Moreno Valley.	**Consistent.** Section VIII of the Initial Study concludes residents will be protected from existing and future hazards, including transport of chemicals into and out of the project with compliance with federal, state, and local laws regarding hazardous materials.
Objective 6.16: Ensure that uses within urbanized areas are planned and designed consistent with accepted safety.	**Consistent.** Section VIII of the Initial Study concludes residents will be adequately protected from existing and future hazards.
7. CONSERVATION ELEMENT	
Goal 7.1: To achieve the wise use of natural resources within the City of Moreno Valley, its sphere of influence and planning area.	**Consistent.** The project is in an area with a mixture of rural and suburban land uses intermixed with vacant land. The Quincy Channel is adjacent to the site and will be improved consistent with direction from various resource agencies.
Objective 7.1: Minimize erosion problems resulting from development activities.	**Consistent.** Section IX of the Initial Study concludes the project will not cause significant erosion as long as appropriate mitigation and "best management practices" for water quality are implemented.
Objective 7.2: Maintain surface water quality and the supply and quality of groundwater.	**Consistent.** The project will protect water quality by implementing mitigation and "best management practices" as outlined in the project Water Quality Management Plan. The project is too small to require a Water Supply Assessment but it generally consistent with the Urban Water Management Plan of the Eastern Municipal Water District.
Objective 7.3: Minimize the consumption of water through a combination of water conservation and reuse.	**Consistent.** Section IX of the Initial Study estimates the water to be consumed by the project, and it will be consistent with the current state Green Building Code regarding water conservation.
Objective 7.4: Maintain, protect, and preserve biologically significant habitats where practical, including the San Jacinto Wildlife Area, riparian areas, habitats of rare and endangered species, and other areas of natural significance.	**Consistent.** The Quincy Channel is adjacent to the site and will be improved consistent with direction from various resource agencies.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Objective 7.5: Encourage efficient use of energy resources.	**Consistent.** Section VII of the Initial Study estimates the energy to be consumed by the project which will generate greenhouse gas emissions. The project will be consistent with the current state Green Building Code regarding energy conservation (Title 24) and will implement Mitigation Measure GHG-1 to further reduce energy consumption of the project.

Source: City of Moreno Valley General Plan, City Website accessed April 25, 2018

[1] Only those applicable to the proposed residential project

The proposed arrangement of lots is depicted in Tentative Tract Map 37544 as shown previously in Figure 4. The average lot size of the proposed project (estimated at 5,624 square feet) is about half the size of the average lot of the residential neighborhood to the south (approx. 10,500 square feet or a quarter-acre with lot dimensions of 95' x 110'). The project proposes larger lots and to keep the R3 zoning designation in the southeast portion of the site adjacent to Brodiaea Avenue so the lot dimensions will be consistent with those of the existing housing zoned R3 just south of the project across Brodiaea Avenue. TTM 37544 shows lot sizes range from 4,843 square feet (50' x 95') up to 11,939 square feet with an average of 5,624 square feet. The four lots along Brodiaea Avenue just west of the Quincy Channel are proposed to be 8,458 square feet (Lot 45) and 8,024 square feet (Lots 42-44) as these are directly adjacent to the existing housing to the south. Lot 41 which accesses off of Street "A" within the project also has a lot depth of 75 feet which is consistent with the widths of Lots 42-45 within the project and the existing residential lots across Brodiaea Avenue to the south. The proposed project design will therefore reduce potential land use conflicts by providing similar sized lots to the existing residential lots to the south. Based on its proposed design, the General Plan Amendment and Change of Zone proposed by this project would have a less than significant impact on any applicable land use plan, policy, or regulation, and no mitigation is required.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?		X		

Less Than Significant Impact. The proposed project is located within the Multiple Species Habitat Conservation Plan (MSHCP), City of Moreno Valley Area Plan. However, the site is not located in a Criteria Cell, designated as to adjacent to any land designated as Public or Quasi-Public Land or Conservation Land. The Project is located within the MSHCP survey area for burrowing owl. Because the project is not located within a Criteria Cell, it is not subject to possible land conservation requirement under the MSHCP. Refer to the analysis provided for Response IV(f) and related mitigation measures. Therefore, development of the Project would have a less than significant impact related to a habitat conservation plan.

XI. **MINERAL RESOURCES.** Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

No Impact. The Project site is vacant and undeveloped. The mineral resources known to occur within the City of Moreno Valley include sand, gravel and rock which is used to make concrete and as road base.[24] According to the City's General Plan, one recently active sand and gravel quarry is known to occur within the City's sphere of influence: the Jack Rabbit Canyon Quarry.[24] The Jack Rabbit Canyon Quarry was inactive as of 2001 and is located in a drainage course at the northeast corner of Jack Rabbit Trail and Gilman Springs Road approximately 6.5 miles west of the Project site. No regionally or statewide significant mineral resources are located within the planning area.[25] Due to the absence of mineral resources, no impact would occur related to the project and no mitigation measures are required.

[24] Chapter 7 – Conservation, 7.8 Mineral Resources, City of Moreno Valley General Plan, July 11, 2006.

[25] Chapter 5.14 – Mineral Resources, City of Moreno Valley General Plan Final Program EIR, July 2006. Fix Font

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. **NOISE.** Would the project result in: a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		

Short-Term Noise

Short-term noise impacts would result from grading and erecting of buildings onsite during construction of the proposed project. Noise associated with the use of construction equipment is estimated to be between 55 and 85 dBA L_{max} at a distance of 50 feet[26] from the active construction area for the site preparation phase. The maximum noise level generated by each scraper and dozer is typically assumed to be approximately 85 dBA L_{max} at 50 feet from heavy equipment. Each doubling of the sound sources with equal strength increases the noise level by 3dBA. Assuming each piece of construction equipment operates at same distance from the other equipment, the worst-case combined noise level during construction would be 84 dBA L_{max} at 50 feet from active construction area. The closest sensitive receptors to the project site are approximately half a dozen single-family residences located approximately 100 feet south of the project site across Brodiaea Avenue. At this distance, noise levels would be attenuated by approximately 6 dBA from the active construction area. Therefore, the closest sensitive receptors may be subject to short-term construction noise reaching 78 dBA Lmax (84 dBA – 6 dBA) when construction occurs at the project site boundary. It should be noted that these construction-related noise impacts would be the same whether the site was developed for R3 uses or for the proposed RS10 uses, although construction of the residential units might take slightly longer for the proposed project due to the higher number of units involved. Construction noise is permitted by the City when activities occur between the hours of 7:00 a.m. and 8:00 p.m. daily, however, mitigation is recommended to help reduce short-term impacts to the extent feasible.

NOI-1 **Construction Noise.** Prior to issuance of a grading permit, the developer shall prepare a Construction Noise Control Plan (CNCP) and submit it to the City for review and approval. The plan shall include but will not be limited to the following:

- During all project site excavation and grading, contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site (i.e. south).
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site (i.e., south) during all project construction.
- A temporary construction barrier with a minimum height of 8 feet shall be placed along the project's southern property line during project grading and construction.
- During all project site construction, the construction contractor shall limit all construction-related activities, including maintenance of construction equipment and the staging of haul trucks, to between the hours of 7:00 a.m. to 5:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. on Saturday. No construction is permitted on Sundays and government code holidays.
- Prior to issuance of a grading or building permit, the developer shall prepare a haul route and staging plan for any trucks hauling earth or construction materials to or from the project site to where material will be disposed (i.e. export). The plan shall be reviewed and approved by the City before a grading permit is issued by the City. To the extent feasible, haul routes and truck staging areas shall not pass sensitive land uses or residential dwellings not on a direct driving route to the closest freeway.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

26 *Transit Noise and Vibration Impact Assessment,* Federal Transit Administration, 2006.

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Construction noise would result in a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. With the implementation of Mitigation Measure NOI-1, short-term impacts would be reduced to less than significant levels.

Long-Term Noise

Long-term noise impacts are evaluated by both the absolute increase in perceived noise levels as well as by changes to the Community Noise Equivalent Level (CNEL) for the project area. The CNEL provides a weighting factor (i.e., penalty) for noise after 10 PM and before 6 AM as residents are more sensitive to noises during nighttime and early morning hours. Both noise impacts are measured using decibels (dB) on the A scale (dBA) which most closely corresponds to the range of sound perceptible to humans. The applicant is proposing higher density housing (RS10 zoning) compared to the current land use and zoning designations (R3) although the overall character of the area, including the project site, would be residential. The incremental increase in density would increase the number of housing units on the site, but this change would not result in a significant increase in noise levels expected in this residential area.

Traffic Noise. The primary source of long-term noise from this residential project would be the incremental increase in vehicular traffic along Brodiaea Avenue. Noise calculations by Urban Crossroads (Appendix I) indicate existing traffic generates noise levels approximately 2.8 dBA in excess of ambient noise levels without any vehicle travel. If the traffic from the proposed project were added to existing baseline levels, overall noise levels would increase by 3.2 dBA. This noise level increase would be just over the limit of perception by the human ear in an outdoor environment (i.e., +3 dBA), however, it would be less than the increase typically considered to be a significant noise impact in an urban/suburban environment (i.e., +5 dBA). By comparison, the existing CNEL of the project area is estimated by Urban Crossroads to be 60.2 dBA without the proposed project and 60.8 dBA with the proposed project. Therefore, project-related traffic noise would contribute only 0.6 dBA to the CNEL which is below the threshold for human perception and the level considered a significant noise impact in suburban environments. It should be noted that development under RS10 standards may result in an incremental increase in noise levels compared to if the site supported R3 uses due to the higher number of units. However, the preceding analysis determined the long-term noise impacts of RS10 development would still be less than significant.

It should also be noted that the buildings and fences within the proposed project will help attenuate vehicular and other (stationary) noise internal to the project. Therefore, the proposed project would have less than significant long-term noise impacts and no mitigation is required.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	

Less Than Significant Impact. Vibration refers to groundborne noise and perceptible motion. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernible, but without the effects associated with the shaking of a building, there is a less adverse reaction. According to Federal Transit Administration (FTA) guidelines, vibration levels up to 102 VdB will not result in structural damage to buildings. Table G shows the vibration level for equipment that could potentially be used during construction. Table H shows the human response to different levels of groundborne noise and vibration.

Table G: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L_V at 25 ft	
	PPV (in/sec)	L_V (VdB)
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79

Sources: Transit Noise and Vibration Impact Assessment (FTA 2006).

ft = feet
L_V = velocity in decibels
VdB = vibration velocity decibels
in/sec = inches per second
PPV = peak particle velocity

Table H: Human Response to Groundborne Noise and Vibration

Vibration Velocity Level	Noise Level		Human Response
	Low Frequency[1]	Mid Frequency[2]	
65 VdB	25 dBA	40 dBA	Approximate threshold of perception for many humans. Low-frequency sound usually inaudible; mid-frequency sound excessive for quiet sleeping areas.
75 VdB	35 dBA	50 dBA	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find transit vibration at this level unacceptable. Low-frequency noise acceptable for sleeping areas; mid-frequency noise annoying in most quiet occupied areas.
85 VdB	45 dBA	60 dBA	Vibration acceptable only if there are an infrequent number of events per day. Low-frequency noise unacceptable for sleeping areas; mid-frequency noise unacceptable even for infrequent events with institutional land uses such as schools and churches.

Source: *Transit Noise and Vibration Impact Assessment* (FTA 2006).

[1] Approximate noise level when vibration spectrum peak is near 30 Hz.
[2] Approximate noise level when vibration spectrum peak is near 60 Hz.

dBA = A-weighted decibels
Hz = Hertz
VdB = vibration velocity decibels

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Short-Term Vibration

During site grading, vibration may be felt at the residences to the south of the project across Brodiaea Avenue. Table I lists the projected vibration level from various construction equipment expected to be used on the project site to the nearest buildings in the project vicinity. For typical construction activity, the equipment with the highest vibration generation potential is the large bulldozer, which would generate 87 VdB at 25-feet. The nearest sensitive receptors to the project would be approximately 100 feet from the project boundary to the south. Based on the distance attenuation, the closest residences would experience vibration levels of up to 71 Vdb (0.014 PPV [in/sec]) This vibration level at the closest residential structures from construction equipment would not exceed FTA threshold of 94 VdB (0.2 in/sec PPV) for building damage. This level is also below the FTA's "barely perceptible" human response criteria of 0.04 PPV for transient sources of vibration events. Therefore, ground-borne vibration impacts from project-related construction activities would be considered less than significant. No mitigation is warranted.

Table I: Summary of Construction Equipment and Activity Vibration

Land Use	Direction	Equipment/ Activity	Reference Vibration Level (VdB) at 25 feet	Reference Vibration Level (PPV) at 25 feet	Distance (feet)	Maximum Vibration Level (VdB)	Maximum Vibration Level (PPV)
Residential	South/ Southwest	Large Bulldozers	87	0.089	10	99	0.352
		Loaded Trucks	86	0.076	10	98	0.300

Source: *Transit Noise and Vibration Impact Assessment* (FTA 2006).
Note: The FTA-recommended building damage threshold is 0.2 PPV (in/sec) or approximately 94 VdB at the receiving residential/church structure and 0.3 PPV (in/sec) or approximately 98 VdB at the receiving commercial structure.

ft = foot/feet
in/sec = inch/inches per second
FTA = Federal Transit Administration
PPV = peak particle velocity
VdB = vibration velocity decibels

Long-Term Vibration

The streets surrounding the project area are paved, smooth, and unlikely to cause significant ground-borne vibration. In addition, the rubber tires and suspension systems of buses and other on-road vehicles make it unusual for on-road vehicles to cause ground-borne noise or vibration problems. It is, therefore, assumed that no such vehicular vibration impacts would occur and, therefore, no vibration impact analysis of on-road vehicles is necessary. Additionally, once constructed, the proposed project would not contain uses that would generate ground-borne vibration. Therefore, a less than significant impact would occur regarding long-term vibration, and no mitigation is required.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	

Less Than Significant Impact. Please refer to Checklist Response XII.a. A less than significant impact related to increase in ambient noise levels would occur. No mitigation is required.

d) A substantially temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	

Less Than Significant Impact. Please refer to Checklist Response XII.a. A less than significant impact related to increase in ambient noise levels would occur. No mitigation is required.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
No Impact. The closest airport to the proposed project site is March Air Reserve Base (RIV) located approximately 5.5 miles southwest of the project site. Aircraft noise is rarely audible at the project site; and no portion of the site lies within the 55 dBA CNEL noise contours of the airport. Therefore, no impact would occur with the exposure of people residing or working within the project boundaries. No mitigation is required.				
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X
No Impact. Please refer to Checklist Reponse XII.e. **No impact** would occur and no mitigation is required.				
XIII. **POPULATION AND HOUSING.** Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X	
Less than Significant Impact. During the construction process, the project would create short-term construction jobs and are anticipated to be filled primarily by workers who reside in the project vicinity. The proposed Project is the construction of 45 single family residential units which would generate a maximum of 176 residents.[27] This would be an incremental increase over the housing and population increases under the existing General Plan and zoning (i.e., plus 18 units and 78 persons)[28]. It is unknown how many new residents to the City this project will generate, although it is likely that some proportion of project residents would move from existing units within the City, therefore, the project is not expected to result in a large influx of new residents to the City. The project could induce some additional growth in this portion of the City, especially if the land use designation or zoning of other properties are changed to allow higher density housing. However, the project is not expected to induce substantial or significant growth in the City or region beyond the growth forecasts detailed in the City's General Plan or SCAG's regional growth forecasts since the proposed project is consistent with the existing land use and zoning designations (i.e., suburban residential). Therefore, a less than significant impact related to this issue will occur. No mitigation is required.				
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
No Impact. The proposed project is currently vacant and does not contain any residences that would be removed as a result of the proposed Project. Therefore, the Project would not displace a substantial number of existing housing or residences so as to necessitate the construction of replacement of housing. **No impact** would occur with respect to the displacement of existing housing. No mitigation is required.				
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X
No Impact. Please refer to Response Question XIII.b. **No impact** related to this issue would occur as a result of the Project and no mitigation is required.				

[27] 45 units times the average household size in the City (3.91 persons per household per U.S. Census data) equals 176 new residents. https://www.census.gov/quickfacts/fact/table/morenovalleycitycalifornia/POP010210

[28] 30 units times the average household size in the City (3.91 persons per household per U.S. Census data) equals 117 residents.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

XIV. **PUBLIC SERVICES**. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

a) Fire protection?			X	

Less Than Significant Impact. The proposed Project would place new residential uses on undeveloped land. The City of Moreno Valley Fire Department (MVFD) contracts with the Riverside County Fire Department (RCFD) for local fire protection services. The closest stations to the project site are the Fire Station at 28040 Eucalyptus Avenue (2.5 miles north of the site) and Fire Station 99 located at 13400 Morrison Street approximately 2.8 miles northwest of the project site, Response time from either station to the project site is estimated at under 5 minutes based on a travel speed of 35 miles per hour. According to the City's General Plan, a five-minute response time is considered to be the maximum time standard for serving urban and suburban uses.[29] Considering this, the project will have a less than significant impact on fire protection. No mitigation is required.

b) Police protection?			X	

Less Than Significant Impact. The Project includes the development of residential uses at the northwest corner of Brodiaea Avenue and Quincy Street. Police services are provided by the Moreno Valley Police Department (MVPD) under contract with the Riverside County Sheriff's Department which has 162 sworn officers and a current officer to population ratio of 0.9 officers per 1,000 populations in the City. The closest police stations to the project site are the City Hall Station located at 22850 Calle San Juan De Los Lagos approximately 5.8 miles west of the project site, and the station located at 23819 Sunnymead Boulevard approximately 6.2 miles west of the project site. It should be noted the MVPD divides the City into "beat" or service areas to assure the entire City receives adequate police patrol and protection services. The Project could introduce a maximum of 176 residents to the City versus 117 persons under the existing zoning. Although it is not known how many of these residents would be new to the City, the project would incrementally increase the need for police. Since adequate police services are currently available in the City, development of the project would have a less than significant impact on police protection. No mitigation is required.

c) Schools?			X	

Less Than Significant Impact. The Project proposed the development of residential uses which would generate school aged children. Based on data from the Moreno Valley Unified School District[30] (MVUSD) website, the project site, and its future residents, would be served by the following MVUSD schools:

- Ridge Crest Elementary School (K-5) 28500 John F. Kennedy Drive 0.6 mile south of the site
- Landmark Middle School (6-8) 15261 Legendary Drive 1.2 miles southwest of the site
- Vista Del Lago High School (9-12) 15150 Lasselle Street 2.5 miles west-southwest of the site

The historical enrollments at these schools are shown in Table J below based on the District's most current demographic report[31]. Based on the District's most current Developer Impact Fee Report, the project would be expected to generate approximately 30 elementary, 14 middle school, and 19 high school students (63 total students), as shown in Table K below. By comparison, development of the site under the existing General Plan and zoning designations would generate 20 elementary, 10 middle school, and 13 high school students (43 total students).

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

[29] Chapter 6 "Safety," City of Moreno Valley General Plan, July 11, 2006.
[30] MVUSD website accessed April 18, 2018 http://apps.schoolsitelocator.com/?districtCode=42798
[31] https://www.mvusd.net/apps/pages/index.jsp?uREC_ID=786774&type=d&pREC_ID=1181757

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Table J: Historical Enrollments at Local MVUSD Schools

School	Enrollments[1]		
	2015	2016	2017
Ridge Crest Elementary	560	596	592
Landmark Middle	1,153	1,160	1,222
Vista Del Lago High	2,003	1,910	2,073

Source: District Demographic Report[32] issued February 5, 2018
[1] not including special day class (SDC) enrollments

Table K: Estimated Student Generation

School Level	Grades	Students/ Household	Potential Student Generation	
			Current[1]	Proposed[2]
Elementary	K-5	0.65	20	30
Middle	6-8	0.32	10	14
High	9-12	0.43	13	19
Total	**K-12**	**1.40**	**43**	**63**

Source: extrapolated and estimated from MVUSD Developer Impact Fee Report 2018.
1 Assumes 30 units based on R3 zoning limit of 3 units/acre for 10-acre site
2 Based on 45 units under TTM 37544 under RS10 zoning.

According to Cheryl Acevedo, MVUSD Demographics Clerk, most of the new residential construction within the boundaries of the Moreno Valley Unified School District (MVUSD) fall within the Level II Statutory Fee Schedule which is $4.50 per square foot as approved on July 19, 2017. However, the proposed project is within the boundaries of Community Facilities District 91-1, one of if not the oldest CFDs in the District, and so the project would pay $4.50 per square foot in developer impact fees (per the MVUSD Fee Mitigations Map). According to state law, residential development that pays its appropriate established developer impact fee to the serving school district(s) is considered to have fully mitigated its potential impacts to school facilities and services, and no additional mitigation is required. Therefore, with payment of established school impact fees, the project would have a less than significant impact relative to schools and no additional mitigation is required.

d) Parks?			X	

Less Than Significant Impact. As mentioned above, the proposed Project would construct 45 new homes which could generate an additional 176 residents in the City. This represents an increase over the potential 98 residents that could be expected if the property were to be developed according to the current General Plan and zoning designations (3 units per acre = 27 units x 3.91 persons/unit). Project residents would be expected to use City or regional park facilities and services. The closest City recreational facility to the project site is the Cottonwood Equestrian Center (28590 Cottonwood Avenue), approximately 0.6 mile north of the project site. However, the closest full City park is Ridge Crest Park (28506 John F. Kennedy Drive) a half mile south of the site. The Ridge Crest Park contains multi-use athletic fields, picnic tables, barbeques, soccer fields, a tot lot, restrooms, and off-street parking. In addition, the regional Lake Perris State Recreational Area is 3 miles south of the site and offers a wide range of recreational facilities and programs, including boating, camping, hiking, bicycling, horseback riding, picnic shelters, swimming beaches, fishing, nature walks and tours, windsurfing, restrooms, and showers. The additional residents of the project would be expected to utilize the various recreational facilities in the surrounding area. The project does not propose any onsite park or open space areas, so would be required to pay the City's in lieu Development Impact Fee (DIF) for recreational facilities. With payment of the required DIF, the project would have less than significant impacts relative to parks, and no mitigation is required.

[32] https://www.mvusd.net/apps/pages/index.jsp?uREC_ID=786774&type=d&pREC_ID=1181757

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Other public facilities?			X	

Less Than Significant Impact. The proposed Project would not induce significant population growth within the City of Moreno Valley. The project could introduce a maximum of 176 residents into the City, although it is not known how many of these would actually be new to the City (i.e., existing residents relocating to new housing). Because the Project would not introduce a substantial amount of additional population into the City of Moreno Valley, development of the Project would have a less than significant impact on public facilities and no mitigation is required.

XV. **RECREATION.**

a) Would the project increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	

Less than Significant Impact. The proposed project includes the construction of 45 new residences which could generate approximately 176 new City residents (based on 3.91 persons per household from U.S. Census data). Project residents would be expected to use City or regional park facilities and services. The closest City recreational facility to the project site is the Cottonwood Equestrian Center (28590 Cottonwood Avenue), approximately 0.6 mile north of the project site. However, the closest full City park is Ridge Crest Park (28506 John F. Kennedy Drive) a half mile south of the site. The Ridge Crest Park contains multi-use athletic fields, picnic tables, barbeques, soccer fields, a tot lot, restrooms, and off-street parking. In addition, the regional Lake Perris State Recreational Area is 3 miles south of the site and offers a wide range of recreational facilities and programs, including boating, camping, hiking, bicycling, horseback riding, picnic shelters, swimming beaches, fishing, nature walks and tours, windsurfing, restrooms, and showers. The additional residents of the project would utilize the various recreational facilities in the surrounding area. However, development of the proposed Project is not expected to result in a significant increase in the use of existing neighborhood parks, regional or state parks, or other recreational facilities. According to the State Quimby Act, a project of this size would be expected to generate a need for 0.35 acres of parkland[33]. The project does not propose any onsite park or open space areas, however, it will provide a linear park in conjunction with trail improvements along the portion of the Quincy Channel (west bank) that is adjacent to the project site. In addition, the project would be required to pay the City's in lieu Development Impact Fee (DIF) to offset impacts to parks and recreational programs. With construction of the linear park/trail improvements and payment of the required DIF, the project would have less than significant impacts relative to recreation, and no mitigation is required.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

Less Than Significant Impact. The proposed 45 new residences could generate approximately 176 new City residents (based on 3.91 persons per household from U.S. Census data). By comparison, development under the existing zoning (R3) would result in 27 new units and 98 new residents, although not all of these would be expected to be new City residents (i.e., some portion would relocate from within the City). The proposed project does not include any onsite recreational facilities or parkland but will provide a linear park in conjunction with trail improvements along the portion of the Quincy Channel (west bank) that is adjacent to the project site the potential impacts of which have been analyzed in this Initial Study. In addition, the project would be required to pay applicable Development Impact Fees (DIF) to offset impacts to parks and recreational programs. Therefore, the project would not result in the need for construction or expansion of recreational facilities, and impacts would be less than significant in this regard. No mitigation is required.

XVI. **TRANSPORTATION/TRAFFIC.** Would the project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system,			X	

[33] 117 new residents divided by 1000 = 0.117 x Quimby Act recommended standard of 3 acres per 1000 new residents = 0.35 acre or 15,300 square feet of parkland.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			X	

Less Than Significant Impact. A trip generation analysis (Appendix J) indicates the project would generate approximately 444 total daily trips[34] compared to 255 trips that would be generated by the site if it were developed with uses consistent with the existing General Plan and zoning designations. The project would generate 36 total trips in the a.m. peak hour and 48 net trips in the p.m. peak hour. Due to its small size, the City determined the project would not be required to prepare a traffic impact assessment since it would not generate more than 50 peak hour trips at any one intersection, as outlined in the County Congestion Management Plan (CMP). The proposed project would generate proportionally more traffic than under existing land use designations (i.e., 444 versus 255 trips), however, existing intersections in the project area are currently operating and are expected to operate at satisfactory level of service in the future. Eventually Quincy Street will be extended north to connect Brodiaea Avenue with Alessandro Avenue, which will help reduce potential congestion along Brodiaea Avenue. Therefore, the project would have a less than significant impact related to conflicts with established transportation plans, and no mitigation is required.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?				X

No Impact. The nearest airport is the March Air Reserve Base located approximately 5.5 miles southwest of the project site. The proposed project is outside the Airport Influence Area. The project does not include uses or components that would affect air traffic, so no substantial safety risks would result from project implementation. Because of these reasons, no impact would occur with the development of the project. No mitigation required.

d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?			X	

Less Than Significant Impact. The project is located on a residential collector street (Brodiaea Avenue) which connects to Redlands Boulevard on the east and Moreno Beach Drive on the west. Alessandro Blvd., Redlands Blvd., and Moreno Beach Drive are classified as divided major roadways (134' ROW) while Cactus Avenue and Quincy Street are classified as minor arterials (89' ROW) in the City's General Plan Circulation Element (Figure 4.2-1, Circulation Plan). Roadways must provide adequate sight distance and traffic control, and these provisions are normally achieved through standard roadway design to facilitate vehicular traffic flow. Roadway improvements within and adjacent to the project site would be designed and constructed to satisfy all City requirements for street widths, corner radii, intersection control as well as incorporate design standards tailored specifically to site access requirements. Adherence to applicable City requirements would ensure the proposed development would not include any sharp curves or dangerous intersections. Therefore, no substantial increase in hazards due to a design feature would occur, resulting in a less than significant impact. No mitigation is required.

e) Result in inadequate emergency access?			X	

Less Than Significant Impact. The Moreno Valley Police Department maintains a station located at 22850 Calle San Juan De Los Lagos which is approximately 4.8 miles northwest of the project site, and the Moreno Valley Fire Department

[34] Project Trip Generation Summary and Trip Generation Comparison Memo, Urban Crossroads, September 4, 2018.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Station 74 is located at 16110 Lasselle Street which is approximately 1.4 miles southwest of the project site. Traffic associated with project construction may have a temporary effect on existing traffic circulation patterns, including emergency access. Although the site is in the eastern (more rural) portion of the City, it is in a generally suburban setting and direct access to the site will be available via Brodiaea Avenue off of both Moreno Beach Drive to the west and Redlands Boulevard to the east. The site will also have access to Cactus Avenue to the south. Therefore, the project area would have adequate circulation to accommodate emergency services. Due to the proximity of emergency services, the urban setting, and availability of access to the site, impacts to emergency access will be less than significant. The proposed project will also comply with all of the City's requirements for emergency access. Therefore, impacts will be less than significant impacts and no mitigation is required.

f) Conflict with adopted policies or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				X

No Impact. Bus service to the project area is provided by the Riverside Transit Agency (RTA). The closest bus line to the project site is Route 20 along Moreno Beach Drive approximately 0.36 mile west of the project site at its closest point. Route 20 connects to the central and western portions of Moreno Valley and at transfer points to other routes serving western Riverside County. Eventually as this area grows and supports more residences, RTA will modify its bus routes and service availability to accommodate future growth. The proposed project would not impede the implementation of any City programs supporting walking, bicycling, and use of buses, and the proposed project will not conflict with any adopted transportation policies. No impact associated with this issue would occur. No mitigation is required.

XVII. **UTILITIES AND SERVICE SYSTEMS.** Would the project: a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			X	

Less Than Significant Impact. Wastewater services in the City of Moreno Valley are provided by the Eastern Municipal Water District (EMWD), serving most of the City and surrounding areas, and the Edgemont Community Services District.[35] The EMWD provides wastewater services to approximately 239,000 customers within its service area and currently treats approximately 43 million gallons per day of wastewater at its five active regional water reclamation facilities through 1,813 miles of sewer pipelines.[36] These reclamation plants include: San Jacinto Regional Water Reclamation Facility; Moreno Valley Regional Water Reclamation Facility; Perris Valley Regional Water Reclamation Facility; Sun City Regional Water Reclamation Facility; and Temecula Valley Regional Water Reclamation Facility. Generated wastewater from the Project site would be treated at the Moreno Valley Regional Water Reclamation Facility. The proposed project is expected to generate a maximum of 176 residents who would generate approximately 17,600 gallons of wastewater per day or 6.4 million gallons per year of wastewater based on a worst case estimate of 100 gallons per person per day[35]. The typical daily flow at the MVRWRF is 10.6 million gallons per day with a current capacity of 16 million gallons per day, having a current excess capacity of approximately 5.4 million gallons per day. The proposed project would represent approximately 0.3 percent of that excess capacity. The proposed project would be required to comply with the applicable waste discharge prohibitions and water quality objectives established by the Santa Ana RWQCB. The project proponent would also be required to satisfy City requirements related to the payment of fees and/or the provision of wastewater conveyance features, and installation and maintenance prior to the issuance of building permits. Adherence to requirements included in the NPDES permit, SWPPP, WQMP, and City wastewater conveyance standards would reduce potential wastewater quality impacts to a less than significant level and no mitigation is required.

b) Require or result in construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	

[35] Sewer Services, Public Services and Utilities, City of Moreno Valley General Plan Final Program EIR, July 2006.
[36] Wastewater Service, Eastern Municipal Water District (EMWD), 2018. (Website accessed April 1, 2018). https://www.emwd.org/services/wastewater-service

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Less Than Significant Impact. Wastewater flows from the proposed project site would be handled by the Eastern Municipal Water District (EMWD) and would be conveyed to the Moreno Valley Regional Water Reclamation Facility (MVRWRF) located in the southwestern portion of the City. Current capacity at this facility is 16 million gallons per day (mgd) with an existing average inflow of approximately 10.6 mgd per day. Under current conditions, the average daily surplus treatment capacity is approximately 5.4 mgd. Generally, water use and wastewater flows are related in that wastewater is generated from indoor water uses. The Project is expected to generate up to 17,600 gallons of wastewater per day or 6.4 million gallons per year based on a worst case estimate of 100 gallons per person per day[35]. Because the amount of wastewater generated would be within the existing surplus treatment capacity, the proposed project would not require the construction of a new water or wastewater treatment facilities or expansion of existing facilities, which could cause significant environmental effects; and impacts related to this issue would be considered less than significant. No mitigation is required.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	

Less Than Significant Impact. There is an existing storm drain in Brodiaea Avenue and the project is not expected to direct any drainage toward the nearby Quincy Channel. The proposed site plan includes a detention basin in the southwest corner and an underground water quality basin near the southeast corner of the site. The project hydrology study indicates the site will not increase offsite downstream flows in the developed condition (see Appendix H). The project runoff will ultimately discharge to the southwest (to the existing storm drain in Brodiaea Avenue) as it does in the existing condition (i.e., flows south and west). The proposed project will also pay the City's established Development Impact Fee (DIF) for drainage to help offset costs for new storm water drainage facilities. Therefore, the proposed project will have a less than significant impact on these facilities, and no mitigation is required.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			X	

Less Than Significant Impact. Due to the size of the project, a water supply assessment report to determine water supply availability was not prepared for this project. The project is consistent with the City of Moreno Valley General Plan Land Use designation and the City's zoning of residential at 3 units/acre (R3). The City of Moreno Valley is served by two water purveyors: Eastern Municipal Water District (EMWD) and the Box Springs Mutual Water Company.[37] However, the EMWD is the primary water purveyor from the City and would provide water to the project site. Water demands of the project are generally consistent with and are anticipated under the EMWD 2015 Urban Water Management Plan (UWMP). It is estimated the 45 residences would generate 176 new residents which would consume 33,440 gallons of potable water per day based on a worst case estimate of 190 gallons consumed per person per day per the EMWD UWMP. This is equivalent to 12.2 million gallons or 37.4 acre-feet of water per year (1 acre-foot = 326,000 gallons). This is because water demands reflected in the UWMP takes into account anticipated development growth in the City pursuant to the City's General Plan. Therefore, the UWMP reflects and anticipates residential uses at suburban level densities similar to that proposed by the project. As identified in the 2015 UWMP, EMWD has the ability to meet current and project water demands through 2040 during normal, historic single-dry and historic multiple-dry year periods using imported water from Metropolitan Water District (MWD) with existing supply resources.[38] Therefore, a less than significant impact would occur related to this issue, and no mitigation required.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project determined that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	

[37] City of Moreno Valley General Plan Final Program EIR, City of Moreno Valley, July 2006.
[38] Tables 7-4 through 7-9, Eastern Municipal Water District, 2015 Urban Water Management Plan, June 2016.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Less Than Significant Impact. Please refer to response to Checklist Question XVI(b).

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	

Less Than Significant Impact. Solid waste collection is a "demand-responsive" service and current service levels can be expanded and funded through user fees without difficulty. Solid waste generated within the proposed Project will be transported to the Riverside County Waste Management Department's (RCWMD) Badlands Landfill located at 31125 Ironwood Avenue approximately 4 miles east of the project site. The Badlands Sanitary Landfill has a maximum daily permitted throughput of 4,800 tons per day, a remaining capacity of 15,748,799 cubic yards, and an estimated closure of 2022.[39] During the year 2012, the landfill received 469,705 tons of solid waste for disposal, an average of 1,520 tons per day, a surplus capacity of 2,480 tons per day.[40] Based on a solid waste generation of 4.4 pounds per person per day[41], the proposed project is anticipated to generate approximately 774 pounds per day or 141 tons per year of solid waste. The volume of solid waste generated by the proposed project per day represents 0.008 percent of the current permitted throughput at the Badlands Sanitary Landfill. As adequate daily surplus capacity exists at the receiving landfill, development of the proposed project would not significantly impact current operations or the expected lifetime of the landfill serving the project area. A less than significant impact would occur and no mitigation is required.

g) Comply with federal, state, and local statues and regulations related to solid waste?			X	

Less Than Significant Impact. The proposed project would be required to comply with applicable elements of AB 1327, Chapter 18 (California Solid Waste Reuse and Recycling Access Act of 1991) and other applicable local, state, and federal solid waste disposal standards, thereby ensuring that the solid waste stream to the Badlands Sanitary Landfill is reduced in accordance with existing regulations. A less than significant impact related to this issue would occur. No mitigation is required.

XVIII. **TRIBAL CULTURAL RESOURCES**

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:		X		

Less Than Significant with Mitigation. The City sent out SB 18 and AB 52 letters/emails to local tribal representatives on March 29, 2018 and received the following replies regarding government to government consultation on this project:

- San Manuel Band - letter dated March 29, 2018 requesting consultation.
- Agua Caliente Band of Cahuilla Indians – 2 letters dated April 2, 2018 deferring consultation to the Morongo and Soboba tribes.
- Soboba Tribe – letter dated April 27, 2018 requesting consultation.
- Pechanga Tribe (Temecula Band of Luiseno Mission Indians) two letters dated April 5, 2018 requesting consultation under both SB 18 and AB 52

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

[39] Facility/Site Summary Details: Badlands Sanitary Landfill, CalRecycle, 2017.
[40] 5.13 Public Services and Utilities, Solid Waste, City of Moreno Valley General Plan Final Program EIR, July 2006.
[41] US EPA website, accessed April 18, 2018 https://archive.epa.gov/epawaste/nonhaz/municipal/web/html/

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Consultation with San Manuel, Soboba, and Pechanga tribes which requested consultation on this project, between the City and the tribes are ongoing. With implementation of Mitigation Measures CUL-1 through CUL-6, potential impacts related to tribal cultural resources will be reduced to less than significant levels.

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or				X

Less Than Significant with Mitigation. The Cultural Resources Assessment determined there were no resources that were listed or eligible for listing on the CRHR or are considered locally significant. In addition, potential discovery of buried historical resources on the site during grading is covered by Mitigation Measure CUL-3. Therefore, there will be less than significant impacts regarding historical resources and no additional mitigation is required.

ii) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or				X

Less Than Significant with Mitigation. The Cultural Resources Assessment determined there were no resources that were listed or eligible for listing on the CRHR or are considered locally significant. In addition, potential discovery of buried historical resources on the site during grading is covered by Mitigation Measure CUL-3. Therefore, there will be less than significant impacts regarding historical resources and no additional mitigation is required.

iii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resource Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5025.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		

Less Than Significant with Mitigation. According to the Cultural Resource Assessment,[42] one cultural resource was noted within a half mile radius of the project site, and six cultural resource reports have been previously completed within the half mile buffer surrounding the Project site. During the field reconnaissance, no "historical resources" as defined under CEQA were discovered onsite. However, numerous prehistoric resources lie in the uplands to the south and southwest. To assure there will be no significant impacts to any potential buried cultural resources, Mitigation Measures CUL-1 through CUL-6 were recommended to reduce impacts related to tribal cultural resources to less than significant levels.

XIX. **MANDATORY FINDINGS OF SIGNIFICANCE.**

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?		X		

Less Than Significant with Mitigation. The Project proposes 45 residences on 8.5 acres and surrounding land uses are residential and vacant land. No federal jurisdictional waters, wetlands, and/or streambeds regulated by CDFW were identified within the project area. As mentioned before, the project site is located within the Multiple Species Habitat Conservation Plan (MSHCP) City of Moreno Valley Area Plan. No special-status species were found or observed during

[42] Cultural Resource Assessment, Frontier Communities Brodiaea Avenue Residential Project, RCA Asssociates, Inc. April 26, 2018.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

the field reconnaissance. However, based on a literature review and the field survey, some special-interest species, including federal/State listed species, are known to occur in the region. Because the project site is currently un-vegetated, a burrowing owl habitat assessment and burrow survey was conducted and concluding negative results for owls and owl sign, and no evidence of usable burrows. Mitigation Measures BIO-1 (burrowing owl), BIO-2 (Quincy Channel improvements), and BIO-3 (nesting birds) will reduce potential impacts to biological resources to less than significant levels.

There are no sites within the City of Moreno Valley listed as a state landmark, nor are there any sites on the National Register of Historic Places. Six (6) cultural resource studies have been previously conducted within a 1-mile radius of the Project, none of which included any portion of the Project.[43] Although no cultural resources were identified on the Project site, one prehistoric site has been recorded within 1-mile (see Checklist Question V.a). Numerous prehistoric resources lie to the south and southeast, and the sensitivity of the areas between these resources and the Project is unknown. With implementation of Mitigation Measures CUL-1 through CUL-6, impacts to tribal and cultural resources would be less than significant.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?		X		

Less Than Significant Impact. The City's General Plan identifies the site as Residential: Max. 3 units/acre with similar zoning (R3) which could result in a maximum of 25 units on the project site (3 units per acre on 8.55 gross acres), however, the project proposes to change the land use intensity to a maximum of 10 units per acre (RS10). It is possible this project may indirectly induce additional growth into the area in the future because the surrounding vacant properties (approximately 130 acres) are currently zoned R3. If the entire 130 acres of vacant land were to be changed to RS10 zoning, the vacant land would generate up to 1,300 units (max. 10 units/acre) versus 390 units under the existing R3 zoning (3 units/acre). If the remaining vacant land in the area were to be developed at the density of the proposed project (5.09 units/acre gross and 7.75 units/acre net), it would only generate 684 units (versus 390 units under the existing R3 zoning). Due to the presence of RS10 and R5 zoning immediately south of the site, the proposed change in land use designations/intensity would result in less than significant land use impacts. The project proposes the development of 45 residences in an area of the City where residential uses have been anticipated in local and regional planning documents. The potential environmental effects associated with the proposed project and cumulative projects in the City are addressed within the scope of impacts identified in the City's General Plan. The increase in number of units that would be built on the site (i.e., 45 units under RS10 vs. 25 units under R3) would incrementally increase impacts directly related to number of units (e.g., traffic, water consumption, noise, etc.). As discussed throughout this Initial Study, in all instances where the Project has the potential to contribute to a cumulatively-considerable impact to the environment, mitigation measures have been imposed to reduce potential effects to less than significant levels.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X		

Less Than Significant with Mitigation. The proposed project would result in impacts to human beings by degrading water quality. While potential water quality impacts could result from the proposed project, implementation of NPDES permits ensures that the State's mandatory standards for the maintenance of clean water and the Federal minimums are met. Adherence to Mitigation Measures HYD-1 through HYD-3 would ensure impacts to water quality would be reduced to less than significant levels. Therefore, the proposed project would not have a significant water quality impact.

The South Coast Air Basin is currently designated as a non-attainment area for ozone, PM10, and PM2.5. Development of the project would contribute to air pollutant emissions on a short-term basis. The project would be required to comply with

[43] Cultural Resource Assessment, Brodiaea Avenue Residential Project. RCA Associates, Inc. April 26, 2018.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

regional rules that assist in reducing short-term air pollutant emissions plus Mitigation Measure AIR-1. The purpose of SCAQMD Rule 403 is to reduce the amount of particulate matter in the atmosphere resulting from man-made fugitive dust sources. Adherence to these measures would reduce short-term construction air quality impacts to a less than significant level.

Like all of Southern California, the project site could be subject to strong ground shaking resulting from large earthquakes. Additionally, the proposed project could experience adverse effects from unstable soils. Adherence to existing Uniform Building Code and California Building Code standards as well as Mitigation Measure GEO-1 and recommendations detailed in the project-specific geotechnical studies would ensure potential impacts related to geologic and soil conditions are less than significant.

As detailed in the preceding responses, development of the proposed project would not result, either directly or indirectly, in adverse impacts to human beings.

References

Air Quality and Greenhouse Gas Emissions Memo, Urban Crossroads, Tables issued April 2018, Memo issued September 12, 2018.

General Biological Resources Assessment, Brodiaea Avenue Property, Frontier Communities. RCA Associates, Inc. March 2018.

California Department of Conservation, Division of Land Resource Protection, Riverside County Williamson Act FY 2015/2016, Sheet 1 of 3, website accessed April 10, 2018: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Riverside_w_15_16_WA.pdf

City of Moreno Valley General Plan, July 11, 2006.

City of Moreno Valley General Plan Environmental Impact Report, July 2006.

Cultural Resource Assessment, Brodiaea Avenue Property, Frontier Communities. RCA Associates, Inc. Draft dated April 2018, Updated September 4, 2018.

Department of Conservation, Farmland Mapping and Monitoring Program, website accessed April 1, 2018. http://maps.conservation.ca.gov/ciff/ciff.html

2015 Final Urban Water Management Plan, Eastern Municipal Water District, RMC Water and Environment, June 2016.

Grading Plan, TTM 37544, Frontier Communities. Michael Baker International. Original April 2018, Updated July 2018.

Tentative Tract Map 37544, Frontier Communities. Michael Baker International. Original April 2018, Updated July 2018.

March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, Riverside County Airport Land Use Commission, Mead & Hunt, November 13, 2017.

Noise Impact Tables. Urban Crossroads, April 2018.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

Phase I Environmental Site Assessment, Frontier Enterprises. Geotek, Inc. March 3, 2014.

Project Specific Water Quality Management Plan, Brodiaea Moreno Valley (TTM 37544). Michael Baker International. Draft April 24, 2018.

Preliminary Hydrology Study, Brodiaea Moreno Valley (TTM 37544). Michael Baker International. Draft April 2018.

Trip Generation Memorandum, Urban Crossroads. Tables issued in March 2018, Memo dated September 4, 2018.

Geotechnical Investigation and Infiltration Study, Geotek, Inc. February 12, 2014.

Transit Noise and Vibration Impact Assessment. Federal Transit Authority. 2006.

Air Quality Handbook, South Coast Air Quality Management District (SCAQMD), 1993.

Summary of Mitigation Measures

Air Quality

AIR-1 **Construction Emissions.** The following actions shall be implemented to help reduce project construction-related emissions to the greatest extent feasible. The project shall comply with the requirements of SCAQMD Rules 402 and 403, Fugitive Dust, which require the implementation of Reasonable Available Control Measures (RACM) for all fugitive dust sources, and the AQMP, which identifies Best Available Control Measures (BACM) and Best Available Control Technologies (BACT) for area sources and point sources, respectively. This includes the following actions:

1. The project proponent shall ensure that construction equipment is properly maintained and serviced to minimize exhaust emissions.
2. The project proponent shall ensure that existing power sources are utilized where feasible via temporary power lines to avoid on-site power generation.
3. The project proponent shall ensure that construction employees be informed of ride-sharing and transit opportunities.
4. The project proponent shall ensure that any portion of the site to be graded shall be pre-watered to a depth of three (3) feet prior to the onset of grading activities.
5. The project proponent shall ensure that twice daily watering of the site or other soil stabilization methods shall be employed on an ongoing basis after the initiation of any on-site grading activity. Portions of the site that are actively being graded shall be watered regularly to ensure that a crust is formed on the ground surface and shall be watered at the end of each workday.
6. The project proponent shall ensure that all disturbed areas are treated to prevent erosion until the site is constructed.
7. To reduce the potential for wind erosion, the project proponent shall ensure that landscaped areas are installed as soon as possible.
8. The project proponent shall ensure that SCAQMD Rule 403 is adhered to, ensuring the cleanup of construction-related dirt on approach routes to the project site.
9. The project proponent shall ensure that all grading activities are suspended during first and second stage ozone episodes or when wind speeds exceed 25 miles per hour.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

10. Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 m (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code (CVC) Section 23114.
11. Limit all onsite traffic speeds to 15 mph or less.
12. The construction contractor shall use construction equipment that have Tier 4 compliant engines and Level 3 diesel particulate filters (DPF) with oxidations catalyst that impart a 20% reduction.

Biological Resources

BIO-1 **Burrowing Owl Survey.** Prior to the issuance of grading permit, a pre-construction survey for burrowing owl shall be conducted by a qualified biologist no more than 30 days before the commencement of vegetation removal or ground disturbing activities to confirm the absence of burrowing owl onsite. If burrowing owl(s) are detected during the focused surveys, a Burrowing Owl Mitigation and Monitoring Plan ("Plan") shall be prepared by a qualified biologist and submitted to the California Department of Fish and Wildlife for review and approval prior to commencement of project activities. The Plan shall describe appropriate avoidance, minimization, and mitigation measures to reduce impacts to burrowing owls and ensure the implementation of appropriate and commensurate compensatory mitigation for the loss of burrowing owl nesting and foraging habitat. No further action is required if the 30-day pre-construction survey does not result in burrowing owl sign or observations.

BIO-2 **Quincy Channel Improvements.** Prior to issuance of the first occupancy permit, the applicant shall demonstrate to the City of Moreno Valley Planning Division that a final improvement plan has been approved for that portion of the Quincy Channel adjacent to the project site by the City Public Works Division, the Riverside County Flood Control and Water Conservation District, the California Department of Fish and Wildlife, and possibly the U.S. Army Corps of Engineers (if federal jurisdiction is determined to apply to the project or channel). The applicant shall make appropriate improvements to the channel to the satisfaction of the City Engineer per the approved improvement plan and prior to the issuance of the first occupancy permit.

BIO-3 **Nesting Bird Survey.** If project activities are planned during the avian nesting season (approximately February 1 through September 15), a nesting bird survey shall be conducted onsite within ten days prior to disturbance to ensure birds protected under the MBTA are not disturbed by construction-related activities such as noise and increased human presence. Any active nests detected in the area shall be flagged and an appropriate buffer around the nest location will be established, as determined by the CDFW. The buffer area is to be avoided until the nesting cycle is complete or it is determined by the biologist that the nest has failed. This measure shall be implemented to the satisfaction of the City Planning Division.

Cultural Resources

CUL-1 **Project Archaeologist.** Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. Project grading and development scheduling;

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

b. The Project archeologist and the Consulting Tribes(s) as defined in CUL-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

CUL-2 **Tribal Monitoring.** Prior to the issuance of a grading permit, the City of Moreno Valley shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2. (only applicable if tribes require monitoring).

CUL-3 **Finds During Grading.** In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Division:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.

ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CUL-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CUL-1. The location for the future reburial area shall be identified on a confidential exhibit on file with the City and concurred to by the Consulting Native American Tribal Governments prior to certification of the environmental document.

CUL-4 **Grading Plan Note.** The City shall verify that the following note is included on the Grading Plan:

"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

CUL-5 **Accidental Finds.** If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CUL-1 before any further work commences in the affected area.

CUL-6 **Human Remains.** If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

CUL-7 **Paleontological Resources.** Prior to the issuance of a grading permit, the Project Applicant shall provide evidence to the City of Moreno Valley that a qualified paleontologist has been retained by the Project Applicant to conduct monitoring of excavation activities and has the authority to halt and redirect earthmoving activities in the event that suspected paleontological resources are unearthed.

CUL-8 **Paleo Monitor.** The paleontological monitor shall conduct full-time monitoring during grading and excavation operations in undisturbed, very old alluvial fan sediments at or below four (4) feet below ground surface and shall be equipped to salvage fossils if they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The paleontological monitor shall be empowered to temporarily halt or divert equipment to allow of removal of abundant and large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources.

CUL-9 **Paleo Curation.** Recovered specimens shall be properly prepared to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage, such as the Western Science Museum in Hemet, California, is required for significant discoveries.

CUL-10 **Paleo Report.** A final paleontological monitoring and mitigation report of findings and significance shall be prepared, including lists of all fossils recovered and written repository agreements, if any, and necessary maps and graphics to accurately record the original location of the specimens. The report shall be submitted to the City of Moreno Valley prior to building final.

Geology and Soils

GEO-1 **Geotech Report.** Prior to issuance of building permits, the project applicant or its designee shall demonstrate all recommendations contained in project-specific geotechnical and/or soils and foundation evaluation report by Geotek, Inc. dated February 12, 2014 are implemented. This measure shall be implemented to the satisfaction of the City Engineer.

GEO-2 **Soil Limitations.** Prior to the issuance of a grading permit, the project applicant shall provide proof to the City that a soils engineer has evaluated onsite soils and recommended appropriate construction techniques to

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

adequately protect buried metal pipes or other onsite improvement from onsite soil conditions. This measure shall be implemented to the satisfaction of the City Engineer.

Greenhouse Gases

GHG-1 **GHG Emissions.** To ensure that the proposed project complies with and would not conflict with or impede the implementation of state and local greenhouse gas (GHG) reduction goals, the project will implement the following measures to help reduce its GHG emissions to the extent feasible. Prior to issuance of any occupancy permits, these measures shall be incorporated into the design and construction of the project to the satisfaction of the City:

Construction and Building Materials

(a) Divert at least 50 percent of the demolished and/or grubbed construction materials (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).

Energy Efficiency

(a) Design all project buildings to exceed the current California Building Code Title 24 energy standard by ten (10) percent, such as by installing energy-efficient heating and cooling systems, appliances and equipment, and control systems.

(b) Install electrical to allow for future installation of roof-mounted photovoltaic solar equipment and electric vehicle charging equipment in garages.

Water Conservation and Efficiency

(a) Install water-efficient landscaping within parkways and common areas of the development.

(b) Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls, within parkways and common areas of the development.

(c) Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff from parkways and common areas within the development.

Hydrology and Water Quality

HYD-1 **File NOI.** Prior to the issuance of a grading permit, the project applicant shall file and obtain a Notice of Intent (NOI) with the Regional Water Quality Control Board (RWQCB) in order to be in compliance with the State NPDES General Construction Storm Water Permit for discharge of surface runoff associated with construction activities. Evidence that this has been obtained (i.e., a copy of the Waste Discharger's Identification Number) shall be submitted to the City for coverage under the NPDES General Construction Permit. The NOI shall address the potential for an extended and discontinuous construction period based on funding availability.

HYD-2 **Prepare SWPPP.** Prior to the issuance of a grading permit, the project applicant shall prepare a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall include a surface water control plan and erosion control plan citing specific measures to control on-site and off-site erosion during the entire grading and construction period. In addition, the SWPPP shall emphasize structural and nonstructural Best Management Practices (BMPs) to control sediment and non-visible discharges from the site. The SWPPP will include inspection forms for routine monitoring of the site during construction phase to ensure NPDES compliance and additional BMPs and erosion control measures will be documented in the SWPPP and utilized if necessary. The SWPPP shall address the potential for an extended and discontinuous construction period based on funding availability. The SWPPP will be kept on site for the entire duration of project construction and will be available to the local RWQCB for inspection at any time. BMPs included in the SWPPP may include the following:

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

- Sediment discharges from the site may be controlled by the following: sandbags, silt fences, straw wattles and temporary basins (if deemed necessary), and other discharge control devices. The construction and condition of the BMPs will be periodically inspected during construction and repairs will be made when necessary as required by the SWPPP.
- Materials that have the potential to contribute to non-visible pollutants to storm water must not be placed in drainage ways and must be contained, elevated, and placed in temporary storage containment areas.
- All loose piles of soil, silt, clay, sand, debris, and other earthen material shall be protected in a reasonable manner to eliminate any discharge from the site. Stockpiles will be surrounded by silt fences and covered with plastic tarps.
- In addition, the construction contractor shall be responsible for performing and documenting the application of BMPs identified in the SWPPP. Weekly inspections shall be performed on sandbag barriers and other sediment control measures called for in the SWPPP. Monthly reports and inspection logs shall be maintained by the Contractor and reviewed by the City and the representatives of the State Water Resources Control Board. In the event that it is not feasible to implement specific BMPs, the City can make a determination that other BMPs will provide equivalent or superior treatment either on or off site.

HYD-3 **Prepare WQMP.** Prior to the issuance of a grading permit, the applicant shall submit a Water Quality Management Plan (WQMP) to the City for review and approval. The project shall implement project design features identified in the Water Quality Management Plan (draft by MBI submitted April 24. 2018). This measure shall be implemented to the satisfaction of the City Public Works Department.

HYD-4 **Drainage Improvements.** Prior to issuance of grading and building permits, as appropriate, the developer and project engineer shall demonstrate the project has installed the various drainage and flood control improvements outlined in Tentative Tract Map 37544, the project hydrology report (MBI April 2014), and the project Water Quality Management Plan (MBI April 24, 2018) to the satisfaction of the City Engineer.

Noise

NOI-1 **Construction Noise.** Prior to issuance of a grading permit, the developer shall prepare a Construction Noise Control Plan (CNCP) and submit it to the City for review and approval. The plan shall include but will not be limited to the following:

- During all project site excavation and grading, contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site (i.e. south).
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site (i.e., south) during all project construction.
- A temporary construction barrier with a minimum height of 8 feet shall be placed along the project's southern property line during project grading and construction.
- During all project site construction, the construction contractor shall limit all construction-related activities, including maintenance of construction equipment and the staging of haul trucks, to between the hours of 7:00 a.m. to 5:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. on Saturday. No construction is permitted on Sundays and government code holidays.
- Prior to issuance of a grading or building permit, the developer shall prepare a haul route and staging plan for any trucks hauling earth or construction materials to or from the project site to where material will be disposed (i.e. export). The plan shall be reviewed and approved by the City before a grading permit is issued

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Issues and Supporting Information	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

by the City. To the extent feasible, haul routes and truck staging areas shall not pass sensitive land uses or residential dwellings not on a direct driving route to the closest freeway.

Attachment: Initial Study Frontier 9-18-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

MITIGATION MONITORING AND REPORTING PROGRAM – FRONTIER COMMUNITIES BRODIAEA RS10 RESIDENTIAL PROJECT SEPTEMBER 18, 2018

1. INTRODUCTION

To ensure that the mitigation measures contained in this Initial Study/Mitigated Negative Declaration are properly implemented, a monitoring plan has been developed pursuant to State law. This Mitigation Monitoring and Reporting Program (MMRP) identifies measures incorporated in the Project which reduce its potential environmental effects; the entities responsible for implementation and monitoring of mitigation measures; and the appropriate timing for implementation of mitigation measures. As described at *CEQA Guidelines* Section 15097, this MMRP employs both reporting on, and monitoring of, Project mitigation measures.

The objectives of the MMRP are to:

• Assign responsibility for, and ensure proper implementation of mitigation measures;

• Assign responsibility for, and provide for monitoring and reporting of compliance with mitigation measures; and

• Provide the mechanism to identify areas of noncompliance and need for enforcement action before irreversible environmental damage occurs.

Mitigation monitoring and reporting procedures incorporated in the Project are presented in the following Section 2. Specific mitigation measures incorporated in the Project, mitigation timing, and implementation and reporting/monitoring responsibilities are presented within this Section at Table 1.

2. MITIGATION MONITORING AND RESPONSIBILITIES

As the Lead Agency, the City of Moreno Valley is responsible for ensuring full compliance with the mitigation measures adopted for the proposed Project. The City will monitor and report on all mitigation activities. Mitigation measures will be implemented at different stages of development throughout the Project area. In this regard, the responsibilities for implementation have been assigned to the Applicant, Contractor, or a combination thereof. If during the course of Project implementation, any of the mitigation measures identified herein cannot be successfully implemented, the City shall be immediately informed, and the City will then inform any affected responsible agencies. The City, in conjunction with any affected responsible agencies, will then determine if modification to the Project is required and/or whether alternative mitigation is appropriate.

Important Note: To facilitate coordination and effective implementation of mitigation measures, the mitigation measures provided herein shall appear on all grading plans, construction specifications, and bid documents as appropriate. Incorporation of required notations shall be verified by the City prior to issuance of first development permit. Implementation Entities shall comply with listed mitigation requirements.

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Table 1: Frontier Communities Brodiaea Avenue RS10 Residential Project – Mitigation Monitoring and Reporting Program – September 18, 2018

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
AIR QUALITY				
AIR-1 Construction Emissions. The following actions shall be implemented to help reduce project construction-related emissions to the greatest extent feasible. The project shall comply with the requirements of SCAQMD Rules 402 and 403, Fugitive Dust, which require the implementation of Reasonable Available Control Measures (RACM) for all fugitive dust sources, and the AQMP, which identifies Best Available Control Measures (BACM) and Best Available Control Technologies (BACT) for area sources and point sources, respectively. This includes the following actions: 1. The project proponent shall ensure that construction equipment is properly maintained and serviced to minimize exhaust emissions. 2. The project proponent shall ensure that existing power sources are utilized where feasible via temporary power lines to avoid on-site power generation. 3. The project proponent shall ensure that construction employees be informed of ride-sharing and transit opportunities. 4. The project proponent shall ensure that any portion of the site to be graded shall be pre-watered to a depth of three (3) feet prior to the onset of grading activities. 5. The project proponent shall ensure that twice daily watering of the site or other soil stabilization methods shall be employed on an ongoing basis after the initiation of any on-site grading activity. Portions of the site that are actively being graded shall be watered regularly to ensure that a crust is formed on the ground surface and shall be watered at the end of each workday. 6. The project proponent shall ensure that all disturbed areas are treated to prevent erosion until the site is constructed. 7. To reduce the potential for wind erosion, the project proponent shall ensure that landscaped areas are installed as soon as possible. 8. The project proponent shall ensure that SCAQMD Rule 403 is adhered to, ensuring the cleanup of construction-related dirt on approach routes to the project site.	During grading and construction	Applicant, grading contractor, and construction contractors	City Inspectors and City Planning Division as needed	During grading and construction based on daily activities, as warranted

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
9. The project proponent shall ensure that all grading activities are suspended during first and second stage ozone episodes or when wind speeds exceed 25 miles per hour. 10. Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 m (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code (CVC) Section 23114. 11. Limit all onsite traffic speeds to 15 mph or less. 12. The construction contractor shall use construction equipment that have Tier 4 compliant engines and Level 3 diesel particulate filters (DPF) with oxidations catalyst that impart a 20% reduction.				
BIOLOGICAL RESOURCES				
BIO-1 Burrowing Owl Survey. Prior to the issuance of grading permit, a pre-construction survey for burrowing owl shall be conducted by a qualified biologist no more than 30 days before the commencement of vegetation removal or ground disturbing activities to confirm the absence of burrowing owl onsite. If burrowing owl(s) are detected during the focused surveys, a Burrowing Owl Mitigation and Monitoring Plan ("Plan") shall be prepared by a qualified biologist and submitted to the California Department of Fish and Wildlife for review and approval prior to commencement of project activities. The Plan shall describe appropriate avoidance, minimization, and mitigation measures to reduce impacts to burrowing owls and ensure the implementation of appropriate and commensurate compensatory mitigation for the loss of burrowing owl nesting and foraging habitat. No further action is required if the 30-day pre-construction survey does not result in burrowing owl sign or observations.	Prior to grading permit (within 30 days)	Applicant to retain qualified biologist	City Planning Division	Submit report prior to issuance of grading permit
BIO-2 Quincy Channel Improvements. Prior to issuance of the first occupancy permit, the applicant shall demonstrate to the City of Moreno Valley Planning Division that a final improvement plan has been approved for that portion of the Quincy Channel adjacent to the project site by the City Public Works Division, the Riverside County Flood Control and Water Conservation District, the California Department of Fish and Wildlife, and possibly the U.S.	Prior to issuance of first occupancy permit	Applicant	City Planning Division	Submit Final Improvement Plan for Quincy Channel

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
Army Corps of Engineers (if federal jurisdiction is determined to apply to the project or channel). The applicant shall make appropriate improvements to the channel to the satisfaction of the City Engineer per the approved improvement plan and prior to the issuance of the first occupancy permit.				
BIO-3 Nesting Bird Survey. If project activities are planned during the avian nesting season (approximately February 1 through September 15), a nesting bird survey shall be conducted onsite within ten days prior to disturbance to ensure birds protected under the MBTA are not disturbed by construction-related activities such as noise and increased human presence. Any active nests detected in the area shall be flagged and an appropriate buffer around the nest location will be established, as determined by the CDFW. The buffer area is to be avoided until the nesting cycle is complete or it is determined by the biologist that the nest has failed. This measure shall be implemented to the satisfaction of the City Planning Division.	Prior to start of grading or construction (within 10 days)	Applicant to retain qualified biologist	City Planning Division	Submit report prior to issuance of grading permit
CULTURAL RESOURCES				
CUL-1 Project Archaeologist. Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:	Prior to grading permit	Applicant to retain qualified archaeologist to monitor grading	City Planning Division	Submit proof of retention of a qualified archaeologist prior to grading Prior to grading document procedures are in place in the event monitoring reveals artifacts

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
a. Project grading and development scheduling; b. The Project archeologist and the Consulting Tribes(s) as defined in CUL-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis; c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.				
CUL-2 Tribal Monitoring. Prior to the issuance of a grading permit, the City of Moreno Valley shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading	Prior to grading permit	Applicant	City Planning Division	Submit proof of monitoring agreements with local tribes before permit issued

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2. (only applicable if tribes require monitoring).				
CUL-3 Finds During Grading. In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries: a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Division: i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources. ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CUL-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CUL-1. The location for the future reburial area shall be identified on a confidential exhibit on file with the City and concurred to by the Consulting Native American Tribal Governments prior to certification of the environmental document.	During grading	Project Archaeologist	City Planning Division	Submit monitoring plan to City prior to grading outlining procedures to follow if artifacts are found during grading
CUL-4 Grading Plan Note. The City shall verify that the following note is included on the Grading Plan: "If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction	Prior to issuance of grading permit	Project Engineer	City Planning Division	Verify note on grading plan prior to plan approval

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."				
CUL-5 Accidental Finds. If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CUL-1 before any further work commences in the affected area.	During grading	Project Archaeologist and Applicant	City Planning Division	Submit monitoring plan to City prior to grading outlining procedures to follow if artifacts are found during grading
CUL-6 Human Remains. If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the “most likely descendant”. The “most likely descendant” shall then make recommendations and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).	During grading	Project Archaeologist and Applicant	City Planning Division	Notify coroner or NA tribal representatives within 5 days of discovery
CUL-7 Paleontological Resources. Prior to the issuance of a grading permit, the Project Applicant shall provide evidence to the City of Moreno Valley that a qualified paleontologist has been retained by the Project Applicant to conduct monitoring of excavation activities and has the authority to halt and redirect	Prior to grading permit	Applicant to retain qualified paleontologist	City Planning Division	Submit signed agreement to City prior to grading permit issuance

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
earthmoving activities in the event that suspected paleontological resources are unearthed.				
CUL-8 Paleo Monitor. The paleontological monitor shall conduct full-time monitoring during grading and excavation operations in undisturbed, very old alluvial fan sediments at or below four (4) feet below ground surface and shall be equipped to salvage fossils if they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The paleontological monitor shall be empowered to temporarily halt or divert equipment to allow of removal of abundant and large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources.	During grading	Applicant to retain qualified paleontologist	City Planning Division	If fossils are found during grading, halt work and retain paleontologist to handle materials
CUL-9 Paleo Curation. Recovered specimens shall be properly prepared to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage, such as the Western Science Museum in Hemet, California, is required for significant discoveries.	After removal of any artifacts	Applicant and project paleontologist	City Planning Division	Provide copy of curation agreement to City if artifacts are curated
CUL-10 Paleo Report. A final paleontological monitoring and mitigation report of findings and significance shall be prepared, including lists of all fossils recovered and written repository agreements, if any, and necessary maps and graphics to accurately record the original location of the specimens. The report shall be submitted to the City of Moreno Valley prior to building final.	Prior to first occupancy permit	Applicant from project paleontologist	City Planning Division	Provide report to City upon completion of any curation
GEOLOGY AND SOILS				
GEO-1 Geotech Report. Prior to issuance of building permits, the project applicant or its designee shall demonstrate all recommendations contained in project-specific geotechnical and/or soils and foundation evaluation report by Geotek, Inc. dated	Prior to building permit issuance	Applicant and Project Engineer	City Engineering Department	Demonstrate requirements have been met before permit issuance

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
February 12, 2014 are implemented. This measure shall be implemented to the satisfaction of the City Engineer.				
GEO-2 Soil Limitations. Prior to the issuance of a grading permit, the project applicant shall provide proof to the City that a soils engineer has evaluated onsite soils and recommended appropriate construction techniques to adequately protect buried metal pipes or other onsite improvement from onsite soil conditions. This measure shall be implemented to the satisfaction of the City Engineer.	Prior to grading permit issuance	Applicant and Project Engineer	City Engineering Department	Demonstrate requirements have been met before permit issuance
GREENHOUSE GAS EMISSIONS				
GHG-1 GHG Emissions. To ensure that the proposed project complies with and would not conflict with or impede the implementation of state and local greenhouse gas (GHG) reduction goals, the project will implement the following measures to help reduce its GHG emissions to the extent feasible. Prior to issuance of any occupancy permits, these measures shall be incorporated into the design and construction of the project to the satisfaction of the City: **Construction and Building Materials** (a) Divert at least 50 percent of the demolished and/or grubbed construction materials (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard). **Energy Efficiency** (a) Design all project buildings to exceed the current California Building Code Title 24 energy standard by ten (10) percent, such as by installing energy-efficient heating and cooling systems, appliances and equipment, and control systems. (b) Install electrical to allow for future installation of roof-mounted photovoltaic solar equipment and electric vehicle charging equipment in garages.	Prior to issuance of a certificate of occupancy	Applicant and Project Engineer	City Planning Division and City Engineering Department as appropriate	Demonstrate requirements have been met before permit issuance

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
Water Conservation and Efficiency (a) Install water-efficient landscaping within parkways and common areas of the development. (b) Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls, within parkways and common areas of the development. (c) Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff from parkways and common areas within the development.				
HYDROLOGY AND WATER QUALITY				
HYD-1 File NOI. Prior to the issuance of a grading permit, the project applicant shall file and obtain a Notice of Intent (NOI) with the Regional Water Quality Control Board (RWQCB) in order to be in compliance with the State NPDES General Construction Storm Water Permit for discharge of surface runoff associated with construction activities. Evidence that this has been obtained (i.e., a copy of the Waste Discharger's Identification Number) shall be submitted to the City for coverage under the NPDES General Construction Permit. The NOI shall address the potential for an extended and discontinuous construction period based on funding availability.	Prior to issuance of a grading permit	Applicant and Project Engineer	City Planning Division	Submit proof NOI issuance
HYD-2 Prepare SWPPP. Prior to the issuance of a grading permit, the project applicant shall prepare a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall include a surface water control plan and erosion control plan citing specific measures to control on-site and off-site erosion during the entire grading and construction period. In addition, the SWPPP shall emphasize structural and nonstructural Best Management Practices (BMPs) to control sediment and non-visible discharges from the site. The SWPPP will include inspection forms for routine monitoring of the site during construction phase to ensure NPDES compliance and additional BMPs and erosion control measures will be documented in the SWPPP and utilized if necessary. The SWPPP shall address the potential for an extended and discontinuous construction period	Prior to grading permit issuance	Applicant and Project Engineer	City Engineering Department	Submit approved SWPPP prior to permit issuance

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
based on funding availability. The SWPPP will be kept on site for the entire duration of project construction and will be available to the local RWQCB for inspection at any time. BMPs included in the SWPPP may include the following: • Sediment discharges from the site may be controlled by the following: sandbags, silt fences, straw wattles and temporary basins (if deemed necessary), and other discharge control devices. The construction and condition of the BMPs will be periodically inspected during construction and repairs will be made when necessary as required by the SWPPP. • Materials that have the potential to contribute to non-visible pollutants to storm water must not be placed in drainage ways and must be contained, elevated, and placed in temporary storage containment areas. • All loose piles of soil, silt, clay, sand, debris, and other earthen material shall be protected in a reasonable manner to eliminate any discharge from the site. Stockpiles will be surrounded by silt fences and covered with plastic tarps. • In addition, the construction contractor shall be responsible for performing and documenting the application of BMPs identified in the SWPPP. Weekly inspections shall be performed on sandbag barriers and other sediment control measures called for in the SWPPP. Monthly reports and inspection logs shall be maintained by the Contractor and reviewed by the City and the representatives of the State Water Resources Control Board. In the event that it is not feasible to implement specific BMPs, the City can make a determination that other BMPs will provide equivalent or superior treatment either on or off site.				
HYD-3 Prepare WQMP. Prior to the issuance of a grading permit, the applicant shall submit a Water Quality Management Plan (WQMP) to the City for review and approval. The project shall implement project design features identified in the Water Quality Management Plan (draft by MBI submitted April 24. 2018). This measure shall be implemented to the satisfaction of the City Public Works Department.	Prior to grading permit issuance	Applicant and Project Engineer	City Engineering Department	Submit approved WQMP prior to permit issuance

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
HYD-4 Drainage Improvements. Prior to issuance of grading and building permits, as appropriate, the developer and project engineer shall demonstrate the project has installed the various drainage and flood control improvements outlined in Tentative Tract Map 37544, the project hydrology report (MBI April 2014), and the project Water Quality Management Plan (MBI April 24, 2018) to the satisfaction of the City Engineer.	Prior to issuance of grading or building permits	Applicant and Project Engineer	City Engineering and Public Works Departments as appropriate	Demonstrate installation prior to first permit issuance
NOISE				
NOI-1 Construction Noise. Prior to issuance of a grading permit, the developer shall prepare a Construction Noise Control Plan (CNCP) and submit it to the City for review and approval. The plan shall include but will not be limited to the following: • During all project site excavation and grading, contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards. • The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site (i.e. south). • The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site (i.e., south) during all project construction. • A temporary construction barrier with a minimum height of 8 feet shall be placed along the project's southern property line during project grading and construction. • During all project site construction, the construction contractor shall limit all construction-related activities, including maintenance of construction equipment and the staging of haul trucks, to between the hours of 7:00 a.m. to 5:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. on Saturday. No construction is permitted on Sundays and government code holidays.	Prior to grading permit issuance	Applicant and Project Engineer	City Engineering Department	Obtain approved CNCP prior to permit issuance

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

Mitigation Measures	Mitigation Timing	Implementation Entity	Monitoring/ Reporting Entity	Monitoring/Reporting Frequency
• Prior to issuance of a grading or building permit, the developer shall prepare a haul route and staging plan for any trucks hauling earth or construction materials to or from the project site to where material will be disposed (i.e. export). The plan shall be reviewed and approved by the City before a grading permit is issued by the City. To the extent feasible, haul routes and truck staging areas shall not pass sensitive land uses or residential dwellings not on a direct driving route to the closest freeway.				

September 18, 2018

Attachment: MMRP Frontier 9-18-18 final (3283 : Tentative Tract Map, General Plan Amendment and

RESOLUTION NO. 2018-48

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL APPROVE GENERAL PLAN AMENDMENT NO. PEN18-0053 TO CHANGE THE LAND USE DESIGNATION FROM RESIDENTIAL 3 (MAXIMUM 3 UNITS PER ACRE) TO RESIDENTIAL 10 (MAXIMUM 10 UNITS PER ACRE) FOR APPROXIMATELY 8.85 ACRES LOCATED AT THE NORTHWEST CORNER OF BRODIAEA AVENUE AND QUINCY STREET (ASSESSOR PARCEL NUMBER (APN) 478-080-014

WHEREAS, the applicant, FH II, LLC. filed Application No. PEN18-0053, requesting an amendment to the General Plan to change the land use designation of a certain property as described in the title of this resolution and the attached Exhibit A, from Residential 3 (maximum 3 units per acre) to Residential 10 (maximum 10 units per acre); and

WHEREAS, the application for the General Plan Amendment has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, the proposed application for the General Plan Amendment has been fully evaluated and considered with respect to the City's General Plan; and

WHEREAS, the City completed an independent review of the project for consistency with the California Environmental Quality Act (CEQA). Based on a thorough analysis including preparation of a detailed Initial Study, staff determined that the project impacts are less than significant with mitigation and approval of a Mitigated Negative Declaration is recommended; and

WHEREAS, the Planning Commission considered the Initial Study prepared for the project for the purpose of compliance with the California Environmental Quality Act (CEQA). Based on the Initial Study, it was determined that the project impacts are less than significant with mitigation and approval of a Mitigated Negative Declaration is recommended.

WHEREAS, on October 25, 2018, the Planning Commission of the City of Moreno Valley held a public hearing to consider the subject applications and all of the environmental documentation prepared for the project; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred.

Attachment: PC Reso 2018-48 GPA [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

A. This Planning Commission specifically finds that all of the facts set forth above in the Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on October 25, 2018, including written and oral staff reports, and the record from the public hearing, this Planning Commission finds as follows:

1. Conformance with General Plan Policies – The proposed General Plan Amendment is consistent with the goals, objectives, policies and programs of the General Plan.

   FACTS: The General Plan Amendment is proposed to allow an increase residential density from Residential 3 (maximum 3 dwelling units per acre) to R10 (maximum of 10 dwelling units per acre). The change is proposed to allow for the subdivision of an 8.85-acre property into 45 residential lots and four lettered lots for water quality and open space purposes.

   The General Plan encourages an organized, well-designed, high quality, and functional balance of urban and rural land uses that will meet the needs of a diverse population, and promotes the optimum degree of health, safety, well-being, and beauty for all areas of the community, while maintaining a sound economic base (Goal 2.2). The General Plan further calls for a supply of housing in sufficient numbers suitable to meet the diverse needs of future residents and to support healthy economic development without creating an oversupply of any particular type of housing. To achieve these goals, the General Plan establishes Objective 2.2 which aims to provide a wide range of residential opportunities and dwelling types to meet the demands of present and future residents of all socioeconomic groups. This General Plan Amendment is consistent with these goals and objectives by providing a wider range of housing types and opportunities for diverse socioeconomic groups.

   The Project is providing a linear park and meandering trail with recreational amenities along Quincy Channel. The proposed Residential 10 (maximum 10 units per acre) designation is consistent with the goals, objectives, policies and programs of the Community Development Element of the General Plan.

2. Health, Safety and Welfare – The proposed General Plan Amendment will not be detrimental to the public health, safety and welfare.

Attachment: PC Reso 2018-48 GPA [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

FACTS: The proposed General Plan Amendment will change the project site's existing land use designation from Residential 3 to Residential 10. While the surrounding area is developed with or designated for lower density residential, the area to the south is designated and developed with higher density residential developments ranging from Residential 5 to Residential 15. This proposed designation would be compatible with the surrounding area which primarily consists of single-family suburban residential communities, open space areas, or undeveloped land. Therefore, the project will not have adverse effects on residential neighborhoods or other types of sensitive land uses.

The implementation of the proposed General Plan Amendment for the 8.85-acre site, as designed and conditioned will not adversely affect the public health, safety and welfare, and is consistent with the Goals and Objectives of the General Plan Safety Element including Objectives 6.1 and 6.2, which aim to minimize the potential for loss of life and protect residents, workers and visitors from physical injury and property damage due to seismic ground shaking and flooding.

The analysis presented in the Initial Study/Mitigated Negative Declaration prepared for the Project (including the General Plan Amendment), pursuant to California Environmental Quality Act (CEQA), Public Resources Code 21000, indicates that the Project will not have a significant environmental impact as designed and mitigated.

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-48, and RECOMMENDS that the City Council:

1. **APPROVE** the General Plan Amendment PEN18-0053, based on the findings contained in this resolution and the General Plan Map attached hereto as Exhibit A.

APPROVED this 25th day of October, 2018.

AYES:
NOES:
ABSTAIN:

_____
Jeffrey Barnes
Chair, Planning Commission

Attachment: PC Reso 2018-48 GPA [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTEST:

_____
Patty Nevins, Planning Official
Secretary to the Planning Commission

APPROVED AS TO FORM:

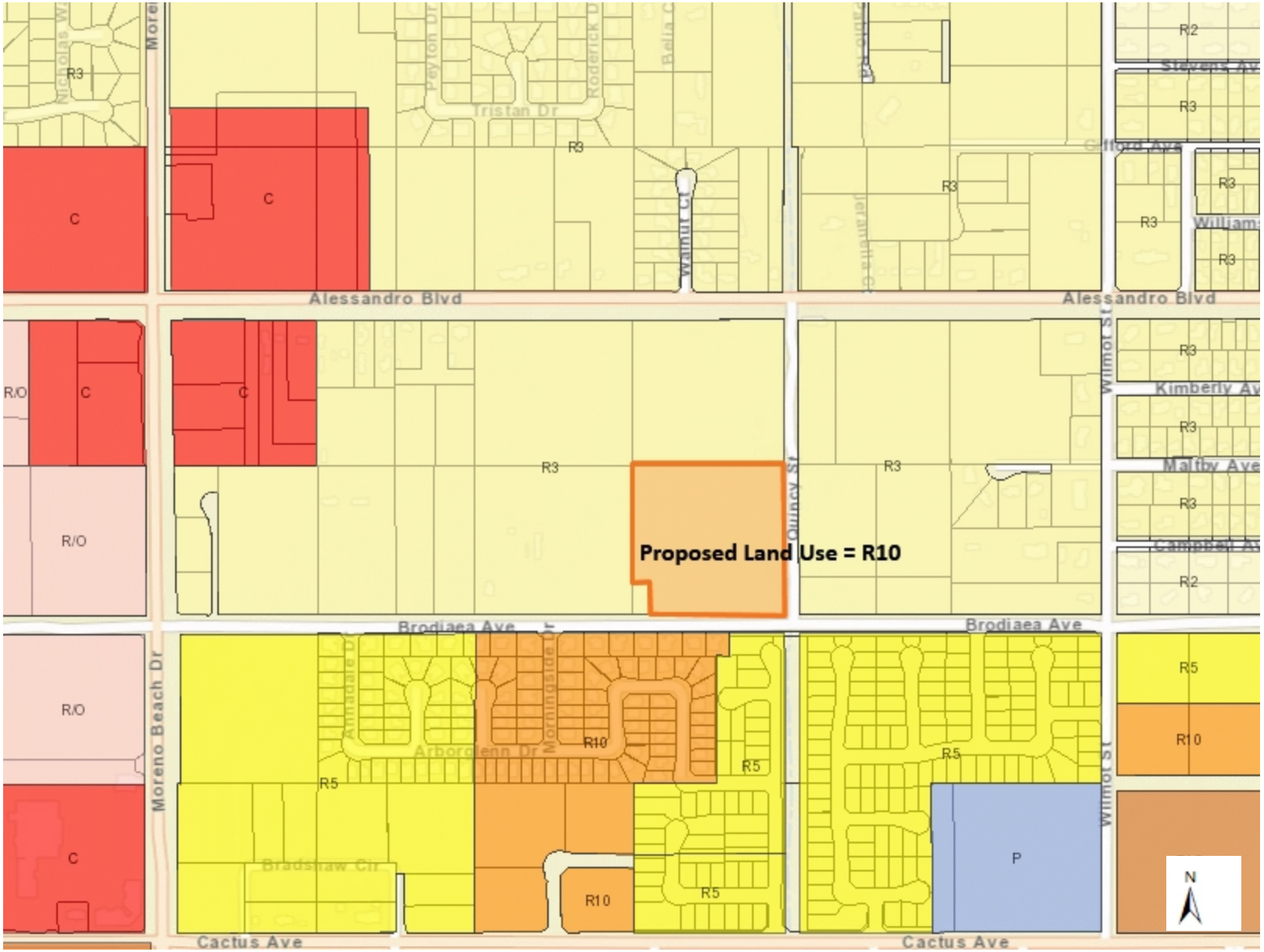
_____
City Attorney

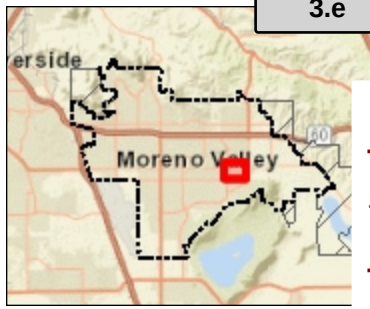
ATTACHED:

Exhibit A: Proposed Amendment to the General Plan Land Use Map

Attachment: PC Reso 2018-48 GPA [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

General Plan Amendment
PEN18-0053





Legend

Land Use

- Residential: Max. 1 du/ac
- Mixed Use
- Residential: Max. 2 du/ac
- Rural Residential: Max 2.5 du/ac
- Residential: Max. 3 du/ac
- Residential: Max. 5 du/ac
- Residential: Max. 5 or 15 du/ac
- Residential: Max. 10 du/ac
- Residential: Max.15 du/ac
- Residential: Max. 20 du/ac
- Residential: Max. 30 du/ac
- Hillside Residential
- Planned Residential
- Residential/Office
- Office
- Commercial
- Business Park/Light Industrial
- Open Space
- Public Facilities
- Floodplain

Parcels

Notes

Current Land Use = R3
Proposed Land Use = R10
APN: 478-080-014

1,261.9 0 630.96 1,261.9 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

Print Date: 10/10/2018

DISCLAIMER: The information shown on this map was compiled from the City of Moreno Valley GIS and Riverside County GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

Attachment: Exhibit A GPA PEN18-0053 (3283 : Tentative Tract Map, General Plan Amendment and

RESOLUTION NO. 2018-49

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL APPROVE ZONE CHANGE APPLICATION NO. PEN18-0054: AN AMENDMENT TO THE OFFICIAL ZONING ATLAS, CHANGING THE ZONING CLASSIFICATION FROM R3 to RS10 FOR APPROXIMATELY 8.85 ACRES LOCATED AT THE NORTHWEST CORNER OF BRODIAEA AVENUE AND QUINCY STREET (ASSESSOR PARCEL NUMBER (APN) 478-080-014)

WHEREAS, the applicant, FH II, LLC. filed Application No. PEN18-0054, requesting an amendment to Page 101 of the Official Zoning Atlas and to the zoning classification for a certain property, as described in the title of this resolution and the attached Exhibit A; and

WHEREAS, the application for the Change of Zone has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, the proposed application for the Change of Zone has been fully evaluated and considered with respect to the City's General Plan; and

WHEREAS, the City completed an independent review of the project for consistency with the California Environmental Quality Act (CEQA). Based on a thorough analysis including preparation of a detailed Initial Study, it was determined that the project impacts are less than significant with mitigation and approval of a Mitigated Negative Declaration is recommended; and

WHEREAS, on October 25, 2018, the Planning Commission of the City of Moreno Valley held a public hearing to consider the subject applications and all of the environmental documentation prepared for the project; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, the Planning Commission considered the Initial Study prepared for the project for the purpose of compliance with the California Environmental Quality Act (CEQA). Based on the Initial Study, staff determined that the project impacts are less than significant with mitigation and approval of a Mitigated Negative Declaration is recommended.

Attachment: PC Reso 2018-49 CZ [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

A. This Planning Commission specifically finds that all of the facts set forth above in the Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on October 25, 2018, including written and oral staff reports, and the record from the public hearing, this Planning Commission finds as follows:

1. Conformance with General Plan Policies – The proposed Change of Zone is consistent with the General Plan, and its goals, objectives, policies and programs.

   FACTS:

   The General Plan encourages an organized, well-designed, high quality, and functional balance of urban and rural land uses that will meet the needs of a diverse population, and promotes the optimum degree of health, safety, well-being, and beauty for all areas of the community, while maintaining a sound economic base (Goal 2.2). The General Plan further calls for a supply of housing in sufficient numbers suitable to meet the diverse needs of future residents and to support healthy economic development without creating an oversupply of any particular type of housing. To achieve these goals, the General Plan establishes Objective 2.2 which aims to provide a wide range of residential opportunities and dwelling types to meet the demands of present and future residents of all socioeconomic groups. The Project includes a request for a General Plan Amendment to change the General Plan Land Use Designation of the subject site from Residential 3 to Residential 10 which would provide a wider range of dwelling types and opportunities for diverse socioeconomic groups.

   With the approval of the General Plan Amendment PEN18-0053, the Change of Zone from R3 to RS10 will be consistent with the General Plan Land Use Designation of Residential 10 (maximum 10 units per acre).

2. Conformance with the Zoning Regulations – The proposed zoning is consistent with the purposes and intent of Title 9 of the City of Moreno Valley Municipal Code

   FACTS: As proposed, the Change of Zone from R3 to RS10 for the 8.85 acre project site is consistent with the purposes and intent of Title 9 Planning and Zoning of the Municipal Code. The subject subdivision under the RS10 district provides for the construction of a suburban residential development on small single-family lots with amenities not

Attachment: PC Reso 2018-49 CZ [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

generally found in suburban subdivisions. The district is intended for subdivisions at a maximum allowable density of ten (10) dwelling units per net acre.

The Project is providing a linear park and meandering trail with recreational amenities along Quincy Channel which will be maintained by the Project HOA as an added amenity to serve the community. The design of the dwelling units for the residential development will be subject to the permitting requirements of the City's Municipal Code, and will be required to comply with all established development standards for residential districts, including setbacks, height, site coverage and landscaping and site and building design considerations.

Although the Zoning designation for the project site will change from R3 to RS10, the project will be compatible with the existing developments immediately to the south and the southeast which are developed with similar or higher density single-family residential developments. The properties immediately to the north of the site are currently undeveloped and are zoned R3 intended for development for suburban lifestyles similar to the project.

3. Health, Safety and Welfare – The proposed Change of Zone will not be detrimental to the public health, safety and welfare.

FACTS: The Change of Zone will change the project site's existing zoning designation from R3 to RS10 which will allow the subdivision and construction of 45 single-family residential units. This use and density would be compatible with the surrounding area which primarily consists of similar suburban and rural residential developments. Therefore, the project will not have adverse effects on residential neighborhoods or other types of sensitive land uses.

The implementation of the Change of Zone for the 8.85-acre site, as designed and conditioned will not adversely affect the public health, safety and welfare, and is consistent with General Plan Objectives 6.1 and 6.2 to minimize the potential for loss of life and protect residents, workers and visitors from physical injury and property damage due to seismic ground shaking and flooding.

The analysis presented in the Initial Study/Mitigated Negative Declaration prepared for the Project (including the Change of Zone), pursuant to California Environmental Quality Act (CEQA), Public Resources Code 21000, indicates that the Project will not have a significant environmental impact as designed and mitigated.

Attachment: PC Reso 2018-49 CZ [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-49, and RECOMMENDS that the City Council:

1. **APPROVE** the Change of Zone Application No. PEN18-0054, based on the findings contained in this resolution and the Zoning Map attached hereto as Exhibit A.

APPROVED this 25th day of October, 2018.

AYES:
NOES:
ABSTAIN:

_____
Jeffrey Barnes
Chair, Planning Commission

ATTEST:

_____
Patty Nevins, Planning Official
Secretary to the Planning Commission

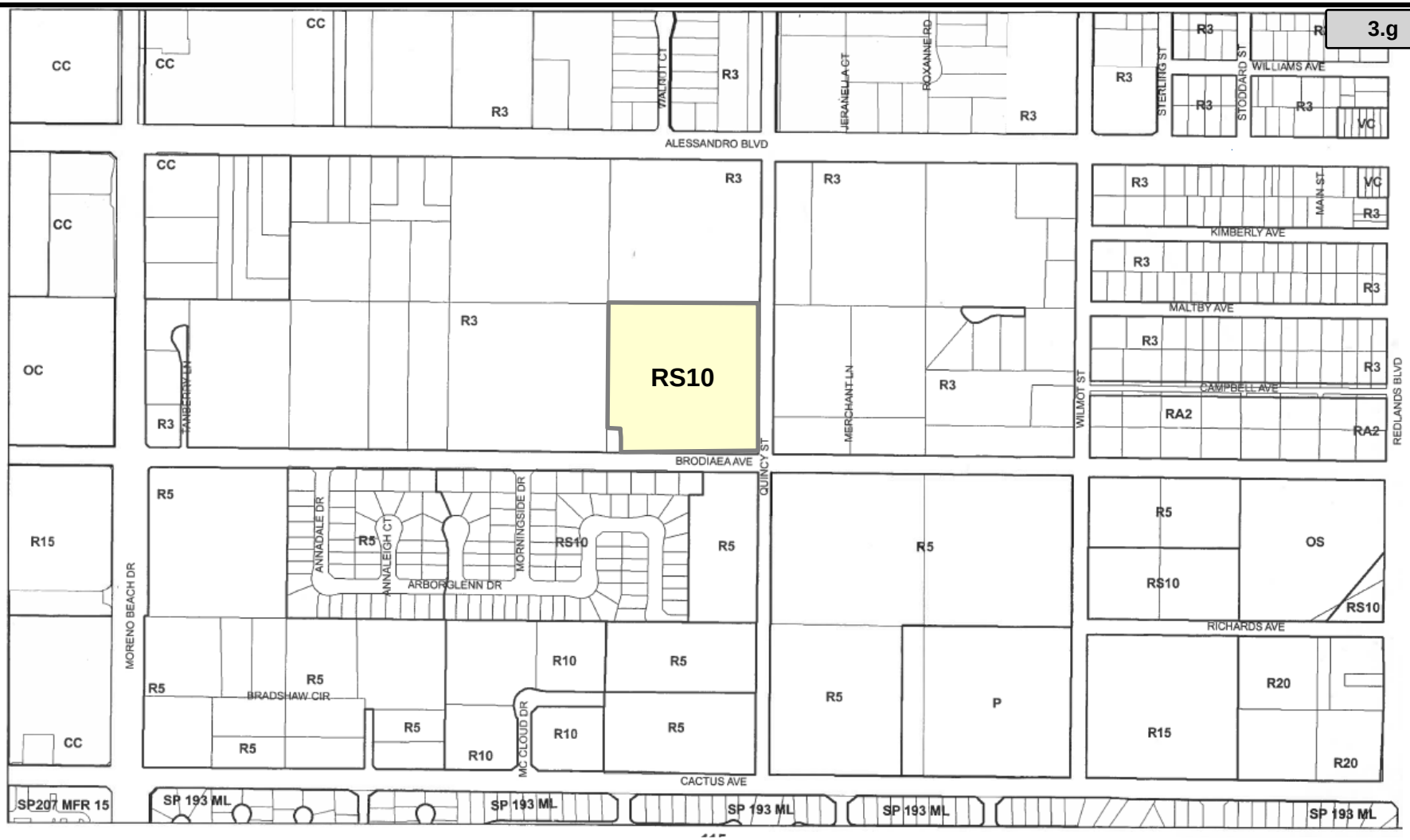
APPROVED AS TO FORM:

_____
City Attorney

ATTACHED:

Exhibit A: Proposed Changes to the Zoning Atlas

Attachment: PC Reso 2018-49 CZ [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)



City of Moreno Valley Zoning Atlas Page 101

PEN18-0054 - Change of Zone

From Residential 3 (R3) to Residential Single-Family 10 (RS10)

Attachment: Exhibit A CZ PEN18-0054 Atlas Pg 101 (3283 : Tentative Tract Map, General

RESOLUTION NO. 2018-50

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY RECOMMENDING THAT THE CITY COUNCIL APPROVE PEN18-0092, TENTATIVE TRACT MAP 37544, TO SUBDIVIDE 8.85 ACRES INTO FORTY-FIVE RESIDENTIAL LOTS AND FOUR LETTERED LOTS LOCATED AT THE NORTHWEST CORNER OF BRODIAEA AVENUE AND QUINCY STREET (ASSESSOR PARCEL NUMBER (APN) 478-080-014

WHEREAS, the applicant, FH II, LLC. filed Application No. PEN18-0092, requesting approval of a Tentative Tract Map 37544 on the property as described in the title of this resolution; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of the General Plan and other applicable regulations; and

WHEREAS, upon completion of a thorough development review process, the project was appropriately agendized and noticed in the Press Enterprise and posted on the site on October 12, 2018 for a public hearing before the Planning Commission on October 25, 2018; and

WHEREAS, on October 25, 2018, the Planning Commission of the City of Moreno Valley conducted a meeting to consider the Tentative Tract Map; and

WHEREAS, all legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, pursuant to Government Code Section 66020(d)(1), NOTICE IS HEREBY GIVEN that this project is subject to certain fees, dedications, reservations and other exactions as provided herein

NOW, THEREFORE, BE IT RESOLVED, by the Planning Commission of the City of Moreno Valley as follows:

A. This Planning Commission specifically finds that all of the facts set forth above in the Resolution are true and correct.

B. Based upon substantial evidence presented to this Planning Commission during meeting on October 25, 2018, including written and oral staff reports, and the record from the public hearing, this Planning Commission hereby specifically finds as follows:

1. That the proposed use is consistent with applicable general and specific plans.

Attachment: PC Reso 2018-50 Tentative Tract Map [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

FACTS: Tentative Tract Map 37544 will subdivide an 8.85-acre property into 45 residential lots and 4 lettered lots for water quality/detention and open space/recreational purposes. The Project includes a request for a General Plan Amendment (PEN18-0053) to change the General Plan Land Use Designation of the subject site from Residential 3 to Residential 10 which in accordance with Objective 2.2 of the General Plan Community Development Element would provide a wider range of residential opportunities and dwelling types to meet the demands of present and future residents of all socioeconomic groups.

With the approval of the General Plan Amendment PEN18-0053, the Tentative Tract Map will be consistent with the General Plan. The project is not located within a specific plan.

2. That the design or improvement of the proposed land division is consistent with the applicable general and specific plans

FACTS: The Tentative Tract Map will subdivide the subject 8.85-acre property into residential and open space lots in accordance with the General Plan land use designation of Residential 10 (maximum 10 units per acre), with associated infrastructure improvements which meet the established standards and regulations. The project is consistent with applicable development standards for RS10 zoning district of the Municipal Code.

3. That the site of the proposed land division is physically suitable for the type of development and density.

FACTS: The project is located on an undeveloped, gently sloping, rectangular-shaped property located in a primarily residential portion of the City. The surrounding areas are zoned and/or developed with rural or suburban residential development of varying densities. The areas to the north of the site consist of land that is generally undeveloped or developed with lower density suburban or rural housing, while the areas to the south of the site generally consist of existing suburban residential developments with densities similar to the project. There are no prominent topographic or other features on the site. The Tentative Tract Map is designed in accordance with the provisions of Section 9.14 – Land Divisions, of the City's Municipal Code.

4. That the design of the proposed land division or the proposed improvements, are not likely to cause substantial environmental damage or substantially and unavoidable injure fish or wildlife or their habitat.

FACTS: No fish or wildlife will be affected by this land division. An Initial

Attachment: PC Reso 2018-50 Tentative Tract Map [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Study/Mitigated Negative Declaration was prepared for the Project (including the General Plan Amendment and Change of Zone), pursuant to California Environmental Quality Act (CEQA), Public Resources Code 21000, which found that the Project will not have a significant environmental impact as designed and mitigated.

5. That the design of the proposed land division or the type of improvements are unlikely to cause serious public health problems.

   FACT: The design of the land division and type of improvements will comply with all applicable City and other regulatory agency standards, including the street and utility infrastructure improvements. As designed and conditioned, the Project will be consistent with General Plan Objectives 6.1 and 6.2 which aim to minimize the potential for loss of life and protect residents, workers and visitors to the City from physical injury and property damage due to seismic ground shaking and flooding, and the Municipal Code relative to public health and safety.

6. That the design of the subdivision or the type of improvements will not conflict with easements, acquired by the public at large for access through or use of property within the proposed subdivision.

   FACT: The Tentative Tract Map has been designed to accommodate and not conflict with existing easements on the subject site including utility and storm drain easements.

7. That the proposed land division and the associated design and improvements are consistent with applicable ordinances of the City.

   FACT: The land division proposed by Tentative Tract Map No. 37544 is consistent with the City's Municipal Code Section 9.14 Land Divisions and other applicable ordinances of the City.

C. FEES, DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

1. FEES

Impact, mitigation and other fees are due and payable under currently applicable ordinances and resolutions. These fees may include but are not limited to: Development Impact Fee; Transportation Uniform Mitigation Fee (TUMF); Multi-species Habitat Conservation Plan (MSHCP) Mitigation Fee, Stephens Kangaroo Rat Habitat Fee, Underground Utilities in lieu Fee; Area Drainage Plan Fee; Bridge and Thoroughfare Mitigation Fee (Future); and Traffic Signal Mitigation Fee. The final amount of fees payable is dependent upon information provided by the applicant and will be determined at the time the fees become due and payable.

Unless otherwise provided for by this resolution, all impact fees shall be calculated and collected at the time and in the manner provided in Chapter 3.32

Attachment: PC Reso 2018-50 Tentative Tract Map [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

of the City of Moreno Valley Municipal Code or as so provided in the applicable ordinances and resolutions. The City expressly reserves the right to amend the fees and the fee calculations consistent with applicable law.

2. DEDICATIONS, RESERVATIONS, AND OTHER EXACTIONS

The adopted Conditions of Approval for PEN18-0092, incorporated herein by reference, may include dedications, reservations, and exactions pursuant to Government Code Section 66020 (d) (1).

3. CITY RIGHT TO MODIFY/ADJUST; PROTEST LIMITATIONS

The City expressly reserve the right to establish, modify or adjust any fee, dedication, reservation or other exaction to the extent permitted and as authorized by law.

Pursuant to Government Code Section 66020(d) (1), NOTICE IS FURTHER GIVEN that the 90-day period to protest the imposition of any impact fee, dedication, reservation, or other exaction described in this resolution begins on the effective date of this resolution and any such protest must be in a manner that complies with Section 66020 (a) and failure to timely follow this procedure will bar any subsequent legal action to attack, review, set aside, void or annul imposition.

The right to protest the fees, dedications, reservation, or other exactions does not apply to planning, zoning, grading, or other similar application processing fees or service fees in connection with this project and it does not apply to any fees, dedication, reservation, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the Statute of Limitations has previously expired.

BE IT FURTHER RESOLVED that the Planning Commission HEREBY APPROVES Resolution No. 2018-50, and RECOMMENDS that the City Council:

1. **APPROVE** Tentative Tract Map 37544, PEN18-0092, subject to the conditions of approval attached as Exhibit A.

APPROVED this 25th day of October, 2018.

AYES:
NOES:
ABSTAIN:

Attachment: PC Reso 2018-50 Tentative Tract Map [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

_____
Jeffrey Barnes
Chair, Planning Commission

ATTEST:

_____
Patty Nevins, Planning Official
Secretary to the Planning Commission

APPROVED AS TO FORM:

_____
City Attorney

ATTACHED:

Exhibit A: Conditions of Approval

Attachment: PC Reso 2018-50 Tentative Tract Map [Revision 1] (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

September 12, 2018

c/o Mr. Daniel C. Pocius
Frontier Communities
8300 Utica Avenue, Suite 300
Rancho Cucamonga, CA 91730

SUBJECT: BRODIAEA (TTM 37544) FOCUSED AIR QUALITY AND GREENHOUSE GAS ASSESSMENT

Dear Mr. Daniel C. Pocius:

Urban Crossroads, Inc. is pleased to submit this Air Quality and Greenhouse Gas Assessment for the proposed Brodiaea (TTM 37544) ("Project"), which is located in the City of Moreno Valley.

INTRODUCTION

This focused Air Quality and Greenhouse Gas Assessment has been completed to determine impacts associated with the development of the Brodiaea (TTM 37544) ("Project"). This study briefly describes the proposed Project and includes an analysis of the potential Project-related construction air quality and greenhouse gas impacts.

PROJECT DESCRIPTION

The Project is approximately 9.0 acres and is currently zoned for R-3 development (3 dwelling unit per acre or 27 units) and is proposing a zone change to R-10 (up to 10 dwelling units per acre). The Project is proposing development of up to 47 single-family detached residential dwelling units.

PROJECT-RELATED AIR QUALITY AND GREENHOUSE GAS EMISSIONS CALCULATIONS

Land uses such as the Project affect air quality through construction-source and operational-source emissions.

On October 2, 2013, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2013.2.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (NO_x, VOC, PM_{10}, $PM_{2.5}$, SO_x, and CO) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (1). Air Quality outputs from the model runs are provided in Attachments "A", "B", "C", and "D" and greenhouse gas outputs from the model runs are provided in Attachments "E" and "F".

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

AIR QUALITY

PROPOSED PROJECT: CONSTRUCTION EMISSIONS

The estimated maximum daily regional construction emissions without mitigation are summarized on Table 1. Detailed construction model outputs are presented in Attachment "A". Please note that credit for Rule 403 has been taken. As indicated at Table 1, emissions resulting from the Project construction would not exceed the applicable SCAQMD regional thresholds of significance for any criteria pollutant. As such, no mitigation is required.

TABLE 1: PROPOSED PROJECT CONSTRUCTION EMISSIONS SUMMARY

Year	Emissions (pounds per day)					
	VOC	NOx	CO	SO_x	PM_{10}	$PM_{2.5}$
2018	5.21	59.61	36.00	0.06	9.83	6.30
2019	26.84	23.34	19.16	0.03	1.61	1.36
Maximum Daily Emissions	**26.84**	**59.61**	**36.00**	**0.06**	**9.83**	**6.30**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

CURRENTLY ADOPTED LAND USE: CONSTRUCTION EMISSIONS

The estimated maximum daily regional construction emissions for the currently adopted land use are summarized on Table 2. Detailed construction model outputs are presented in Attachment "B". As indicated at Table 2, emissions resulting from the construction of the currently adopted land use would not exceed the applicable SCAQMD regional thresholds of significance for any criteria pollutant.

TABLE 2: CURRENTLY ADOPTED LAND USE CONSTRUCTION EMISSIONS SUMMARY

Year	Emissions (pounds per day)					
	VOC	NOx	CO	SO_x	PM_{10}	$PM_{2.5}$
2018	4.66	48.27	23.38	0.04	20.85	12.36
2019	15.57	23.08	18.85	0.031	1.51	1.33
Maximum Daily Emissions	**15.57**	**48.27**	**23.38**	**0.04**	**20.85**	**12.36**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

COMPARISON OF PROPOSED PROJECT TO THE CURRENTLY ADOPTED LAND USE

As summarized on Table 3, the proposed Project is anticipated to generate more emissions of VOCs, NO_X, CO, and SO_X as compared to the emissions from the currently adopted land use. However, since Project-related emissions do not have the potential to not exceed the applicable SCAQMD regional thresholds, the Project-related emissions are considered less than significant.

TABLE 3: PROPOSED PROJECT CONSTRUCTION EMISSIONS VS CURRENTLY ADOPTED LAND USE CONSTRUCTION EMISSIONS

Year	Emissions (pounds per day)					
	VOC	**NOx**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	26.84	59.61	36.00	0.06	9.83	6.30
Currently Adopted Land Use	15.57	48.27	23.38	0.04	20.85	12.36
Variance (Proposed – Current)	**11.27**	**11.34**	**12.62**	**0.02**	**-11.02**	**-6.06**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

OPERATIONAL EMISSIONS

Operational activities associated with the Project will result in emissions of CO, VOCs, NO_x, SO_x, PM_{10}, and $PM_{2.5}$. Operational related emissions are expected from the following primary sources: area source emissions, energy source emissions, and mobile source emissions.

Project mobile source air quality impacts are dependent on both overall daily vehicle trip generation and the effect of the Project on peak hour traffic volumes and traffic operations in the vicinity of the Project. The Project-related operational air quality impacts are derived primarily from vehicle trips generated by the Project. Trip characteristics available from the report, *Brodiaea (TTM 37544) Trip Generation Evaluation* (Urban Crossroads, Inc. 2018) were utilized in this analysis (2).

The estimated operational-source emissions for the proposed Project and the currently adopted land use are summarized and compared on Table 4. Detailed operational model outputs are presented in Attachment "C" and "D". As shown, the proposed Project would result in slightly more emissions VOCs, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ emissions as compared to the currently adopted land uses. However, since the variance in emissions is nominal and project-related emissions do not exceed the applicable SCAQMD regional thresholds, the Project-related emissions are considered less than significant.

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE 4: PROPOSED PROJECT OPERATIONAL EMISSIONS VS CURRENTLY ADOPTED LAND USE OPERATIONAL EMISSIONS

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Proposed Project	15.33	6.53	41.82	0.11	7.07	4.59
Currently Adopted Land Use	8.81	3.75	24.03	0.06	4.06	3.64
Variance (Proposed – Current)	**6.52**	**2.78**	**17.79**	**0.05**	**3.01**	**0.95**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Operational Activities – Winter Scenario	**Emissions (pounds per day)**					
	VOC	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	15.28	6.66	40.96	0.11	7.03	4.59
Currently Adopted Land Use	8.78	3.83	24.34	0.06	4.06	2.12
Variance (Proposed – Current)	**6.50**	**2.83**	**16.62**	**0.05**	**2.97**	**2.47**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

GREENHOUSE GAS

CONSTRUCTION AND OPERATIONAL EMISSIONS

Construction activities associated with the proposed Project will result in emissions of CO_2 and CH_4 from construction activities. For the construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total greenhouse gas emissions for the construction activities, dividing it by a 30-year project life then adding that number to the annual operational phase GHG emissions. As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions.

As previously noted, the site area for the proposed Project and the currently approved land use are generally consistent. As such, construction-source greenhouse gas emissions associated with development of the proposed Project are expected to be similar to and no more than what would occur if the currently approved land use were constructed. As such, no additional impacts would occur.

Operational activities associated with the proposed Project will result in emissions of CO_2, CH_4, and N_2O from the following primary sources: area source emissions, energy source emissions, mobile source emissions, solid waste, and water supply, treatment, and distribution.

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

PROPOSED PROJECT: GREENHOUSE GAS EMISSIONS

The annual GHG emissions associated with the construction and operation of the proposed Project are estimated to be 974.56 $MTCO_2e$ per year as summarized in Table 5. Detailed construction and operational model outputs are presented in Attachment "A" and "E". As shown, the proposed Project would not exceed the 3,000 $MTCO_2e$ threshold. As such, the proposed Project would result in a less than significant impact with respect to GHG emissions no mitigation is required.

TABLE 5: PROPOSED PROJECT GREENHOUSE GAS EMISSIONS

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	18.56	0.00	0.00	18.68
Area	15.38	0.02	0.00	15.87
Energy	207.27	0.01	0.00	208.19
Mobile Sources	679.50	0.04	0.00	680.41
Waste	11.15	0.66	0.00	27.63
Water Usage	20.51	0.10	0.00	23.78
Total CO_2E (All Sources)	**974.56**			
Screening Threshold (CO_2E)	**3,000**			
Threshold Exceeded?	**NO**			

CURRENTLY ADOPTED LAND USE: GREENHOUSE GAS EMISSIONS

The annual GHG emissions associated with the construction and operation of the proposed Project are estimated to be 564.41 $MTCO_2e$ per year as summarized in Table 6. Detailed construction and operational model outputs are presented in Attachment "B" and "F". As shown, the proposed Project would not exceed the 3,000 $MTCO_2e$ threshold. As such, the proposed Project would result in a less than significant impact with respect to GHG emissions no mitigation is required.

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE 6: CURRENTLY ADOPTED LAND USE GREENHOUSE GAS EMISSIONS

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	12.83	0.00	0.00	12.91
Area	8.83	0.01	0.00	9.12
Energy	119.07	0.00	0.00	119.60
Mobile Sources	392.73	0.02	0.00	393.26
Waste	6.41	0.38	0.00	15.88
Water Usage	11.78	0.06	0.00	13.66
Total CO_2E (All Sources)	**564.41**			
Screening Threshold (CO_2E)	**3,000**			
Threshold Exceeded?	**NO**			

COMPARISON OF PROPOSED PROJECT TO THE CURRENTLY ADOPTED LAND USE

The annual net GHG emissions associated with the proposed Project are estimated to be 947.56 $MTCO_2e$ per year and 564.43 $MTCO_2$ for the currently adopted land use, as summarized in Table 7. Although the proposed Project has the potential to result in more emissions compared to emissions expected from the currently adopted land use, the difference is nominal. As such, the proposed Project would result in a less than significant impact with respect to GHG emissions.

TABLE 7: GREENHOUSE GAS EMISSIONS SUMMARY PROPOSED PROJECT VS CURRENTLY APPROVED LAND USE

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Proposed Project	952.37	0.83	0.00	974.56
Currently Approved Land Use	551.65	0.47	0.00	564.43
Variance Total CO_2E (All Sources)	**410.15**			

If you have any questions, please contact me directly at (949) 336-5987.

Respectfully submitted,

URBAN CROSSROADS, INC.

Haseeb Qureshi,
Senior Associate

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

REFERENCES

1. **South Coast Air Quality Management District.** California Emissions Estimator Model. [Online] 2013. [Cited: November 13, 2013.] http://www.caleemod.com/.

2. **Urban Crossroads, Inc.** *Brodiaea (TTM 37544) Trip Generation Evaluation.* 2018.

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT A:

CALEEMOD AIR QUALITY PROPOSED PROJECT (CONSTRUCTION) EMISSIONS MODEL OUTPUTS

Brodiaea Residential Proposed (Construction-Unmitigated)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Brodiaea Residential Proposed (Construction-Unmitigated) - South Coast AQMD Air District, Winter

Project Characteristics -

Land Use -

Construction Phase -

Off-road Equipment - Hours based on 8 hour work day

Off-road Equipment -

Off-road Equipment - hours based on 8 hour work day

Vehicle Trips - Construction run only

Woodstoves - Construction run only

Energy Use - Construction run only

Water And Wastewater - Construction run only

Solid Waste - Construction run only

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/6/2019	11/8/2019
tblConstructionPhase	PhaseEndDate	10/11/2019	9/13/2019
tblConstructionPhase	PhaseEndDate	8/17/2018	7/20/2018
tblConstructionPhase	PhaseEndDate	11/8/2019	10/11/2019
tblConstructionPhase	PhaseEndDate	7/6/2018	6/8/2018
tblConstructionPhase	PhaseStartDate	11/9/2019	10/12/2019
tblConstructionPhase	PhaseStartDate	8/18/2018	7/21/2018
tblConstructionPhase	PhaseStartDate	7/7/2018	6/9/2018
tblConstructionPhase	PhaseStartDate	10/12/2019	9/14/2019
tblConstructionPhase	PhaseStartDate	6/23/2018	5/28/2018
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	39.95	0.00
tblFireplaces	NumberNoFireplace	4.70	0.00
tblFireplaces	NumberWood	2.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	54.94	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	3,062,239.20	0.00
tblWater	OutdoorWaterUseRate	1,930,542.11	0.00
tblWoodstoves	NumberCatalytic	2.35	0.00

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

tblWoodstoves	NumberNoncatalytic	2.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.2073	59.6064	35.9976	0.0643	18.2675	2.6355	20.8460	9.9840	2.4247	12.3563	0.0000	6,472.5643	6,472.5643	1.9518	0.0000	6,521.3583
2019	26.8394	23.3422	19.1571	0.0320	0.2220	1.3855	1.6076	0.0596	1.3009	1.3605	0.0000	3,100.2593	3,100.2593	0.7193	0.0000	3,117.9118
Maximum	**26.8394**	**59.6064**	**35.9976**	**0.0643**	**18.2675**	**2.6355**	**20.8460**	**9.9840**	**2.4247**	**12.3563**	**0.0000**	**6,472.5643**	**6,472.5643**	**1.9518**	**0.0000**	**6,521.3583**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.2073	59.6064	35.9976	0.0643	7.2470	2.6355	9.8256	3.9263	2.4247	6.2986	0.0000	6,472.5642	6,472.5642	1.9518	0.0000	6,521.3583
2019	26.8394	23.3422	19.1571	0.0320	0.2220	1.3855	1.6076	0.0596	1.3009	1.3605	0.0000	3,100.2593	3,100.2593	0.7193	0.0000	3,117.9118
Maximum	**26.8394**	**59.6064**	**35.9976**	**0.0643**	**7.2470**	**2.6355**	**9.8256**	**3.9263**	**2.4247**	**6.2986**	**0.0000**	**6,472.5642**	**6,472.5642**	**1.9518**	**0.0000**	**6,521.3583**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.60**	**0.00**	**49.08**	**60.31**	**0.00**	**44.16**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/20/2018	5	30	
3	Building Construction	Building Construction	7/21/2018	9/13/2019	5	300	
4	Paving	Paving	9/14/2019	10/11/2019	5	20	
5	Architectural Coating	Architectural Coating	10/12/2019	11/8/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 171,315; Residential Outdoor: 57,105; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	8.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	17.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**8.6733**	**2.6337**	**11.3071**	**3.5965**	**2.4230**	**6.0195**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1172	0.0846	0.9082	2.2900e-003	0.2236	1.7800e-003	0.2253	0.0593	1.6400e-003	0.0609		228.1358	228.1358	7.7800e-003		228.3305
Total	**0.1172**	**0.0846**	**0.9082**	**2.2900e-003**	**0.2236**	**1.7800e-003**	**0.2253**	**0.0593**	**1.6400e-003**	**0.0609**		**228.1358**	**228.1358**	**7.7800e-003**		**228.3305**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**3.3826**	**2.6337**	**6.0163**	**1.4026**	**2.4230**	**3.8257**	**0.0000**	**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1172	0.0846	0.9082	2.2900e-003	0.2236	1.7800e-003	0.2253	0.0593	1.6400e-003	0.0609		228.1358	228.1358	7.7800e-003		228.3305
Total	**0.1172**	**0.0846**	**0.9082**	**2.2900e-003**	**0.2236**	**1.7800e-003**	**0.2253**	**0.0593**	**1.6400e-003**	**0.0609**		**228.1358**	**228.1358**	**7.7800e-003**		**228.3305**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082		2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**		**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0222	0.6069	0.1675	1.2700e-003	0.0320	4.5000e-003	0.0365	9.2100e-003	4.3000e-003	0.0135		135.3782	135.3782	0.0102		135.6329
Worker	0.0996	0.0720	0.7720	1.9500e-003	0.1900	1.5100e-003	0.1915	0.0504	1.4000e-003	0.0518		193.9155	193.9155	6.6200e-003		194.0809
Total	**0.1218**	**0.6789**	**0.9395**	**3.2200e-003**	**0.2220**	**6.0100e-003**	**0.2280**	**0.0596**	**5.7000e-003**	**0.0653**		**329.2937**	**329.2937**	**0.0168**		**329.7138**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082	0.0000	2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**	**0.0000**	**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0222	0.6069	0.1675	1.2700e-003	0.0320	4.5000e-003	0.0365	9.2100e-003	4.3000e-003	0.0135		135.3782	135.3782	0.0102		135.6329
Worker	0.0996	0.0720	0.7720	1.9500e-003	0.1900	1.5100e-003	0.1915	0.0504	1.4000e-003	0.0518		193.9155	193.9155	6.6200e-003		194.0809
Total	**0.1218**	**0.6789**	**0.9395**	**3.2200e-003**	**0.2220**	**6.0100e-003**	**0.2280**	**0.0596**	**5.7000e-003**	**0.0653**		**329.2937**	**329.2937**	**0.0168**		**329.7138**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958		2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**		**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0201	0.5725	0.1540	1.2600e-003	0.0320	3.8500e-003	0.0359	9.2100e-003	3.6800e-003	0.0129		134.1581	134.1581	9.8200e-003		134.4036
Worker	0.0907	0.0635	0.6892	1.8900e-003	0.1900	1.4800e-003	0.1915	0.0504	1.3600e-003	0.0518		187.7915	187.7915	5.8700e-003		187.9382
Total	**0.1108**	**0.6360**	**0.8432**	**3.1500e-003**	**0.2220**	**5.3300e-003**	**0.2274**	**0.0596**	**5.0400e-003**	**0.0647**		**321.9496**	**321.9496**	**0.0157**		**322.3418**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958	0.0000	2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**	**0.0000**	**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0201	0.5725	0.1540	1.2600e-003	0.0320	3.8500e-003	0.0359	9.2100e-003	3.6800e-003	0.0129		134.1581	134.1581	9.8200e-003		134.4036
Worker	0.0907	0.0635	0.6892	1.8900e-003	0.1900	1.4800e-003	0.1915	0.0504	1.3600e-003	0.0518		187.7915	187.7915	5.8700e-003		187.9382
Total	**0.1108**	**0.6360**	**0.8432**	**3.1500e-003**	**0.2220**	**5.3300e-003**	**0.2274**	**0.0596**	**5.0400e-003**	**0.0647**		**321.9496**	**321.9496**	**0.0157**		**322.3418**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	26.4682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**26.8234**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0160	0.0112	0.1216	3.3000e-004	0.0335	2.6000e-004	0.0338	8.8900e-003	2.4000e-004	9.1300e-003		33.1397	33.1397	1.0400e-003		33.1656
Total	**0.0160**	**0.0112**	**0.1216**	**3.3000e-004**	**0.0335**	**2.6000e-004**	**0.0338**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**		**33.1397**	**33.1397**	**1.0400e-003**		**33.1656**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	26.4682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**26.8234**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0160	0.0112	0.1216	3.3000e-004	0.0335	2.6000e-004	0.0338	8.8900e-003	2.4000e-004	9.1300e-003		33.1397	33.1397	1.0400e-003		33.1656
Total	**0.0160**	**0.0112**	**0.1216**	**3.3000e-004**	**0.0335**	**2.6000e-004**	**0.0338**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**		**33.1397**	**33.1397**	**1.0400e-003**		**33.1656**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Unmitigated	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**		**0.0214**	**0.0214**		**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**		**0.0214**	**0.0214**		**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Brodiaea Residential Proposed (Construction-Unmitigated)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Project Characteristics -

Land Use -

Construction Phase -

Off-road Equipment - Hours based on 8 hour work day

Off-road Equipment -

Off-road Equipment - hours based on 8 hour work day

Vehicle Trips - Construction run only

Woodstoves - Construction run only

Energy Use - Construction run only

Water And Wastewater - Construction run only

Solid Waste - Construction run only

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/6/2019	11/8/2019
tblConstructionPhase	PhaseEndDate	10/11/2019	9/13/2019
tblConstructionPhase	PhaseEndDate	8/17/2018	7/20/2018
tblConstructionPhase	PhaseEndDate	11/8/2019	10/11/2019
tblConstructionPhase	PhaseEndDate	7/6/2018	6/8/2018
tblConstructionPhase	PhaseStartDate	11/9/2019	10/12/2019
tblConstructionPhase	PhaseStartDate	8/18/2018	7/21/2018
tblConstructionPhase	PhaseStartDate	7/7/2018	6/9/2018
tblConstructionPhase	PhaseStartDate	10/12/2019	9/14/2019
tblConstructionPhase	PhaseStartDate	6/23/2018	5/28/2018
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	39.95	0.00
tblFireplaces	NumberNoFireplace	4.70	0.00
tblFireplaces	NumberWood	2.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	54.94	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	3,062,239.20	0.00
tblWater	OutdoorWaterUseRate	1,930,542.11	0.00
tblWoodstoves	NumberCatalytic	2.35	0.00

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

tblWoodstoves	NumberNoncatalytic	2.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.1979	59.5991	36.0929	0.0645	18.2675	2.6355	20.8460	9.9840	2.4247	12.3563	0.0000	6,488.2987	6,488.2987	1.9523	0.0000	6,537.1060
2019	26.8381	23.3363	19.2161	0.0321	0.2220	1.3855	1.6075	0.0596	1.3008	1.3604	0.0000	3,117.1877	3,117.1877	0.7196	0.0000	3,134.8334
Maximum	**26.8381**	**59.5991**	**36.0929**	**0.0645**	**18.2675**	**2.6355**	**20.8460**	**9.9840**	**2.4247**	**12.3563**	**0.0000**	**6,488.2987**	**6,488.2987**	**1.9523**	**0.0000**	**6,537.1060**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.1979	59.5991	36.0929	0.0645	7.2470	2.6355	9.8256	3.9263	2.4247	6.2986	0.0000	6,488.2987	6,488.2987	1.9523	0.0000	6,537.1060
2019	26.8381	23.3363	19.2161	0.0321	0.2220	1.3855	1.6075	0.0596	1.3008	1.3604	0.0000	3,117.1877	3,117.1877	0.7196	0.0000	3,134.8334
Maximum	**26.8381**	**59.5991**	**36.0929**	**0.0645**	**7.2470**	**2.6355**	**9.8256**	**3.9263**	**2.4247**	**6.2986**	**0.0000**	**6,488.2987**	**6,488.2987**	**1.9523**	**0.0000**	**6,537.1060**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.60**	**0.00**	**49.08**	**60.31**	**0.00**	**44.16**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/20/2018	5	30	
3	Building Construction	Building Construction	7/21/2018	9/13/2019	5	300	
4	Paving	Paving	9/14/2019	10/11/2019	5	20	
5	Architectural Coating	Architectural Coating	10/12/2019	11/8/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 171,315; Residential Outdoor: 57,105; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	8.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	17.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**8.6733**	**2.6337**	**11.3071**	**3.5965**	**2.4230**	**6.0195**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1078	0.0773	1.0035	2.4500e-003	0.2236	1.7800e-003	0.2253	0.0593	1.6400e-003	0.0609		243.8703	243.8703	8.3200e-003		244.0782
Total	**0.1078**	**0.0773**	**1.0035**	**2.4500e-003**	**0.2236**	**1.7800e-003**	**0.2253**	**0.0593**	**1.6400e-003**	**0.0609**		**243.8703**	**243.8703**	**8.3200e-003**		**244.0782**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**3.3826**	**2.6337**	**6.0163**	**1.4026**	**2.4230**	**3.8257**	**0.0000**	**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1078	0.0773	1.0035	2.4500e-003	0.2236	1.7800e-003	0.2253	0.0593	1.6400e-003	0.0609		243.8703	243.8703	8.3200e-003		244.0782
Total	**0.1078**	**0.0773**	**1.0035**	**2.4500e-003**	**0.2236**	**1.7800e-003**	**0.2253**	**0.0593**	**1.6400e-003**	**0.0609**		**243.8703**	**243.8703**	**8.3200e-003**		**244.0782**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082		2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**		**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0213	0.6059	0.1509	1.3100e-003	0.0320	4.4300e-003	0.0364	9.2100e-003	4.2400e-003	0.0135		139.3290	139.3290	9.4800e-003		139.5661
Worker	0.0916	0.0657	0.8530	2.0800e-003	0.1900	1.5100e-003	0.1915	0.0504	1.4000e-003	0.0518		207.2898	207.2898	7.0700e-003		207.4665
Total	**0.1129**	**0.6716**	**1.0039**	**3.3900e-003**	**0.2220**	**5.9400e-003**	**0.2280**	**0.0596**	**5.6400e-003**	**0.0652**		**346.6188**	**346.6188**	**0.0166**		**347.0326**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082	0.0000	2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**	**0.0000**	**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0213	0.6059	0.1509	1.3100e-003	0.0320	4.4300e-003	0.0364	9.2100e-003	4.2400e-003	0.0135		139.3290	139.3290	9.4800e-003		139.5661
Worker	0.0916	0.0657	0.8530	2.0800e-003	0.1900	1.5100e-003	0.1915	0.0504	1.4000e-003	0.0518		207.2898	207.2898	7.0700e-003		207.4665
Total	**0.1129**	**0.6716**	**1.0039**	**3.3900e-003**	**0.2220**	**5.9400e-003**	**0.2280**	**0.0596**	**5.6400e-003**	**0.0652**		**346.6188**	**346.6188**	**0.0166**		**347.0326**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958		2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**		**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0193	0.5721	0.1383	1.3000e-003	0.0320	3.7900e-003	0.0358	9.2100e-003	3.6300e-003	0.0128		138.1099	138.1099	9.1400e-003		138.3383
Worker	0.0833	0.0579	0.7639	2.0200e-003	0.1900	1.4800e-003	0.1915	0.0504	1.3600e-003	0.0518		200.7681	200.7681	6.2800e-003		200.9251
Total	**0.1025**	**0.6301**	**0.9022**	**3.3200e-003**	**0.2220**	**5.2700e-003**	**0.2273**	**0.0596**	**4.9900e-003**	**0.0646**		**338.8780**	**338.8780**	**0.0154**		**339.2634**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958	0.0000	2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**	**0.0000**	**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0193	0.5721	0.1383	1.3000e-003	0.0320	3.7900e-003	0.0358	9.2100e-003	3.6300e-003	0.0128		138.1099	138.1099	9.1400e-003		138.3383
Worker	0.0833	0.0579	0.7639	2.0200e-003	0.1900	1.4800e-003	0.1915	0.0504	1.3600e-003	0.0518		200.7681	200.7681	6.2800e-003		200.9251
Total	**0.1025**	**0.6301**	**0.9022**	**3.3200e-003**	**0.2220**	**5.2700e-003**	**0.2273**	**0.0596**	**4.9900e-003**	**0.0646**		**338.8780**	**338.8780**	**0.0154**		**339.2634**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	26.4682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**26.8234**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0147	0.0102	0.1348	3.6000e-004	0.0335	2.6000e-004	0.0338	8.8900e-003	2.4000e-004	9.1300e-003		35.4297	35.4297	1.1100e-003		35.4574
Total	**0.0147**	**0.0102**	**0.1348**	**3.6000e-004**	**0.0335**	**2.6000e-004**	**0.0338**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**		**35.4297**	**35.4297**	**1.1100e-003**		**35.4574**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	26.4682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**26.8234**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0147	0.0102	0.1348	3.6000e-004	0.0335	2.6000e-004	0.0338	8.8900e-003	2.4000e-004	9.1300e-003		35.4297	35.4297	1.1100e-003		35.4574
Total	**0.0147**	**0.0102**	**0.1348**	**3.6000e-004**	**0.0335**	**2.6000e-004**	**0.0338**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**		**35.4297**	**35.4297**	**1.1100e-003**		**35.4574**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Unmitigated	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**		**0.0214**	**0.0214**		**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**		**0.0214**	**0.0214**		**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Brodiaea Residential Proposed (Construction-Unmitigated)

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Project Characteristics -

Land Use -

Construction Phase -

Off-road Equipment - Hours based on 8 hour work day

Off-road Equipment -

Off-road Equipment - hours based on 8 hour work day

Vehicle Trips - Construction run only

Woodstoves - Construction run only

Energy Use - Construction run only

Water And Wastewater - Construction run only

Solid Waste - Construction run only

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/6/2019	11/8/2019
tblConstructionPhase	PhaseEndDate	10/11/2019	9/13/2019
tblConstructionPhase	PhaseEndDate	8/17/2018	7/20/2018
tblConstructionPhase	PhaseEndDate	11/8/2019	10/11/2019
tblConstructionPhase	PhaseEndDate	7/6/2018	6/8/2018
tblConstructionPhase	PhaseStartDate	11/9/2019	10/12/2019
tblConstructionPhase	PhaseStartDate	8/18/2018	7/21/2018
tblConstructionPhase	PhaseStartDate	7/7/2018	6/9/2018
tblConstructionPhase	PhaseStartDate	10/12/2019	9/14/2019
tblConstructionPhase	PhaseStartDate	6/23/2018	5/28/2018
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	39.95	0.00
tblFireplaces	NumberNoFireplace	4.70	0.00
tblFireplaces	NumberWood	2.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	54.94	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	3,062,239.20	0.00
tblWater	OutdoorWaterUseRate	1,930,542.11	0.00
tblWoodstoves	NumberCatalytic	2.35	0.00

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

tblWoodstoves	NumberNoncatalytic	2.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2731	2.6389	1.8010	3.0300e-003	0.2374	0.1460	0.3833	0.1081	0.1360	0.2442	0.0000	271.9740	271.9740	0.0698	0.0000	273.7182
2019	0.5241	2.3262	1.9422	3.2300e-003	0.0220	0.1374	0.1595	5.9200e-003	0.1290	0.1349	0.0000	284.9247	284.9247	0.0657	0.0000	286.5680
Maximum	**0.5241**	**2.6389**	**1.9422**	**3.2300e-003**	**0.2374**	**0.1460**	**0.3833**	**0.1081**	**0.1360**	**0.2442**	**0.0000**	**284.9247**	**284.9247**	**0.0698**	**0.0000**	**286.5680**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2731	2.6389	1.8010	3.0300e-003	0.1029	0.1460	0.2489	0.0449	0.1360	0.1810	0.0000	271.9737	271.9737	0.0698	0.0000	273.7179
2019	0.5241	2.3262	1.9422	3.2300e-003	0.0220	0.1374	0.1595	5.9200e-003	0.1290	0.1349	0.0000	284.9244	284.9244	0.0657	0.0000	286.5677
Maximum	**0.5241**	**2.6389**	**1.9422**	**3.2300e-003**	**0.1029**	**0.1460**	**0.2489**	**0.0449**	**0.1360**	**0.1810**	**0.0000**	**284.9244**	**284.9244**	**0.0698**	**0.0000**	**286.5677**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**51.84**	**0.00**	**24.77**	**55.41**	**0.00**	**16.67**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-28-2018	8-27-2018	1.5905	1.5905
2	8-28-2018	11-27-2018	0.9487	0.9487
3	11-28-2018	2-27-2019	0.8885	0.8885
4	2-28-2019	5-27-2019	0.8250	0.8250
5	5-28-2019	8-27-2019	0.8527	0.8527
6	8-28-2019	9-30-2019	0.2597	0.2597
		Highest	1.5905	1.5905

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3471	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3471**	**5.6400e-003**	**0.4871**	**3.0000e-005**	**0.0000**	**2.6700e-003**	**2.6700e-003**	**0.0000**	**2.6700e-003**	**2.6700e-003**	**0.0000**	**0.7917**	**0.7917**	**7.8000e-004**	**0.0000**	**0.8112**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3471	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3471**	**5.6400e-003**	**0.4871**	**3.0000e-005**	**0.0000**	**2.6700e-003**	**2.6700e-003**	**0.0000**	**2.6700e-003**	**2.6700e-003**	**0.0000**	**0.7917**	**0.7917**	**7.8000e-004**	**0.0000**	**0.8112**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Brodiaea Residential Proposed (Construction-Unmitigated) - South Coast AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/20/2018	5	30	
3	Building Construction	Building Construction	7/21/2018	9/13/2019	5	300	
4	Paving	Paving	9/14/2019	10/11/2019	5	20	
5	Architectural Coating	Architectural Coating	10/12/2019	11/8/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 171,315; Residential Outdoor: 57,105; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	8.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	17.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.9000e-004	4.2000e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9473	0.9473	3.0000e-005	0.0000	0.9481
Total	**4.8000e-004**	**3.9000e-004**	**4.2000e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.9473**	**0.9473**	**3.0000e-005**	**0.0000**	**0.9481**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0352	0.0000	0.0352	0.0194	0.0000	0.0194	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0352**	**0.0129**	**0.0481**	**0.0194**	**0.0119**	**0.0312**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.9000e-004	4.2000e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9473	0.9473	3.0000e-005	0.0000	0.9481
Total	**4.8000e-004**	**3.9000e-004**	**4.2000e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.9473**	**0.9473**	**3.0000e-005**	**0.0000**	**0.9481**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0764	0.8928	0.5263	9.3000e-004		0.0395	0.0395		0.0364	0.0364	0.0000	84.9728	84.9728	0.0265	0.0000	85.6341
Total	**0.0764**	**0.8928**	**0.5263**	**9.3000e-004**	**0.1301**	**0.0395**	**0.1696**	**0.0540**	**0.0364**	**0.0903**	**0.0000**	**84.9728**	**84.9728**	**0.0265**	**0.0000**	**85.6341**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-003	1.3000e-003	0.0140	3.0000e-005	3.2900e-003	3.0000e-005	3.3200e-003	8.7000e-004	2.0000e-005	9.0000e-004	0.0000	3.1575	3.1575	1.1000e-004	0.0000	3.1602
Total	**1.5900e-003**	**1.3000e-003**	**0.0140**	**3.0000e-005**	**3.2900e-003**	**3.0000e-005**	**3.3200e-003**	**8.7000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**3.1575**	**3.1575**	**1.1000e-004**	**0.0000**	**3.1602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0507	0.0000	0.0507	0.0210	0.0000	0.0210	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0764	0.8928	0.5263	9.3000e-004		0.0395	0.0395		0.0364	0.0364	0.0000	84.9727	84.9727	0.0265	0.0000	85.6340
Total	**0.0764**	**0.8928**	**0.5263**	**9.3000e-004**	**0.0507**	**0.0395**	**0.0903**	**0.0210**	**0.0364**	**0.0574**	**0.0000**	**84.9727**	**84.9727**	**0.0265**	**0.0000**	**85.6340**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-003	1.3000e-003	0.0140	3.0000e-005	3.2900e-003	3.0000e-005	3.3200e-003	8.7000e-004	2.0000e-005	9.0000e-004	0.0000	3.1575	3.1575	1.1000e-004	0.0000	3.1602
Total	**1.5900e-003**	**1.3000e-003**	**0.0140**	**3.0000e-005**	**3.2900e-003**	**3.0000e-005**	**3.3200e-003**	**8.7000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**3.1575**	**3.1575**	**1.1000e-004**	**0.0000**	**3.1602**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1653	1.4633	1.0888	1.6700e-003		0.0932	0.0932		0.0875	0.0875	0.0000	147.8951	147.8951	0.0369	0.0000	148.8175
Total	**0.1653**	**1.4633**	**1.0888**	**1.6700e-003**		**0.0932**	**0.0932**		**0.0875**	**0.0875**	**0.0000**	**147.8951**	**147.8951**	**0.0369**	**0.0000**	**148.8175**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2600e-003	0.0359	9.2400e-003	8.0000e-005	1.8300e-003	2.6000e-004	2.0900e-003	5.3000e-004	2.5000e-004	7.7000e-004	0.0000	7.2437	7.2437	5.2000e-004	0.0000	7.2566
Worker	5.2400e-003	4.2900e-003	0.0460	1.1000e-004	0.0108	9.0000e-005	0.0109	2.8700e-003	8.0000e-005	2.9500e-003	0.0000	10.3777	10.3777	3.5000e-004	0.0000	10.3865
Total	**6.5000e-003**	**0.0401**	**0.0553**	**1.9000e-004**	**0.0127**	**3.5000e-004**	**0.0130**	**3.4000e-003**	**3.3000e-004**	**3.7200e-003**	**0.0000**	**17.6214**	**17.6214**	**8.7000e-004**	**0.0000**	**17.6432**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1653	1.4633	1.0888	1.6700e-003		0.0932	0.0932		0.0875	0.0875	0.0000	147.8949	147.8949	0.0369	0.0000	148.8174
Total	**0.1653**	**1.4633**	**1.0888**	**1.6700e-003**		**0.0932**	**0.0932**		**0.0875**	**0.0875**	**0.0000**	**147.8949**	**147.8949**	**0.0369**	**0.0000**	**148.8174**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2600e-003	0.0359	9.2400e-003	8.0000e-005	1.8300e-003	2.6000e-004	2.0900e-003	5.3000e-004	2.5000e-004	7.7000e-004	0.0000	7.2437	7.2437	5.2000e-004	0.0000	7.2566
Worker	5.2400e-003	4.2900e-003	0.0460	1.1000e-004	0.0108	9.0000e-005	0.0109	2.8700e-003	8.0000e-005	2.9500e-003	0.0000	10.3777	10.3777	3.5000e-004	0.0000	10.3865
Total	**6.5000e-003**	**0.0401**	**0.0553**	**1.9000e-004**	**0.0127**	**3.5000e-004**	**0.0130**	**3.4000e-003**	**3.3000e-004**	**3.7200e-003**	**0.0000**	**17.6214**	**17.6214**	**8.7000e-004**	**0.0000**	**17.6432**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2311	2.0890	1.6849	2.6500e-003		0.1270	0.1270		0.1192	0.1192	0.0000	231.8805	231.8805	0.0576	0.0000	233.3211
Total	**0.2311**	**2.0890**	**1.6849**	**2.6500e-003**		**0.1270**	**0.1270**		**0.1192**	**0.1192**	**0.0000**	**231.8805**	**231.8805**	**0.0576**	**0.0000**	**233.3211**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8100e-003	0.0536	0.0135	1.2000e-004	2.9000e-003	3.5000e-004	3.2500e-003	8.4000e-004	3.4000e-004	1.1700e-003	0.0000	11.3883	11.3883	7.9000e-004	0.0000	11.4080
Worker	7.5500e-003	6.0000e-003	0.0652	1.8000e-004	0.0172	1.4000e-004	0.0173	4.5600e-003	1.3000e-004	4.6800e-003	0.0000	15.9417	15.9417	5.0000e-004	0.0000	15.9542
Total	**9.3600e-003**	**0.0596**	**0.0787**	**3.0000e-004**	**0.0201**	**4.9000e-004**	**0.0206**	**5.4000e-003**	**4.7000e-004**	**5.8500e-003**	**0.0000**	**27.3300**	**27.3300**	**1.2900e-003**	**0.0000**	**27.3622**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2311	2.0890	1.6849	2.6500e-003		0.1270	0.1270		0.1192	0.1192	0.0000	231.8802	231.8802	0.0576	0.0000	233.3208
Total	**0.2311**	**2.0890**	**1.6849**	**2.6500e-003**		**0.1270**	**0.1270**		**0.1192**	**0.1192**	**0.0000**	**231.8802**	**231.8802**	**0.0576**	**0.0000**	**233.3208**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8100e-003	0.0536	0.0135	1.2000e-004	2.9000e-003	3.5000e-004	3.2500e-003	8.4000e-004	3.4000e-004	1.1700e-003	0.0000	11.3883	11.3883	7.9000e-004	0.0000	11.4080
Worker	7.5500e-003	6.0000e-003	0.0652	1.8000e-004	0.0172	1.4000e-004	0.0173	4.5600e-003	1.3000e-004	4.6800e-003	0.0000	15.9417	15.9417	5.0000e-004	0.0000	15.9542
Total	**9.3600e-003**	**0.0596**	**0.0787**	**3.0000e-004**	**0.0201**	**4.9000e-004**	**0.0206**	**5.4000e-003**	**4.7000e-004**	**5.8500e-003**	**0.0000**	**27.3300**	**27.3300**	**1.2900e-003**	**0.0000**	**27.3622**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.8000e-004	6.2500e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5289	1.5289	5.0000e-005	0.0000	1.5301
Total	**7.2000e-004**	**5.8000e-004**	**6.2500e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5289**	**1.5289**	**5.0000e-005**	**0.0000**	**1.5301**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.8000e-004	6.2500e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5289	1.5289	5.0000e-005	0.0000	1.5301
Total	**7.2000e-004**	**5.8000e-004**	**6.2500e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5289**	**1.5289**	**5.0000e-005**	**0.0000**	**1.5301**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2647					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5500e-003	0.0245	0.0246	4.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	3.4043	3.4043	2.9000e-004	0.0000	3.4115
Total	**0.2682**	**0.0245**	**0.0246**	**4.0000e-005**		**1.7200e-003**	**1.7200e-003**		**1.7200e-003**	**1.7200e-003**	**0.0000**	**3.4043**	**3.4043**	**2.9000e-004**	**0.0000**	**3.4115**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.2000e-004	1.2500e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3058	0.3058	1.0000e-005	0.0000	0.3060
Total	**1.4000e-004**	**1.2000e-004**	**1.2500e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3058**	**0.3058**	**1.0000e-005**	**0.0000**	**0.3060**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2647					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5500e-003	0.0245	0.0246	4.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	3.4043	3.4043	2.9000e-004	0.0000	3.4115
Total	**0.2682**	**0.0245**	**0.0246**	**4.0000e-005**		**1.7200e-003**	**1.7200e-003**		**1.7200e-003**	**1.7200e-003**	**0.0000**	**3.4043**	**3.4043**	**2.9000e-004**	**0.0000**	**3.4115**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.2000e-004	1.2500e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3058	0.3058	1.0000e-005	0.0000	0.3060
Total	**1.4000e-004**	**1.2000e-004**	**1.2500e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3058**	**0.3058**	**1.0000e-005**	**0.0000**	**0.3060**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3471	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Unmitigated	0.3471	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0265					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0149	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Total	**0.3471**	**5.6400e-003**	**0.4871**	**3.0000e-005**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**0.7917**	**0.7917**	**7.8000e-004**	**0.0000**	**0.8112**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0265					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0149	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Total	**0.3471**	**5.6400e-003**	**0.4871**	**3.0000e-005**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**0.7917**	**0.7917**	**7.8000e-004**	**0.0000**	**0.8112**

7.0 Water Detail

7.1 Mitigation Measures Water

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT B:

CALEEMOD AIR QUALITY CURRENTLY ADOPTED LAND USE (CONSTRUCTION) MISSIONS MODEL OUTPUTS

Brodiaea Residential Current (Construction)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Brodiaea Residential Current (Construction) - South Coast AQMD Air District, Winter

Project Characteristics -

Land Use -

Construction Phase - Current Proposed Construction Run Only (27 DU)

Off-road Equipment - Current Construction Run Only (27 DU)

Off-road Equipment - Construction Run Only (Current 27 DU)

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips - Current Construction Run Only (27 DU)

Woodstoves - Operations Run Only.

Energy Use - Operations Run Only.

Consumer Products -

Water And Wastewater - Operations Run Only.

Solid Waste - Operations Run Only.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00
tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	22.95	0.00
tblFireplaces	NumberNoFireplace	2.70	0.00

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

tblFireplaces	NumberWood	1.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	31.57	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	1,759,158.69	0.00
tblWater	OutdoorWaterUseRate	1,109,034.83	0.00
tblWoodstoves	NumberCatalytic	1.35	0.00
tblWoodstoves	NumberNoncatalytic	1.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.6682	48.2749	23.2937	0.0401	18.2675	2.5785	20.8460	9.9840	2.3722	12.3563	0.0000	4,036.9461	4,036.9461	1.1999	0.0000	4,066.9422
2019	15.5710	23.0870	18.8117	0.0307	0.1677	1.3834	1.5144	0.0445	1.2989	1.3340	0.0000	2,969.2701	2,969.2701	0.7193	0.0000	2,986.7640
Maximum	**15.5710**	**48.2749**	**23.2937**	**0.0401**	**18.2675**	**2.5785**	**20.8460**	**9.9840**	**2.3722**	**12.3563**	**0.0000**	**4,036.9461**	**4,036.9461**	**1.1999**	**0.0000**	**4,066.9422**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.6682	48.2749	23.2937	0.0401	7.2470	2.5785	9.8256	3.9263	2.3722	6.2986	0.0000	4,036.9461	4,036.9461	1.1999	0.0000	4,066.9422
2019	15.5710	23.0870	18.8117	0.0307	0.1677	1.3834	1.5144	0.0445	1.2989	1.3340	0.0000	2,969.2701	2,969.2701	0.7193	0.0000	2,986.7640
Maximum	**15.5710**	**48.2749**	**23.2937**	**0.0401**	**7.2470**	**2.5785**	**9.8256**	**3.9263**	**2.3722**	**6.2986**	**0.0000**	**4,036.9461**	**4,036.9461**	**1.1999**	**0.0000**	**4,066.9422**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.78**	**0.00**	**49.29**	**60.40**	**0.00**	**44.25**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/6/2018	5	20	
3	Building Construction	Building Construction	7/7/2018	5/24/2019	5	230	
4	Paving	Paving	5/25/2019	6/21/2019	5	20	
5	Architectural Coating	Architectural Coating	6/22/2019	7/19/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 98,415; Residential Outdoor: 32,805; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	10.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Site Preparation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.5523**	**1.5513**	**8.1037**	**3.3675**	**1.4272**	**4.7947**		**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0879**	**0.0635**	**0.6811**	**1.7200e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**171.1019**	**171.1019**	**5.8400e-003**		**171.2479**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**2.5554**	**1.5513**	**4.1067**	**1.3133**	**1.4272**	**2.7405**	**0.0000**	**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0879**	**0.0635**	**0.6811**	**1.7200e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**171.1019**	**171.1019**	**5.8400e-003**		**171.2479**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082		2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**		**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0133	0.3642	0.1005	7.6000e-004	0.0192	2.7000e-003	0.0219	5.5300e-003	2.5800e-003	8.1100e-003		81.2269	81.2269	6.1100e-003		81.3797
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.0719**	**0.4065**	**0.5546**	**1.9100e-003**	**0.1310**	**3.5900e-003**	**0.1346**	**0.0352**	**3.4000e-003**	**0.0386**		**195.2949**	**195.2949**	**0.0100**		**195.5450**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082	0.0000	2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**	**0.0000**	**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0133	0.3642	0.1005	7.6000e-004	0.0192	2.7000e-003	0.0219	5.5300e-003	2.5800e-003	8.1100e-003		81.2269	81.2269	6.1100e-003		81.3797
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.0719**	**0.4065**	**0.5546**	**1.9100e-003**	**0.1310**	**3.5900e-003**	**0.1346**	**0.0352**	**3.4000e-003**	**0.0386**		**195.2949**	**195.2949**	**0.0100**		**195.5450**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958		2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**		**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0121	0.3435	0.0924	7.6000e-004	0.0192	2.3100e-003	0.0215	5.5300e-003	2.2100e-003	7.7400e-003		80.4949	80.4949	5.8900e-003		80.6422
Worker	0.0533	0.0373	0.4054	1.1100e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		110.4656	110.4656	3.4500e-003		110.5519
Total	**0.0654**	**0.3808**	**0.4978**	**1.8700e-003**	**0.1310**	**3.1800e-003**	**0.1342**	**0.0352**	**3.0100e-003**	**0.0382**		**190.9605**	**190.9605**	**9.3400e-003**		**191.1940**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958	0.0000	2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**	**0.0000**	**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0121	0.3435	0.0924	7.6000e-004	0.0192	2.3100e-003	0.0215	5.5300e-003	2.2100e-003	7.7400e-003		80.4949	80.4949	5.8900e-003		80.6422
Worker	0.0533	0.0373	0.4054	1.1100e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		110.4656	110.4656	3.4500e-003		110.5519
Total	**0.0654**	**0.3808**	**0.4978**	**1.8700e-003**	**0.1310**	**3.1800e-003**	**0.1342**	**0.0352**	**3.0100e-003**	**0.0382**		**190.9605**	**190.9605**	**9.3400e-003**		**191.1940**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.2051					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**15.5604**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0107**	**7.4700e-003**	**0.0811**	**2.2000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**22.0931**	**22.0931**	**6.9000e-004**		**22.1104**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.2051					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**15.5604**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0107**	**7.4700e-003**	**0.0811**	**2.2000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**22.0931**	**22.0931**	**6.9000e-004**		**22.1104**

4.0 Operational Detail - Mobile

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Unmitigated	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Brodiaea Residential Current (Construction)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Brodiaea Residential Current (Construction) - South Coast AQMD Air District, Summer

Project Characteristics -

Land Use -

Construction Phase - Current Proposed Construction Run Only (27 DU)

Off-road Equipment - Current Construction Run Only (27 DU)

Off-road Equipment - Construction Run Only (Current 27 DU)

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips - Current Construction Run Only (27 DU)

Woodstoves - Operations Run Only.

Energy Use - Operations Run Only.

Consumer Products -

Water And Wastewater - Operations Run Only.

Solid Waste - Operations Run Only.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00
tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	22.95	0.00
tblFireplaces	NumberNoFireplace	2.70	0.00

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

tblFireplaces	NumberWood	1.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	31.57	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	1,759,158.69	0.00
tblWater	OutdoorWaterUseRate	1,109,034.83	0.00
tblWoodstoves	NumberCatalytic	1.35	0.00
tblWoodstoves	NumberNoncatalytic	1.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.6597	48.2683	23.3795	0.0402	18.2675	2.5785	20.8460	9.9840	2.3722	12.3563	0.0000	4,051.1072	4,051.1072	1.2003	0.0000	4,081.1152
2019	15.5702	23.0835	18.8462	0.0308	0.1677	1.3834	1.5143	0.0445	1.2988	1.3340	0.0000	2,979.2745	2,979.2745	0.7196	0.0000	2,996.7642
Maximum	**15.5702**	**48.2683**	**23.3795**	**0.0402**	**18.2675**	**2.5785**	**20.8460**	**9.9840**	**2.3722**	**12.3563**	**0.0000**	**4,051.1072**	**4,051.1072**	**1.2003**	**0.0000**	**4,081.1152**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.6597	48.2683	23.3795	0.0402	7.2470	2.5785	9.8256	3.9263	2.3722	6.2986	0.0000	4,051.1072	4,051.1072	1.2003	0.0000	4,081.1152
2019	15.5702	23.0835	18.8462	0.0308	0.1677	1.3834	1.5143	0.0445	1.2988	1.3340	0.0000	2,979.2745	2,979.2745	0.7196	0.0000	2,996.7642
Maximum	**15.5702**	**48.2683**	**23.3795**	**0.0402**	**7.2470**	**2.5785**	**9.8256**	**3.9263**	**2.3722**	**6.2986**	**0.0000**	**4,051.1072**	**4,051.1072**	**1.2003**	**0.0000**	**4,081.1152**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.78**	**0.00**	**49.29**	**60.40**	**0.00**	**44.25**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/6/2018	5	20	
3	Building Construction	Building Construction	7/7/2018	5/24/2019	5	230	
4	Paving	Paving	5/25/2019	6/21/2019	5	20	
5	Architectural Coating	Architectural Coating	6/22/2019	7/19/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 98,415; Residential Outdoor: 32,805; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	10.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Site Preparation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.5523**	**1.5513**	**8.1037**	**3.3675**	**1.4272**	**4.7947**		**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0808**	**0.0580**	**0.7526**	**1.8400e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**182.9028**	**182.9028**	**6.2400e-003**		**183.0587**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**2.5554**	**1.5513**	**4.1067**	**1.3133**	**1.4272**	**2.7405**	**0.0000**	**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0808**	**0.0580**	**0.7526**	**1.8400e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**182.9028**	**182.9028**	**6.2400e-003**		**183.0587**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082		2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**		**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0128	0.3636	0.0905	7.9000e-004	0.0192	2.6600e-003	0.0219	5.5300e-003	2.5400e-003	8.0700e-003		83.5974	83.5974	5.6900e-003		83.7397
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.0667**	**0.4022**	**0.5923**	**2.0200e-003**	**0.1310**	**3.5500e-003**	**0.1345**	**0.0352**	**3.3600e-003**	**0.0385**		**205.5326**	**205.5326**	**9.8500e-003**		**205.7788**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082	0.0000	2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**	**0.0000**	**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0128	0.3636	0.0905	7.9000e-004	0.0192	2.6600e-003	0.0219	5.5300e-003	2.5400e-003	8.0700e-003		83.5974	83.5974	5.6900e-003		83.7397
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.0667**	**0.4022**	**0.5923**	**2.0200e-003**	**0.1310**	**3.5500e-003**	**0.1345**	**0.0352**	**3.3600e-003**	**0.0385**		**205.5326**	**205.5326**	**9.8500e-003**		**205.7788**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958		2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**		**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0116	0.3433	0.0830	7.8000e-004	0.0192	2.2700e-003	0.0215	5.5300e-003	2.1800e-003	7.7000e-003		82.8659	82.8659	5.4800e-003		83.0030
Worker	0.0490	0.0341	0.4493	1.1900e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		118.0989	118.0989	3.6900e-003		118.1912
Total	**0.0605**	**0.3774**	**0.5323**	**1.9700e-003**	**0.1310**	**3.1400e-003**	**0.1341**	**0.0352**	**2.9800e-003**	**0.0382**		**200.9648**	**200.9648**	**9.1700e-003**		**201.1942**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958	0.0000	2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**	**0.0000**	**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0116	0.3433	0.0830	7.8000e-004	0.0192	2.2700e-003	0.0215	5.5300e-003	2.1800e-003	7.7000e-003		82.8659	82.8659	5.4800e-003		83.0030
Worker	0.0490	0.0341	0.4493	1.1900e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		118.0989	118.0989	3.6900e-003		118.1912
Total	**0.0605**	**0.3774**	**0.5323**	**1.9700e-003**	**0.1310**	**3.1400e-003**	**0.1341**	**0.0352**	**2.9800e-003**	**0.0382**		**200.9648**	**200.9648**	**9.1700e-003**		**201.1942**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.2051					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**15.5604**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**9.7900e-003**	**6.8200e-003**	**0.0899**	**2.4000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**23.6198**	**23.6198**	**7.4000e-004**		**23.6383**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.2051					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**15.5604**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**9.7900e-003**	**6.8200e-003**	**0.0899**	**2.4000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**23.6198**	**23.6198**	**7.4000e-004**		**23.6383**

4.0 Operational Detail - Mobile

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Unmitigated	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Brodiaea Residential Current (Construction)

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Project Characteristics -

Land Use -

Construction Phase - Current Proposed Construction Run Only (27 DU)

Off-road Equipment - Current Construction Run Only (27 DU)

Off-road Equipment - Construction Run Only (Current 27 DU)

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips - Current Construction Run Only (27 DU)

Woodstoves - Operations Run Only.

Energy Use - Operations Run Only.

Consumer Products -

Water And Wastewater - Operations Run Only.

Solid Waste - Operations Run Only.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00
tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	22.95	0.00
tblFireplaces	NumberNoFireplace	2.70	0.00

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

tblFireplaces	NumberWood	1.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	31.57	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	1,759,158.69	0.00
tblWater	OutdoorWaterUseRate	1,109,034.83	0.00
tblWoodstoves	NumberCatalytic	1.35	0.00
tblWoodstoves	NumberNoncatalytic	1.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2356	2.1643	1.5074	2.4500e-003	0.1666	0.1299	0.2965	0.0862	0.1214	0.2076	0.0000	219.0092	219.0092	0.0546	0.0000	220.3736
2019	0.3047	1.3785	1.1569	1.8800e-003	8.5500e-003	0.0819	0.0905	2.2900e-003	0.0769	0.0792	0.0000	165.8376	165.8376	0.0398	0.0000	166.8332
Maximum	**0.3047**	**2.1643**	**1.5074**	**2.4500e-003**	**0.1666**	**0.1299**	**0.2965**	**0.0862**	**0.1214**	**0.2076**	**0.0000**	**219.0092**	**219.0092**	**0.0546**	**0.0000**	**220.3736**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2356	2.1643	1.5074	2.4500e-003	0.0715	0.1299	0.2014	0.0354	0.1214	0.1568	0.0000	219.0090	219.0090	0.0546	0.0000	220.3733
2019	0.3047	1.3785	1.1569	1.8800e-003	8.5500e-003	0.0819	0.0905	2.2900e-003	0.0769	0.0792	0.0000	165.8375	165.8375	0.0398	0.0000	166.8330
Maximum	**0.3047**	**2.1643**	**1.5074**	**2.4500e-003**	**0.0715**	**0.1299**	**0.2014**	**0.0354**	**0.1214**	**0.1568**	**0.0000**	**219.0090**	**219.0090**	**0.0546**	**0.0000**	**220.3733**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.28**	**0.00**	**24.57**	**57.44**	**0.00**	**17.73**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-28-2018	8-27-2018	1.0929	1.0929
2	8-28-2018	11-27-2018	0.9382	0.9382
3	11-28-2018	2-27-2019	0.8784	0.8784
4	2-28-2019	5-27-2019	0.8061	0.8061
5	5-28-2019	8-27-2019	0.3304	0.3304
		Highest	1.0929	1.0929

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1994	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1994**	**3.2400e-003**	**0.2798**	**1.0000e-005**	**0.0000**	**1.5300e-003**	**1.5300e-003**	**0.0000**	**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.4548**	**0.4548**	**4.5000e-004**	**0.0000**	**0.4660**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1994	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1994**	**3.2400e-003**	**0.2798**	**1.0000e-005**	**0.0000**	**1.5300e-003**	**1.5300e-003**	**0.0000**	**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.4548**	**0.4548**	**4.5000e-004**	**0.0000**	**0.4660**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/6/2018	5	20	
3	Building Construction	Building Construction	7/7/2018	5/24/2019	5	230	
4	Paving	Paving	5/25/2019	6/21/2019	5	20	
5	Architectural Coating	Architectural Coating	6/22/2019	7/19/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 98,415; Residential Outdoor: 32,805; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	10.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.9000e-004	4.2000e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9473	0.9473	3.0000e-005	0.0000	0.9481
Total	**4.8000e-004**	**3.9000e-004**	**4.2000e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.9473**	**0.9473**	**3.0000e-005**	**0.0000**	**0.9481**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Site Preparation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0352	0.0000	0.0352	0.0194	0.0000	0.0194	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0352**	**0.0129**	**0.0481**	**0.0194**	**0.0119**	**0.0312**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.9000e-004	4.2000e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9473	0.9473	3.0000e-005	0.0000	0.9481
Total	**4.8000e-004**	**3.9000e-004**	**4.2000e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.9473**	**0.9473**	**3.0000e-005**	**0.0000**	**0.9481**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0277	0.3067	0.1658	3.0000e-004		0.0155	0.0155		0.0143	0.0143	0.0000	27.1069	27.1069	8.4400e-003	0.0000	27.3178
Total	**0.0277**	**0.3067**	**0.1658**	**3.0000e-004**	**0.0655**	**0.0155**	**0.0810**	**0.0337**	**0.0143**	**0.0479**	**0.0000**	**27.1069**	**27.1069**	**8.4400e-003**	**0.0000**	**27.3178**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	6.5000e-004	7.0000e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5788	1.5788	5.0000e-005	0.0000	1.5801
Total	**8.0000e-004**	**6.5000e-004**	**7.0000e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5788**	**1.5788**	**5.0000e-005**	**0.0000**	**1.5801**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.3 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0256	0.0000	0.0256	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0277	0.3067	0.1658	3.0000e-004		0.0155	0.0155		0.0143	0.0143	0.0000	27.1068	27.1068	8.4400e-003	0.0000	27.3178
Total	**0.0277**	**0.3067**	**0.1658**	**3.0000e-004**	**0.0256**	**0.0155**	**0.0411**	**0.0131**	**0.0143**	**0.0274**	**0.0000**	**27.1068**	**27.1068**	**8.4400e-003**	**0.0000**	**27.3178**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	6.5000e-004	7.0000e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5788	1.5788	5.0000e-005	0.0000	1.5801
Total	**8.0000e-004**	**6.5000e-004**	**7.0000e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5788**	**1.5788**	**5.0000e-005**	**0.0000**	**1.5801**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1796	1.5894	1.1826	1.8100e-003		0.1012	0.1012		0.0950	0.0950	0.0000	160.6447	160.6447	0.0401	0.0000	161.6466
Total	**0.1796**	**1.5894**	**1.1826**	**1.8100e-003**		**0.1012**	**0.1012**		**0.0950**	**0.0950**	**0.0000**	**160.6447**	**160.6447**	**0.0401**	**0.0000**	**161.6466**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.2000e-004	0.0234	6.0200e-003	5.0000e-005	1.1900e-003	1.7000e-004	1.3600e-003	3.4000e-004	1.6000e-004	5.0000e-004	0.0000	4.7209	4.7209	3.4000e-004	0.0000	4.7293
Worker	3.3500e-003	2.7400e-003	0.0294	7.0000e-005	6.9100e-003	6.0000e-005	6.9700e-003	1.8400e-003	5.0000e-005	1.8900e-003	0.0000	6.6308	6.6308	2.3000e-004	0.0000	6.6364
Total	**4.1700e-003**	**0.0261**	**0.0354**	**1.2000e-004**	**8.1000e-003**	**2.3000e-004**	**8.3300e-003**	**2.1800e-003**	**2.1000e-004**	**2.3900e-003**	**0.0000**	**11.3517**	**11.3517**	**5.7000e-004**	**0.0000**	**11.3657**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1796	1.5894	1.1826	1.8100e-003		0.1012	0.1012		0.0950	0.0950	0.0000	160.6445	160.6445	0.0401	0.0000	161.6464
Total	**0.1796**	**1.5894**	**1.1826**	**1.8100e-003**		**0.1012**	**0.1012**		**0.0950**	**0.0950**	**0.0000**	**160.6445**	**160.6445**	**0.0401**	**0.0000**	**161.6464**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.2000e-004	0.0234	6.0200e-003	5.0000e-005	1.1900e-003	1.7000e-004	1.3600e-003	3.4000e-004	1.6000e-004	5.0000e-004	0.0000	4.7209	4.7209	3.4000e-004	0.0000	4.7293
Worker	3.3500e-003	2.7400e-003	0.0294	7.0000e-005	6.9100e-003	6.0000e-005	6.9700e-003	1.8400e-003	5.0000e-005	1.8900e-003	0.0000	6.6308	6.6308	2.3000e-004	0.0000	6.6364
Total	**4.1700e-003**	**0.0261**	**0.0354**	**1.2000e-004**	**8.1000e-003**	**2.3000e-004**	**8.3300e-003**	**2.1800e-003**	**2.1000e-004**	**2.3900e-003**	**0.0000**	**11.3517**	**11.3517**	**5.7000e-004**	**0.0000**	**11.3657**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1306	1.1807	0.9523	1.5000e-003		0.0718	0.0718		0.0674	0.0674	0.0000	131.0629	131.0629	0.0326	0.0000	131.8771
Total	**0.1306**	**1.1807**	**0.9523**	**1.5000e-003**		**0.0718**	**0.0718**		**0.0674**	**0.0674**	**0.0000**	**131.0629**	**131.0629**	**0.0326**	**0.0000**	**131.8771**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1000e-004	0.0182	4.5600e-003	4.0000e-005	9.8000e-004	1.2000e-004	1.1000e-003	2.8000e-004	1.1000e-004	4.0000e-004	0.0000	3.8621	3.8621	2.7000e-004	0.0000	3.8688
Worker	2.5100e-003	1.9900e-003	0.0217	6.0000e-005	5.7100e-003	5.0000e-005	5.7500e-003	1.5200e-003	4.0000e-005	1.5600e-003	0.0000	5.3003	5.3003	1.7000e-004	0.0000	5.3045
Total	**3.1200e-003**	**0.0202**	**0.0262**	**1.0000e-004**	**6.6900e-003**	**1.7000e-004**	**6.8500e-003**	**1.8000e-003**	**1.5000e-004**	**1.9600e-003**	**0.0000**	**9.1624**	**9.1624**	**4.4000e-004**	**0.0000**	**9.1733**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1306	1.1807	0.9523	1.5000e-003		0.0718	0.0718		0.0674	0.0674	0.0000	131.0627	131.0627	0.0326	0.0000	131.8770
Total	**0.1306**	**1.1807**	**0.9523**	**1.5000e-003**		**0.0718**	**0.0718**		**0.0674**	**0.0674**	**0.0000**	**131.0627**	**131.0627**	**0.0326**	**0.0000**	**131.8770**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1000e-004	0.0182	4.5600e-003	4.0000e-005	9.8000e-004	1.2000e-004	1.1000e-003	2.8000e-004	1.1000e-004	4.0000e-004	0.0000	3.8621	3.8621	2.7000e-004	0.0000	3.8688
Worker	2.5100e-003	1.9900e-003	0.0217	6.0000e-005	5.7100e-003	5.0000e-005	5.7500e-003	1.5200e-003	4.0000e-005	1.5600e-003	0.0000	5.3003	5.3003	1.7000e-004	0.0000	5.3045
Total	**3.1200e-003**	**0.0202**	**0.0262**	**1.0000e-004**	**6.6900e-003**	**1.7000e-004**	**6.8500e-003**	**1.8000e-003**	**1.5000e-004**	**1.9600e-003**	**0.0000**	**9.1624**	**9.1624**	**4.4000e-004**	**0.0000**	**9.1733**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.8000e-004	6.2500e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5289	1.5289	5.0000e-005	0.0000	1.5301
Total	**7.2000e-004**	**5.8000e-004**	**6.2500e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5289**	**1.5289**	**5.0000e-005**	**0.0000**	**1.5301**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.8000e-004	6.2500e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5289	1.5289	5.0000e-005	0.0000	1.5301
Total	**7.2000e-004**	**5.8000e-004**	**6.2500e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5289**	**1.5289**	**5.0000e-005**	**0.0000**	**1.5301**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1521					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5500e-003	0.0245	0.0246	4.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	3.4043	3.4043	2.9000e-004	0.0000	3.4115
Total	**0.1556**	**0.0245**	**0.0246**	**4.0000e-005**		**1.7200e-003**	**1.7200e-003**		**1.7200e-003**	**1.7200e-003**	**0.0000**	**3.4043**	**3.4043**	**2.9000e-004**	**0.0000**	**3.4115**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	8.0000e-005	8.3000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2039	0.2039	1.0000e-005	0.0000	0.2040
Total	**1.0000e-004**	**8.0000e-005**	**8.3000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2039**	**0.2039**	**1.0000e-005**	**0.0000**	**0.2040**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1521					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5500e-003	0.0245	0.0246	4.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	3.4043	3.4043	2.9000e-004	0.0000	3.4115
Total	**0.1556**	**0.0245**	**0.0246**	**4.0000e-005**		**1.7200e-003**	**1.7200e-003**		**1.7200e-003**	**1.7200e-003**	**0.0000**	**3.4043**	**3.4043**	**2.9000e-004**	**0.0000**	**3.4115**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	8.0000e-005	8.3000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2039	0.2039	1.0000e-005	0.0000	0.2040
Total	**1.0000e-004**	**8.0000e-005**	**8.3000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2039**	**0.2039**	**1.0000e-005**	**0.0000**	**0.2040**

4.0 Operational Detail - Mobile

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1994	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Unmitigated	0.1994	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1756					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.5700e-003	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Total	**0.1994**	**3.2400e-003**	**0.2798**	**1.0000e-005**		**1.5300e-003**	**1.5300e-003**		**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.4548**	**0.4548**	**4.5000e-004**	**0.0000**	**0.4660**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1756					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.5700e-003	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Total	**0.1994**	**3.2400e-003**	**0.2798**	**1.0000e-005**		**1.5300e-003**	**1.5300e-003**		**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.4548**	**0.4548**	**4.5000e-004**	**0.0000**	**0.4660**

7.0 Water Detail

7.1 Mitigation Measures Water

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT C:

CALEEMOD AIR QUALITY PROPOSED PROJECT (OPERATIONAL) EMISSIONS MODEL OUTPUTS

Brodiaea Residential Proposed (Operation)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Operations Run Only

Off-road Equipment - Operations Run Only

Trips and VMT - Operations Run Only

Vehicle Trips - Trip Rates from Trip Generation by Urban Crossroads 2018

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Energy	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Mobile	0.9840	5.2794	13.0028	0.0422	3.3844	0.0498	3.4342	0.9057	0.0469	0.9525		4,281.0811	4,281.0811	0.2340		4,286.9310
Total	**15.2815**	**6.6628**	**40.9560**	**0.1057**	**3.3844**	**3.6908**	**7.0751**	**0.9057**	**3.6878**	**4.5935**	**440.2452**	**5,597.5663**	**6,037.8115**	**1.5626**	**0.0384**	**6,088.3140**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Energy	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Mobile	0.9840	5.2794	13.0028	0.0422	3.3844	0.0498	3.4342	0.9057	0.0469	0.9525		4,281.0811	4,281.0811	0.2340		4,286.9310
Total	**15.2815**	**6.6628**	**40.9560**	**0.1057**	**3.3844**	**3.6908**	**7.0751**	**0.9057**	**3.6878**	**4.5935**	**440.2452**	**5,597.5663**	**6,037.8115**	**1.5626**	**0.0384**	**6,088.3140**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9840	5.2794	13.0028	0.0422	3.3844	0.0498	3.4342	0.9057	0.0469	0.9525		4,281.0811	4,281.0811	0.2340		4,286.9310
Unmitigated	0.9840	5.2794	13.0028	0.0422	3.3844	0.0498	3.4342	0.9057	0.0469	0.9525		4,281.0811	4,281.0811	0.2340		4,286.9310

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	443.68	465.77	405.14	1,508,092	1,508,092
Total	443.68	465.77	405.14	1,508,092	1,508,092

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
NaturalGas Unmitigated	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3939.78	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Total		**0.0425**	**0.3631**	**0.1545**	**2.3200e-003**		**0.0294**	**0.0294**		**0.0294**	**0.0294**		**463.5033**	**463.5033**	**8.8800e-003**	**8.5000e-003**	**466.2577**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3.93978	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Total		**0.0425**	**0.3631**	**0.1545**	**2.3200e-003**		**0.0294**	**0.0294**		**0.0294**	**0.0294**		**463.5033**	**463.5033**	**8.8800e-003**	**8.5000e-003**	**466.2577**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Unmitigated	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.3157	0.9752	23.9019	0.0610		3.5903	3.5903		3.5903	3.5903	440.2452	846.0000	1,286.2452	1.3129	0.0299	1,327.9720
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**14.2551**	**1.0203**	**27.7987**	**0.0612**		**3.6116**	**3.6116**		**3.6116**	**3.6116**	**440.2452**	**852.9820**	**1,293.2271**	**1.3198**	**0.0299**	**1,335.1253**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.3157	0.9752	23.9019	0.0610		3.5903	3.5903		3.5903	3.5903	440.2452	846.0000	1,286.2452	1.3129	0.0299	1,327.9720
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**14.2551**	**1.0203**	**27.7987**	**0.0612**		**3.6116**	**3.6116**		**3.6116**	**3.6116**	**440.2452**	**852.9820**	**1,293.2271**	**1.3198**	**0.0299**	**1,335.1253**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Brodiaea Residential Proposed (Operation)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Operations Run Only

Off-road Equipment - Operations Run Only

Trips and VMT - Operations Run Only

Vehicle Trips - Trip Rates from Trip Generation by Urban Crossroads 2018

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Energy	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Mobile	1.0301	5.1489	13.8717	0.0446	3.3844	0.0495	3.4338	0.9057	0.0466	0.9522		4,523.0086	4,523.0086	0.2351		4,528.8854
Total	**15.3277**	**6.5323**	**41.8249**	**0.1081**	**3.3844**	**3.6904**	**7.0748**	**0.9057**	**3.6875**	**4.5932**	**440.2452**	**5,839.4939**	**6,279.7390**	**1.5637**	**0.0384**	**6,330.2684**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Energy	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Mobile	1.0301	5.1489	13.8717	0.0446	3.3844	0.0495	3.4338	0.9057	0.0466	0.9522		4,523.0086	4,523.0086	0.2351		4,528.8854
Total	**15.3277**	**6.5323**	**41.8249**	**0.1081**	**3.3844**	**3.6904**	**7.0748**	**0.9057**	**3.6875**	**4.5932**	**440.2452**	**5,839.4939**	**6,279.7390**	**1.5637**	**0.0384**	**6,330.2684**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0301	5.1489	13.8717	0.0446	3.3844	0.0495	3.4338	0.9057	0.0466	0.9522		4,523.0086	4,523.0086	0.2351		4,528.8854
Unmitigated	1.0301	5.1489	13.8717	0.0446	3.3844	0.0495	3.4338	0.9057	0.0466	0.9522		4,523.0086	4,523.0086	0.2351		4,528.8854

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	443.68	465.77	405.14	1,508,092	1,508,092
Total	443.68	465.77	405.14	1,508,092	1,508,092

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
NaturalGas Unmitigated	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3939.78	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Total		**0.0425**	**0.3631**	**0.1545**	**2.3200e-003**		**0.0294**	**0.0294**		**0.0294**	**0.0294**		**463.5033**	**463.5033**	**8.8800e-003**	**8.5000e-003**	**466.2577**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3.93978	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Total		**0.0425**	**0.3631**	**0.1545**	**2.3200e-003**		**0.0294**	**0.0294**		**0.0294**	**0.0294**		**463.5033**	**463.5033**	**8.8800e-003**	**8.5000e-003**	**466.2577**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Unmitigated	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.3157	0.9752	23.9019	0.0610		3.5903	3.5903		3.5903	3.5903	440.2452	846.0000	1,286.2452	1.3129	0.0299	1,327.9720
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**14.2551**	**1.0203**	**27.7987**	**0.0612**		**3.6116**	**3.6116**		**3.6116**	**3.6116**	**440.2452**	**852.9820**	**1,293.2271**	**1.3198**	**0.0299**	**1,335.1253**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.3157	0.9752	23.9019	0.0610		3.5903	3.5903		3.5903	3.5903	440.2452	846.0000	1,286.2452	1.3129	0.0299	1,327.9720
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**14.2551**	**1.0203**	**27.7987**	**0.0612**		**3.6116**	**3.6116**		**3.6116**	**3.6116**	**440.2452**	**852.9820**	**1,293.2271**	**1.3198**	**0.0299**	**1,335.1253**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT D:

CALEEMOD AIR QUALITY CURRENTLY ADOPTED LAND USE (OPERATIONAL) MISSIONS MODEL OUTPUTS

Brodieaea Residential Current (Operations)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Current Operations Run Only

Construction Phase - Current Operations Run Only (27 DU)

Off-road Equipment - Operations Run Only (27 DU)

Vehicle Trips - Trip Rates from Trip Generator by Urban Crossroads 2018

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.8069	38.3860	22.9852	0.0405	0.1677	1.9399	2.1076	0.0445	1.8061	1.8505	0.0000	4,042.8684	4,042.8684	1.0726	0.0000	4,069.6822
Maximum	**3.8069**	**38.3860**	**22.9852**	**0.0405**	**0.1677**	**1.9399**	**2.1076**	**0.0445**	**1.8061**	**1.8505**	**0.0000**	**4,042.8684**	**4,042.8684**	**1.0726**	**0.0000**	**4,069.6822**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.8069	38.3860	22.9852	0.0405	0.1677	1.9399	2.1076	0.0445	1.8061	1.8505	0.0000	4,042.8684	4,042.8684	1.0726	0.0000	4,069.6822
Maximum	**3.8069**	**38.3860**	**22.9852**	**0.0405**	**0.1677**	**1.9399**	**2.1076**	**0.0445**	**1.8061**	**1.8505**	**0.0000**	**4,042.8684**	**4,042.8684**	**1.0726**	**0.0000**	**4,069.6822**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Energy	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Mobile	0.5653	3.0329	7.4697	0.0242	1.9442	0.0286	1.9728	0.5203	0.0269	0.5472		2,459.3444	2,459.3444	0.1344		2,462.7050
Total	**8.7788**	**3.8276**	**23.5279**	**0.0607**	**1.9442**	**2.1202**	**4.0644**	**0.5203**	**2.1185**	**2.6388**	**252.9068**	**3,215.6232**	**3,468.5300**	**0.8977**	**0.0221**	**3,497.5421**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Energy	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Mobile	0.5653	3.0329	7.4697	0.0242	1.9442	0.0286	1.9728	0.5203	0.0269	0.5472		2,459.3444	2,459.3444	0.1344		2,462.7050
Total	**8.7788**	**3.8276**	**23.5279**	**0.0607**	**1.9442**	**2.1202**	**4.0644**	**0.5203**	**2.1185**	**2.6388**	**252.9068**	**3,215.6232**	**3,468.5300**	**0.8977**	**0.0221**	**3,497.5421**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**		**1.9386**	**1.9386**		**1.8048**	**1.8048**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0879**	**0.0635**	**0.6811**	**1.7200e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**171.1019**	**171.1019**	**5.8400e-003**		**171.2479**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**		**1.9386**	**1.9386**		**1.8048**	**1.8048**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0879**	**0.0635**	**0.6811**	**1.7200e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**171.1019**	**171.1019**	**5.8400e-003**		**171.2479**

4.0 Operational Detail - Mobile

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5653	3.0329	7.4697	0.0242	1.9442	0.0286	1.9728	0.5203	0.0269	0.5472		2,459.3444	2,459.3444	0.1344		2,462.7050
Unmitigated	0.5653	3.0329	7.4697	0.0242	1.9442	0.0286	1.9728	0.5203	0.0269	0.5472		2,459.3444	2,459.3444	0.1344		2,462.7050

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	257.04	267.57	232.74	871,623	871,623
Total	257.04	267.57	232.74	871,623	871,623

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
NaturalGas Unmitigated	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2263.28	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Total		**0.0244**	**0.2086**	**0.0888**	**1.3300e-003**		**0.0169**	**0.0169**		**0.0169**	**0.0169**		**266.2679**	**266.2679**	**5.1000e-003**	**4.8800e-003**	**267.8502**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2.26328	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Total		**0.0244**	**0.2086**	**0.0888**	**1.3300e-003**		**0.0169**	**0.0169**		**0.0169**	**0.0169**		**266.2679**	**266.2679**	**5.1000e-003**	**4.8800e-003**	**267.8502**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Unmitigated	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.0750	0.5602	13.7309	0.0350		2.0625	2.0625		2.0625	2.0625	252.9068	486.0000	738.9068	0.7542	0.0172	762.8775
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**8.1891**	**0.5861**	**15.9695**	**0.0352**		**2.0748**	**2.0748**		**2.0748**	**2.0748**	**252.9068**	**490.0109**	**742.9177**	**0.7582**	**0.0172**	**766.9869**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.0750	0.5602	13.7309	0.0350		2.0625	2.0625		2.0625	2.0625	252.9068	486.0000	738.9068	0.7542	0.0172	762.8775
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**8.1891**	**0.5861**	**15.9695**	**0.0352**		**2.0748**	**2.0748**		**2.0748**	**2.0748**	**252.9068**	**490.0109**	**742.9177**	**0.7582**	**0.0172**	**766.9869**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Brodieaea Residential Current (Operations)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Current Operations Run Only

Construction Phase - Current Operations Run Only (27 DU)

Off-road Equipment - Operations Run Only (27 DU)

Vehicle Trips - Trip Rates from Trip Generator by Urban Crossroads 2018

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.7998	38.3805	23.0567	0.0407	0.1677	1.9399	2.1076	0.0445	1.8061	1.8505	0.0000	4,054.6693	4,054.6693	1.0730	0.0000	4,081.4931
Maximum	**3.7998**	**38.3805**	**23.0567**	**0.0407**	**0.1677**	**1.9399**	**2.1076**	**0.0445**	**1.8061**	**1.8505**	**0.0000**	**4,054.6693**	**4,054.6693**	**1.0730**	**0.0000**	**4,081.4931**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.7998	38.3805	23.0567	0.0407	0.1677	1.9399	2.1076	0.0445	1.8061	1.8505	0.0000	4,054.6693	4,054.6693	1.0730	0.0000	4,081.4930
Maximum	**3.7998**	**38.3805**	**23.0567**	**0.0407**	**0.1677**	**1.9399**	**2.1076**	**0.0445**	**1.8061**	**1.8505**	**0.0000**	**4,054.6693**	**4,054.6693**	**1.0730**	**0.0000**	**4,081.4930**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Brodieaea Residential Current (Operations) - South Coast AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Energy	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Mobile	0.5918	2.9579	7.9688	0.0256	1.9442	0.0284	1.9726	0.5203	0.0267	0.5470		2,598.3241	2,598.3241	0.1350		2,601.7001
Total	**8.8053**	**3.7526**	**24.0271**	**0.0621**	**1.9442**	**2.1200**	**4.0642**	**0.5203**	**2.1184**	**2.6386**	**252.9068**	**3,354.6028**	**3,607.5096**	**0.8983**	**0.0221**	**3,636.5372**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Energy	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Mobile	0.5918	2.9579	7.9688	0.0256	1.9442	0.0284	1.9726	0.5203	0.0267	0.5470		2,598.3241	2,598.3241	0.1350		2,601.7001
Total	**8.8053**	**3.7526**	**24.0271**	**0.0621**	**1.9442**	**2.1200**	**4.0642**	**0.5203**	**2.1184**	**2.6386**	**252.9068**	**3,354.6028**	**3,607.5096**	**0.8983**	**0.0221**	**3,636.5372**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**		**1.9386**	**1.9386**		**1.8048**	**1.8048**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0808**	**0.0580**	**0.7526**	**1.8400e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**182.9028**	**182.9028**	**6.2400e-003**		**183.0587**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**		**1.9386**	**1.9386**		**1.8048**	**1.8048**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0808**	**0.0580**	**0.7526**	**1.8400e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**182.9028**	**182.9028**	**6.2400e-003**		**183.0587**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5918	2.9579	7.9688	0.0256	1.9442	0.0284	1.9726	0.5203	0.0267	0.5470		2,598.3241	2,598.3241	0.1350		2,601.7001
Unmitigated	0.5918	2.9579	7.9688	0.0256	1.9442	0.0284	1.9726	0.5203	0.0267	0.5470		2,598.3241	2,598.3241	0.1350		2,601.7001

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	257.04	267.57	232.74	871,623	871,623
Total	257.04	267.57	232.74	871,623	871,623

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
NaturalGas Unmitigated	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2263.28	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Total		**0.0244**	**0.2086**	**0.0888**	**1.3300e-003**		**0.0169**	**0.0169**		**0.0169**	**0.0169**		**266.2679**	**266.2679**	**5.1000e-003**	**4.8800e-003**	**267.8502**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2.26328	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Total		**0.0244**	**0.2086**	**0.0888**	**1.3300e-003**		**0.0169**	**0.0169**		**0.0169**	**0.0169**		**266.2679**	**266.2679**	**5.1000e-003**	**4.8800e-003**	**267.8502**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Unmitigated	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.0750	0.5602	13.7309	0.0350		2.0625	2.0625		2.0625	2.0625	252.9068	486.0000	738.9068	0.7542	0.0172	762.8775
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**8.1891**	**0.5861**	**15.9695**	**0.0352**		**2.0748**	**2.0748**		**2.0748**	**2.0748**	**252.9068**	**490.0109**	**742.9177**	**0.7582**	**0.0172**	**766.9869**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.0750	0.5602	13.7309	0.0350		2.0625	2.0625		2.0625	2.0625	252.9068	486.0000	738.9068	0.7542	0.0172	762.8775
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**8.1891**	**0.5861**	**15.9695**	**0.0352**		**2.0748**	**2.0748**		**2.0748**	**2.0748**	**252.9068**	**490.0109**	**742.9177**	**0.7582**	**0.0172**	**766.9869**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT E:

CALEEMOD PROPOSED PROJECT GREENHOUSE GAS EMISSIONS MODEL OUTPUTS

Brodiaea Residential Proposed (Operation)

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Operations Run Only

Off-road Equipment - Operations Run Only

Trips and VMT - Operations Run Only

Vehicle Trips - Trip Rates from Trip Generation by Urban Crossroads 2018

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5010	0.0178	0.7859	7.9000e-004		0.0476	0.0476		0.0476	0.0476	4.9923	10.3852	15.3775	0.0157	3.4000e-004	15.8701
Energy	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	207.2693	207.2693	6.8600e-003	2.5200e-003	208.1923
Mobile	0.1661	0.9272	2.2783	7.3700e-003	0.5731	8.5400e-003	0.5816	0.1536	8.0400e-003	0.1616	0.0000	679.5040	679.5040	0.0364	0.0000	680.4147
Waste						0.0000	0.0000		0.0000	0.0000	11.1523	0.0000	11.1523	0.6591	0.0000	27.6294
Water						0.0000	0.0000		0.0000	0.0000	0.9715	19.5384	20.5099	0.1006	2.5200e-003	23.7765
Total	**0.6749**	**1.0113**	**3.0923**	**8.5800e-003**	**0.5731**	**0.0615**	**0.6345**	**0.1536**	**0.0610**	**0.2145**	**17.1161**	**916.6969**	**933.8130**	**0.8186**	**5.3800e-003**	**955.8830**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5010	0.0178	0.7859	7.9000e-004		0.0476	0.0476		0.0476	0.0476	4.9923	10.3852	15.3775	0.0157	3.4000e-004	15.8701
Energy	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	207.2693	207.2693	6.8600e-003	2.5200e-003	208.1923
Mobile	0.1661	0.9272	2.2783	7.3700e-003	0.5731	8.5400e-003	0.5816	0.1536	8.0400e-003	0.1616	0.0000	679.5040	679.5040	0.0364	0.0000	680.4147
Waste						0.0000	0.0000		0.0000	0.0000	11.1523	0.0000	11.1523	0.6591	0.0000	27.6294
Water						0.0000	0.0000		0.0000	0.0000	0.9715	19.5384	20.5099	0.1006	2.5200e-003	23.7765
Total	**0.6749**	**1.0113**	**3.0923**	**8.5800e-003**	**0.5731**	**0.0615**	**0.6345**	**0.1536**	**0.0610**	**0.2145**	**17.1161**	**916.6969**	**933.8130**	**0.8186**	**5.3800e-003**	**955.8830**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1661	0.9272	2.2783	7.3700e-003	0.5731	8.5400e-003	0.5816	0.1536	8.0400e-003	0.1616	0.0000	679.5040	679.5040	0.0364	0.0000	680.4147
Unmitigated	0.1661	0.9272	2.2783	7.3700e-003	0.5731	8.5400e-003	0.5816	0.1536	8.0400e-003	0.1616	0.0000	679.5040	679.5040	0.0364	0.0000	680.4147

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	443.68	465.77	405.14	1,508,092	1,508,092
Total	443.68	465.77	405.14	1,508,092	1,508,092

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	130.5311	130.5311	5.3900e-003	1.1100e-003	130.9981
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	130.5311	130.5311	5.3900e-003	1.1100e-003	130.9981
NaturalGas Mitigated	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	76.7382	76.7382	1.4700e-003	1.4100e-003	77.1942
NaturalGas Unmitigated	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	76.7382	76.7382	1.4700e-003	1.4100e-003	77.1942

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.43802e+006	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	76.7382	76.7382	1.4700e-003	1.4100e-003	77.1942
Total		**7.7500e-003**	**0.0663**	**0.0282**	**4.2000e-004**		**5.3600e-003**	**5.3600e-003**		**5.3600e-003**	**5.3600e-003**	**0.0000**	**76.7382**	**76.7382**	**1.4700e-003**	**1.4100e-003**	**77.1942**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.43802e+006	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	76.7382	76.7382	1.4700e-003	1.4100e-003	77.1942
Total		**7.7500e-003**	**0.0663**	**0.0282**	**4.2000e-004**		**5.3600e-003**	**5.3600e-003**		**5.3600e-003**	**5.3600e-003**	**0.0000**	**76.7382**	**76.7382**	**1.4700e-003**	**1.4100e-003**	**77.1942**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	409675	130.5311	5.3900e-003	1.1100e-003	130.9981
Total		**130.5311**	**5.3900e-003**	**1.1100e-003**	**130.9981**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	409675	130.5311	5.3900e-003	1.1100e-003	130.9981
Total		**130.5311**	**5.3900e-003**	**1.1100e-003**	**130.9981**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5010	0.0178	0.7859	7.9000e-004		0.0476	0.0476		0.0476	0.0476	4.9923	10.3852	15.3775	0.0157	3.4000e-004	15.8701
Unmitigated	0.5010	0.0178	0.7859	7.9000e-004		0.0476	0.0476		0.0476	0.0476	4.9923	10.3852	15.3775	0.0157	3.4000e-004	15.8701

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0265					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1540	0.0122	0.2988	7.6000e-004		0.0449	0.0449		0.0449	0.0449	4.9923	9.5935	14.5858	0.0149	3.4000e-004	15.0590
Landscaping	0.0149	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Total	**0.5010**	**0.0178**	**0.7859**	**7.9000e-004**		**0.0476**	**0.0476**		**0.0476**	**0.0476**	**4.9923**	**10.3852**	**15.3775**	**0.0157**	**3.4000e-004**	**15.8701**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0265					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1540	0.0122	0.2988	7.6000e-004		0.0449	0.0449		0.0449	0.0449	4.9923	9.5935	14.5858	0.0149	3.4000e-004	15.0590
Landscaping	0.0149	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Total	**0.5010**	**0.0178**	**0.7859**	**7.9000e-004**		**0.0476**	**0.0476**		**0.0476**	**0.0476**	**4.9923**	**10.3852**	**15.3775**	**0.0157**	**3.4000e-004**	**15.8701**

7.0 Water Detail

7.1 Mitigation Measures Water

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	20.5099	0.1006	2.5200e-003	23.7765
Unmitigated	20.5099	0.1006	2.5200e-003	23.7765

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	3.06224 / 1.93054	20.5099	0.1006	2.5200e-003	23.7765
Total		**20.5099**	**0.1006**	**2.5200e-003**	**23.7765**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	3.06224 / 1.93054	20.5099	0.1006	2.5200e-003	23.7765
Total		**20.5099**	**0.1006**	**2.5200e-003**	**23.7765**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	11.1523	0.6591	0.0000	27.6294
Unmitigated	11.1523	0.6591	0.0000	27.6294

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	54.94	11.1523	0.6591	0.0000	27.6294
Total		**11.1523**	**0.6591**	**0.0000**	**27.6294**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	54.94	11.1523	0.6591	0.0000	27.6294
Total		**11.1523**	**0.6591**	**0.0000**	**27.6294**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT F:

CALEEMOD CURRENTLY ADOPTED LAND USE GREENHOUSE GAS EMISSIONS MODEL OUTPUTS

Brodieaea Residential Current (Operations)

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Current Operations Run Only

Construction Phase - Current Operations Run Only (27 DU)

Off-road Equipment - Operations Run Only (27 DU)

Vehicle Trips - Trip Rates from Trip Generator by Urban Crossroads 2018

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	1.9000e-003	0.0192	0.0115	2.0000e-005	8.0000e-005	9.7000e-004	1.0500e-003	2.0000e-005	9.0000e-004	9.2000e-004	0.0000	1.8351	1.8351	4.9000e-004	0.0000	1.8473
Maximum	**1.9000e-003**	**0.0192**	**0.0115**	**2.0000e-005**	**8.0000e-005**	**9.7000e-004**	**1.0500e-003**	**2.0000e-005**	**9.0000e-004**	**9.2000e-004**	**0.0000**	**1.8351**	**1.8351**	**4.9000e-004**	**0.0000**	**1.8473**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	1.9000e-003	0.0192	0.0115	2.0000e-005	8.0000e-005	9.7000e-004	1.0500e-003	2.0000e-005	9.0000e-004	9.2000e-004	0.0000	1.8351	1.8351	4.9000e-004	0.0000	1.8473
Maximum	**1.9000e-003**	**0.0192**	**0.0115**	**2.0000e-005**	**8.0000e-005**	**9.7000e-004**	**1.0500e-003**	**2.0000e-005**	**9.0000e-004**	**9.2000e-004**	**0.0000**	**1.8351**	**1.8351**	**4.9000e-004**	**0.0000**	**1.8473**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**5-28-2018**	**8-27-2018**	0.0151	0.0151
		Highest	0.0151	0.0151

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2878	0.0102	0.4515	4.5000e-004		0.0273	0.0273		0.0273	0.0273	2.8679	5.9660	8.8339	9.0000e-003	1.9000e-004	9.1169
Energy	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	119.0696	119.0696	3.9400e-003	1.4500e-003	119.5998
Mobile	0.0960	0.5359	1.3168	4.2600e-003	0.3312	4.9400e-003	0.3361	0.0888	4.6500e-003	0.0934	0.0000	392.7289	392.7289	0.0211	0.0000	393.2552
Waste						0.0000	0.0000		0.0000	0.0000	6.4084	0.0000	6.4084	0.3787	0.0000	15.8766
Water						0.0000	0.0000		0.0000	0.0000	0.5581	11.2242	11.7823	0.0578	1.4500e-003	13.6589
Total	**0.3883**	**0.5842**	**1.7844**	**4.9500e-003**	**0.3312**	**0.0353**	**0.3665**	**0.0888**	**0.0350**	**0.1238**	**9.8344**	**528.9886**	**538.8231**	**0.4705**	**3.0900e-003**	**551.5074**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2878	0.0102	0.4515	4.5000e-004		0.0273	0.0273		0.0273	0.0273	2.8679	5.9660	8.8339	9.0000e-003	1.9000e-004	9.1169
Energy	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	119.0696	119.0696	3.9400e-003	1.4500e-003	119.5998
Mobile	0.0960	0.5359	1.3168	4.2600e-003	0.3312	4.9400e-003	0.3361	0.0888	4.6500e-003	0.0934	0.0000	392.7289	392.7289	0.0211	0.0000	393.2552
Waste						0.0000	0.0000		0.0000	0.0000	6.4084	0.0000	6.4084	0.3787	0.0000	15.8766
Water						0.0000	0.0000		0.0000	0.0000	0.5581	11.2242	11.7823	0.0578	1.4500e-003	13.6589
Total	**0.3883**	**0.5842**	**1.7844**	**4.9500e-003**	**0.3312**	**0.0353**	**0.3665**	**0.0888**	**0.0350**	**0.1238**	**9.8344**	**528.9886**	**538.8231**	**0.4705**	**3.0900e-003**	**551.5074**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8600e-003	0.0192	0.0112	2.0000e-005		9.7000e-004	9.7000e-004		9.0000e-004	9.0000e-004	0.0000	1.7562	1.7562	4.8000e-004	0.0000	1.7683
Total	**1.8600e-003**	**0.0192**	**0.0112**	**2.0000e-005**		**9.7000e-004**	**9.7000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**1.7562**	**1.7562**	**4.8000e-004**	**0.0000**	**1.7683**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.5000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0789	0.0789	0.0000	0.0000	0.0790
Total	**4.0000e-005**	**3.0000e-005**	**3.5000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0789**	**0.0789**	**0.0000**	**0.0000**	**0.0790**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8600e-003	0.0192	0.0112	2.0000e-005		9.7000e-004	9.7000e-004		9.0000e-004	9.0000e-004	0.0000	1.7562	1.7562	4.8000e-004	0.0000	1.7683
Total	**1.8600e-003**	**0.0192**	**0.0112**	**2.0000e-005**		**9.7000e-004**	**9.7000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**1.7562**	**1.7562**	**4.8000e-004**	**0.0000**	**1.7683**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.5000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0789	0.0789	0.0000	0.0000	0.0790
Total	**4.0000e-005**	**3.0000e-005**	**3.5000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0789**	**0.0789**	**0.0000**	**0.0000**	**0.0790**

4.0 Operational Detail - Mobile

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0960	0.5359	1.3168	4.2600e-003	0.3312	4.9400e-003	0.3361	0.0888	4.6500e-003	0.0934	0.0000	392.7289	392.7289	0.0211	0.0000	393.2552
Unmitigated	0.0960	0.5359	1.3168	4.2600e-003	0.3312	4.9400e-003	0.3361	0.0888	4.6500e-003	0.0934	0.0000	392.7289	392.7289	0.0211	0.0000	393.2552

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	257.04	267.57	232.74	871,623	871,623
Total	257.04	267.57	232.74	871,623	871,623

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	74.9860	74.9860	3.1000e-003	6.4000e-004	75.2542
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	74.9860	74.9860	3.1000e-003	6.4000e-004	75.2542
NaturalGas Mitigated	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	44.0836	44.0836	8.4000e-004	8.1000e-004	44.3456
NaturalGas Unmitigated	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	44.0836	44.0836	8.4000e-004	8.1000e-004	44.3456

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	826096	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	44.0836	44.0836	8.4000e-004	8.1000e-004	44.3456
Total		**4.4500e-003**	**0.0381**	**0.0162**	**2.4000e-004**		**3.0800e-003**	**3.0800e-003**		**3.0800e-003**	**3.0800e-003**	**0.0000**	**44.0836**	**44.0836**	**8.4000e-004**	**8.1000e-004**	**44.3456**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	826096	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	44.0836	44.0836	8.4000e-004	8.1000e-004	44.3456
Total		**4.4500e-003**	**0.0381**	**0.0162**	**2.4000e-004**		**3.0800e-003**	**3.0800e-003**		**3.0800e-003**	**3.0800e-003**	**0.0000**	**44.0836**	**44.0836**	**8.4000e-004**	**8.1000e-004**	**44.3456**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	235345	74.9860	3.1000e-003	6.4000e-004	75.2542
Total		**74.9860**	**3.1000e-003**	**6.4000e-004**	**75.2542**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	235345	74.9860	3.1000e-003	6.4000e-004	75.2542
Total		**74.9860**	**3.1000e-003**	**6.4000e-004**	**75.2542**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2878	0.0102	0.4515	4.5000e-004		0.0273	0.0273		0.0273	0.0273	2.8679	5.9660	8.8339	9.0000e-003	1.9000e-004	9.1169
Unmitigated	0.2878	0.0102	0.4515	4.5000e-004		0.0273	0.0273		0.0273	0.0273	2.8679	5.9660	8.8339	9.0000e-003	1.9000e-004	9.1169

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1756					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0884	7.0000e-003	0.1716	4.4000e-004		0.0258	0.0258		0.0258	0.0258	2.8679	5.5112	8.3791	8.5500e-003	1.9000e-004	8.6509
Landscaping	8.5700e-003	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Total	**0.2878**	**0.0102**	**0.4515**	**4.5000e-004**		**0.0273**	**0.0273**		**0.0273**	**0.0273**	**2.8679**	**5.9660**	**8.8339**	**9.0000e-003**	**1.9000e-004**	**9.1169**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1756					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0884	7.0000e-003	0.1716	4.4000e-004		0.0258	0.0258		0.0258	0.0258	2.8679	5.5112	8.3791	8.5500e-003	1.9000e-004	8.6509
Landscaping	8.5700e-003	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Total	**0.2878**	**0.0102**	**0.4515**	**4.5000e-004**		**0.0273**	**0.0273**		**0.0273**	**0.0273**	**2.8679**	**5.9660**	**8.8339**	**9.0000e-003**	**1.9000e-004**	**9.1169**

7.0 Water Detail

7.1 Mitigation Measures Water

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	11.7823	0.0578	1.4500e-003	13.6589
Unmitigated	11.7823	0.0578	1.4500e-003	13.6589

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.75916 / 1.10903	11.7823	0.0578	1.4500e-003	13.6589
Total		**11.7823**	**0.0578**	**1.4500e-003**	**13.6589**

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.75916 / 1.10903	11.7823	0.0578	1.4500e-003	13.6589
Total		**11.7823**	**0.0578**	**1.4500e-003**	**13.6589**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.4084	0.3787	0.0000	15.8766
Unmitigated	6.4084	0.3787	0.0000	15.8766

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	31.57	6.4084	0.3787	0.0000	15.8766
Total		**6.4084**	**0.3787**	**0.0000**	**15.8766**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	31.57	6.4084	0.3787	0.0000	15.8766
Total		**6.4084**	**0.3787**	**0.0000**	**15.8766**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Air Quality GHG Memo 9-12-18 (3283 : Tentative Tract Map, General Plan Amendment and

CITY OF MORENO VALLEY
CONDITIONS OF APPROVAL
Tentative Tract Map (PEN18-0092)
APN: 478080014

APPROVAL DATE:
EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT

Special Conditions

1. Prior to recordation of the final subdivision map, the following documents shall be submitted to and approved by the Planning Division which shall demonstrate that the project will be developed and maintained in accordance with the intent and purpose of the approval:

a. The document to convey title
b. Deed restrictions, easements, or Covenants, Conditions and Restrictions to be recorded

The approved documents shall be recorded at the same time that the subdivision map is recorded. The documents shall contain provisions for general maintenance of the site, joint access to proposed parcels, open space use restrictions, conservation easements, guest parking, feeder trails, water quality basins, lighting, landscaping and common area use items such as general building maintenance (apartments, condominiums and townhomes) tot lot/public seating areas and other recreation facilities or buildings. The approved documents shall also contain a provision, which provides that they may not be terminated and/or substantially amended without the consent of the City and the developer's successor-in-interest. (MC 9.14.090)

In addition, the following deed restrictions and disclosures shall be included within the document and grant deed of the properties:
a. The developer and homeowners association shall promote the use of native plants and trees and drought tolerant species.
b. All lots designated for open space and or detention basins, shall be included as an easement to, and maintained by a Homeowners Association (HOA) or other private maintenance entity. All reverse frontage landscape areas shall also be maintained by the onsite HOA. Language to this effect shall be included and reviewed within the required Covenant Conditions and Restrictions (CC&Rs) prior to the approval of the final map.
c. Maintenance of any and all common facilities.

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

d. A conservation easement for lettered lots shall be recorded on the deed of the property and shown on the final map. Said easement shall include access restrictions prohibiting motorized vehicles from these areas.

e. Oleander plants or trees shall be prohibited on open space lots adjacent to multi-use trails.

2. Prior to final map recordation any required trail easements shall be provided.

3. Prior to approval of a grading plan, a detailed trail plan shall be submitted to and approved by the Planning Division. The plan shall indicate widths, maximum slopes, physical conditions, fencing, walls, and/or amenities in accordance with City standards.

4. Prior to approval of any grading permit, a tree plan shall be submitted to and approved by the Planning Division. The plan shall identify all mature trees (4 inch trunk diameter or larger) on the subject property and City right-of-way. Using the grading plan as a base, the plan shall indicate trees to be relocated, retained, and removed. Replacement trees shall be shown on the plan, be a minimum size of 24 inch box, and meet a ratio of three replacement trees for each mature tree removed or as approved by the Planning Official. (GP Objective 4.4, 4.5, DG)

5. All undeveloped portions of the site in perpetuity shall be maintained in a manner that provides for the control of weeds, erosion and dust. (MC 9.02.030)

6. Prior to the issuance of building permits, the developer shall provide documentation that contact was made to the U.S. Postal Service to determine the appropriate type and location of mailboxes.

7. Prior to grading plan approval, wall and fence plans shall be submitted to and approved by the Planning Division subject to the City's Municipal Code including the following:

A. Side and rear yard fences/walls (not adjacent to a right of way) shall be constructed of decorative block, poly-vinyl or wood.
B. A solid decorative (e.g. split face, color variation, pattern variation, or as approved by the Planning Official) block wall with pilasters and a cap is required along the perimeter of the tract adjacent to any right of way or reverse frontage location and along any right of way within the interior of the tract (all corner lots).
C. A six (6) foot high combination wall with pilasters is required at top of slope along an open space area or adjacent to a park.
D. Decorative open iron or steel fencing with pilasters is required adjacent to open space areas and view lots. (View lots are defined as lots where there is more than 15 foot difference in pad elevation.)
E. Non-combustible fencing is required for all lots adjacent to all fuel modification

zones, subject to the approval of the Fire Prevention Bureau.

8. All site plans, grading plans, landscape and irrigation plans, and street improvement plans shall be coordinated for consistency with this approval.

9. This approval shall comply with all applicable requirements of the City of Moreno Valley Municipal Code.

10. The site shall be developed in accordance with the approved tentative map on file in the Community Development Department-Planning Division, the Municipal Code regulations, General Plan, and the conditions contained herein. (MC 9.14.020)

11. Prior to the issuance of grading permits, final erosion control landscape and irrigation plans for all cut or fill slopes over 3 feet in height shall be submitted to and approved by the Planning Division. The plans shall be designed in accordance with the slope erosion plan as required by the City Engineer. Man-made slopes greater than 10 feet in height shall be "land formed" to conform to the natural terrain and shall be landscaped and stabilized to minimize visual scarring. (GP Objective 1.5, MC 9.08.080, DG)

12. Prior to recordation, all feeder trail easements shall be shown on the final map. All feeder trails that traverse a side yard shall allow for five feet of additional area to compensate for landscape and street trees at the base of any fence or wall.

13. Prior to the issuance of grading permits, grading plans shall be submitted to and approved by the Planning Division to ascertain that development and grading of all lots have been designed to reduce the extent of cut and fill and loss of coastal scrub vegetation. Grading plans shall incorporate multiple level foundations, custom foundations and/or split level pads in accordance with the City's Municipal Code. (MC 9.03.030)

14. This tentative map shall expire three years after the approval date of this tentative map unless extended as provided by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever in the event the applicant or any successor in interest fails to properly file a final map before the date of expiration. (MC 9.02.230, 9.14.050, 080)

15. Prior to the issuance of grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein.

16. Prior to any site disturbance and/or grading plan submittal, and or final map recordation, a mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant/owner. No City permit or approval shall be issued until such fee is paid. (CEQA)

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

17. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord.)

18. Prior to approval of any grading plan, local and master-planned multi-use trail easements shall be shown on the rough and precise grading plans in accordance with the City's Master Trail Plan.

19. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project. The sign shall include the following: The name and address of the development and the developer's name and address to include a 24-hour emergency phone number.

20. Separate Administrative Plot Plans, including, Design Review (product approval), Model Home Complex or custom home reviews are required for approval of the design of the future single-family homes for Tentative Tract Map 37544.

21. Prior to issuance of grading permits, the developer shall pay the applicable Stephen's' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee.

22. MM CUL 1- Project Archaeologist. Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include: a. Project grading and development scheduling; b. The Project archeologist and the Consulting Tribes(s) as defined in CUL-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis; c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

23. MM CUL 2 - Tribal Monitoring. Prior to the issuance of a grading permit, the City of Moreno Valley shall secure agreements with the Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2. (only applicable if tribes require monitoring)

24. MM CUL 3 - Finds During Grading. In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries: a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Division: i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources. ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CUL-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CUL-1. The location for the future reburial area shall be identified on a confidential exhibit on file with the City and concurred to by the Consulting Native American Tribal Governments prior to certification of the environmental document.

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

25. The following cultural resources mitigation measures shall apply to this project:

MM CUL 4 - Grading Plan Note. The City shall verify that the following note is included on the Grading Plan: "If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

MM CUL 5 - Accidental Finds. If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CUL-1 before any further work commences in the affected area.

MM CUL 6 - Human Remains. If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

26. Prior to the Grading Permits, the developer shall submit a Trail Amenity Plan for construction and operation of a linear park and walking trail that will run the entire length of the project along Quincy Channel with amenities to include: meandering trail, benches, exercise stations, and landscape. The trail shall be maintained by the City. Amenities and landscaping within Lot "B" shall be maintained by the HOA. (See Amenity Note on TTM 37544)

27. The following mitigation measures for Paleontological Resources shall apply to the project:

CUL 7 Paleontological Resources. Prior to the issuance of a grading permit, the

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Project Applicant shall provide evidence to the City of Moreno Valley that a qualified paleontologist has been retained by the Project Applicant to conduct monitoring of excavation activities and has the authority to halt and redirect earthmoving activities in the event that suspected paleontological resources are unearthed.

CUL 8 Paleo Monitor. The paleontological monitor shall conduct full-time monitoring during grading and excavation operations in undisturbed, very old alluvial fan sediments at or below four (4) feet below ground surface and shall be equipped to salvage fossils if they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The paleontological monitor shall be empowered to temporarily halt or divert equipment to allow of removal of abundant and large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources.

CUL 9 Paleo Curation. Recovered specimens shall be properly prepared to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage, such as the Western Science Museum in Hemet, California, is required for significant discoveries.

CUL 10 Paleo Report. A final paleontological monitoring and mitigation report of findings and significance shall be prepared, including lists of all fossils recovered and written repository agreements, if any, and necessary maps and graphics to accurately record the original location of the specimens. The report shall be submitted to the City of Moreno Valley prior to building final.

Prior to Grading Permit

28. Within thirty (30) days prior to any grading or other land disturbance, a pre-construction survey for Burrowing Owls shall be conducted pursuant to the established guidelines of Multiple Species Habitat Conservation Plan. The pre-construction survey shall be submitted to the Planning Division prior to any disturbance of the site and/or grading permit issuance.

Building Division

29. Any construction within the city shall only be completed between the hour of seven a.m. to seven p.m. Monday through Friday, excluding holidays and from eight a.m. to

four p.m. on Saturday, unless written approval is obtained from the city building official or city engineer (Municipal Code Section 8.14.040.E).

30. Prior to submittal, all new development, including residential second units, are required to obtain a valid property address prior to permit application. Addresses can be obtained by contacting the Building Safety Division at 951.413.3350.

31. Contact the Building Safety Division for permit application submittal requirements.

32. Any construction within the city shall only be completed between the hour of seven a.m. to seven p.m. Monday through Friday, excluding holidays and from eight a.m. to four p.m. on Saturday, unless written approval is obtained from the city building official or city engineer (Municipal Code Section 8.14.040.E).

33. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

34. The proposed development is subject to the payment of applicable processing fees as required by the City's current Fee Ordinance at the time a building permit application is submitted or prior to the issuance of permits as determined by the City.

35. All new structures shall be designed in conformance to the latest design standards adopted by the State of California in the California Building Code, (CBC) Part 2, Title 24, California Code of Regulations including requirements for allowable area, occupancy separations, fire suppression systems, accessibility, etc. The current code edition is the 2016 CBC.

36. The proposed project's occupancy shall be classified by the Building Official and must comply with exiting, occupancy separation(s) and minimum plumbing fixture requirements. Minimum plumbing fixtures shall be provided per the 2016 California Plumbing Code, Table 422.1. The occupant load and occupancy classification shall be determined in accordance with the California Building Code.

37. The proposed residential project shall comply with The 2016 California Green Building Standards Code, Section 4.106.4, mandatory requirements for Electric Vehicle Charging Station (EVCS).

38. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC 8.80.030)

FIRE DEPARTMENT

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Fire Prevention Bureau

39. Future development of residential dwellings shall be provided with residential fire sprinklers.

40. Future development shall provide fire flow and fire hydrants in accordance with the California Fire code.

PUBLIC WORKS DEPARTMENT

Land Development

41. Aggregate slurry, as defined in Section 203-5 of Standard Specifications for Public Works Construction, may be required just prior to the end of the one-year warranty period of the public streets at the discretion of the City Engineer. If slurry is required, a slurry mix design shall be submitted for review and approved by the City Engineer. The latex additive shall be Ultra Pave 70 (for anionic) or Ultra Pave 65 K (for cationic) or an approved equal per the geotechnical report. The latex shall be added at the emulsion plant after weighing the asphalt and before the addition of mixing water. The latex shall be added at a rate of two to two-and-one-half (2 to 2½) parts to one-hundred (100) parts of emulsion by volume. Any existing striping shall be removed prior to slurry application and replaced per City standards.

42. The developer shall comply with all applicable City ordinances and resolutions including the City's Municipal Code (MC) and if subdividing land, the Government Code (GC) of the State of California, specifically Sections 66410 through 66499.58, said sections also referred to as the Subdivision Map Act (SMA). [MC 9.14.010]

43. The final approved conditions of approval (COAs) and any applicable Mitigation Measures issued by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.

44. The developer shall monitor, supervise and control all construction related activities, so as to prevent these activities from causing a public nuisance, including but not limited to, insuring strict adherence to the following:
(a) Removal of dirt, debris, or other construction material deposited on any public street no later than the end of each working day.
(b) Observance of working hours as stipulated on permits issued by the Land Development Division.
(c) The construction site shall accommodate the parking of all motor vehicles used by persons working at or providing deliveries to the site.
(d) All dust control measures per South Coast Air Quality Management District (SCAQMD) requirements during the grading operations.

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Violation of any condition, restriction or prohibition set forth in these conditions shall subject the owner, applicant, developer or contractor(s) to remedy as noted in City Municipal Code 8.14.090. In addition, the City Engineer or Building Official may suspend all construction related activities for violation of any condition, restriction or prohibition set forth in these conditions until such time as it has been determined that all operations and activities are in conformance with these conditions.

45. Drainage facilities (e.g., catch basins, water quality basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.

46. If improvements associated with this project are not initiated within two (2) years of the date of approval of the Public Improvement Agreement (PIA), the City Engineer may require that the engineer's estimate for improvements associated with the project be modified to reflect current City construction costs in effect at the time of request for an extension of time for the PIA or issuance of a permit. [MC 9.14.210(B)(C)]

47. The developer shall protect downstream properties from damage caused by alteration of drainage patterns (i.e. concentration or diversion of flow, etc). Protection shall be provided by constructing adequate drainage facilities, including, but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]

48. For single family residential subdivisions, all lots shall drain toward the street unless otherwise approved by the City Engineer. Residential lot drainage to the street shall be by side yard swales, and must be directed to a driveway or drainage devices located outside the right-of-way in accordance with City Standard MVSI-154-0. No cross-lot or over the sidewalk drainage shall be allowed.

49. This project shall submit civil engineering design plans, reports and/or documents (prepared by a registered/licensed civil engineer) for review and approval by the City Engineer per the current submittal requirements, prior to the indicated threshold or as required by the City Engineer. The submittal consists of, but is not limited to, the following:

a. Final (Tract) Map (recordation prior to building permit issuance);

b. Rough grading w/ erosion control plan (prior to grading permit issuance);

c. Precise grading w/ erosion control plan (prior to grading permit issuance);

d. Public improvement plan (e.g., street/storm drain w/ striping, RCFC storm drain, sewer/water, etc.) (prior to encroachment permit issuance);

e. Final drainage study (prior to grading plan approval);

f. Final WQMP (prior to grading plan approval);

g. Legal documents (e.g., easement(s), dedication(s), lot line adjustment, vacation, etc.) (prior to building permit issuance);

h. As-Built revision for all plans (prior to Occupancy release);

50. Water quality best management practices (BMPs) designed to meet Water Quality Management Plan (WQMP) requirements for single-family residential development shall not be used as a construction BMP. Water quality BMPs shall be maintained for the entire duration of the project construction and be used to treat runoff from those developed portions of the project. Water quality BMPs shall be protected from upstream construction related runoff by having proper best management practices in place and maintained. Water quality BMPs shall be graded per the approved design plans and once landscaping and irrigation has been installed, it and its maintenance shall be turned over to an established Homeowner's Association (HOA). The Homeowner's Association shall enter into an agreement with the City for basin maintenance.

Prior to Grading Plan Approval

51. A final detailed drainage study (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer. The study shall include, but not be limited to: existing and proposed hydrologic conditions as well as hydraulic calculations for all drainage control devices and storm drain lines. The study shall analyze 1, 3, 6 and 24-hour duration events for the 2, 5, 10 and 100-year storm events [MC 9.14.110(A.1)]. A digital (pdf) copy of the approved drainage study shall be submitted to the Land Development Division.

52. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity.

53. A final project-specific Water Quality Management Plan (WQMP) shall be submitted for review and approved by the City Engineer, which:

a. Addresses Site Design Best Management Practices (BMPs) such as minimizing impervious areas, maximizing permeability, minimizes directly connected impervious areas to the City's street and storm drain systems, and conserves natural areas;

b. Incorporates Source Control BMPs and provides a detailed description of their implementation;

c. Describes the long-term operation and maintenance requirements for BMPs requiring maintenance; and

d. Describes the mechanism for funding the long-term operation and maintenance of the BMPs.

A copy of the final WQMP template can be obtained on the City's Website or by contacting the Land Development Division. A digital (pdf) copy of the approved final project-specific Water Quality Management Plan (WQMP) shall be submitted to the Land Development Division.

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

54. The developer shall comply with the rules and regulations of FEMA and City Municipal Code 8.12 for development within a flood hazard area (defined as Zones A, AE and AH).
For developments required to submit a CLOMR(-F) / LOMR(-F), the following items (prepared by a licensed civil engineer or land surveyor) shall be submitted:
a. Prior to plan approval, a Floodplain Development Permit (application available at the City).
b. Prior to issuance of the first building permit, a Conditional Letter of Map Revision (CLOMR) including Base Flood Elevation (BFE) shall be approved by the City Engineer and FEMA.
c. Prior to issuance of the certificate of occupancy, a Letter of Map Revision (LOMR) package with appropriate fees shall be submitted and approved by the City Engineer and FEMA.
d. Prior to 90% reduction of public improvement securities, a Letter of Map Revision (LOMR) approved by FEMA shall be submitted to the City.

55. The developer shall ensure compliance with the City Grading ordinance, these Conditions of Approval and the following criteria:
a. The project street and lot grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage area and outlet points. Unless otherwise approved by the City Engineer, lot lines shall be located at the top of slopes.
b. Any grading that creates cut or fill slopes adjacent to the street shall provide erosion control, sight distance control, and slope easements as approved by the City Engineer.
c. All improvement plans are substantially complete and appropriate clearance letters are provided to the City.
d. A soils/geotechnical report (addressing the soil's stability and geological conditions of the site) shall be submitted to the Land Development Division for review. A digital (pdf) copy of the soils/geotechnical report shall be submitted to the Land Development Division.

56. Grading plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

57. The developer shall select Low Impact Development (LID) Best Management Practices (BMPs) designed per the latest version of the Water Quality Management Plan (WQMP) - a guidance document for the Santa Ana region of Riverside County.

58. The developer shall pay all remaining plan check fees.

59. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared in conformance with the State's current Construction Activities Storm Water General

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Permit. A copy of the current SWPPP shall be kept at the project site and be available for review upon request.

60. For projects that will result in discharges of storm water associated with construction with a soil disturbance of one or more acres of land, the developer shall submit a Notice of Intent (NOI) and obtain a Waste Discharger's Identification number (WDID#) from the State Water Quality Control Board (SWQCB) which shall be noted on the grading plans.

61. Landscape & Irrigation plans (prepared by a registered/licensed civil engineer) for water quality BMPs shall be submitted for review and approved by the City Engineer per the current submittal requirements, if applicable.

Prior to Grading Permit

62. A receipt showing payment of the Area Drainage Plan (ADP) fee to Riverside County Flood Control and Water Conservation District shall be submitted. [MC 9.14.100(O)]

63. If the developer chooses to construct the project in phases, a Construction Phasing Plan for the construction of on-site public or private improvements shall be submitted for review and approved by the City Engineer.

64. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.

65. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control measures. At least twenty-five (25) percent of the required security shall be in the form of a cash deposit with the City. [MC 8.21.160(H)]

66. Security, in the form of a cash deposit (preferable), or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]

67. The developer shall pay all applicable inspection fees.

Prior to Map Approval

68. All proposed street names shall be submitted for review and approved by the City Engineer, if applicable. [MC 9.14.090(E.2.k)]

69. A copy of the Covenants, Conditions and Restrictions (CC&R's) shall be submitted for review and approved by the City Engineer. The CC&R's shall include, but not be

limited to, access easements, reciprocal access, private and/or public utility easements as may be relevant to the project. In addition, for single-family residential development, bylaws and articles of incorporation shall also be included as part of the maintenance agreement for any water quality BMPs.

70. The developer shall enter into a Cooperative Agreement with the City and Riverside County Flood Control and Water Conservation District establishing the terms and conditions covering the inspection, operation and maintenance of Master Drainage Plan facilities required to be constructed as part of the project, if applicable.

71. After recordation, a digital (pdf) copy of the recorded map shall be submitted to the Land Development Division.

72. If the project involves the subdivision of land, maps may be developed in phases with the approval of the City Engineer. Financial security shall be provided for all public improvements associated with each phase of the map. The boundaries of any multiple map increment shall be subject to the approval of the City Engineer. If the project does not involve the subdivision of land and it is necessary to dedicate right-of-way/easements, the developer shall make the appropriate offer of dedication by separate instrument. In either case, the City Engineer may require the dedication and construction of necessary utility, street or other improvements beyond the project boundary, if the improvements are needed for circulation, parking, access, or for the welfare or safety of the public. This approval must be obtained prior to the Developer submitting a Phasing Plan to the California Bureau of Real Estate. [MC 9.14.080(B)(C), GC 66412 & 66462.5]

73. Maps (prepared by a registered civil engineer and/or licensed surveyor) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

74. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project is subject to the following requirements:

a. Establish a Home Owners Association (HOA) to finance the maintenance of the “Water Quality BMPs”. Any lots which are identified as “Water Quality BMPs” shall be owned in fee by the HOA.

b. Dedicate a maintenance easement to the City of Moreno Valley.

c. Execute a maintenance agreement between the City of Moreno Valley and the HOA, which shall be approved by City Council.

d. Provide a certificate of insurance per the terms of the maintenance agreement.

e. Meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

No. 2002-46 by participating in the mail ballot proceeding in compliance with Proposition 218, for the Residential NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process.

f. Notify the Special Districts Division of the intent to record the final map 90 days prior to City Council action authorizing recordation of the final map and the financial option selected. The final option selected shall be in place prior to the issuance of certificate of occupancy. [California Government Code & Municipal Code]

75. The developer shall guarantee the completion of all related improvements required for this project by executing a Public Improvement Agreement (PIA) with the City and posting the required security. [MC 9.14.220]

76. All public improvement plans required for this project shall be approved by the City Engineer in order to execute the Public Improvement Agreement (PIA).

77. The developer shall comply with the requirements of the City Engineer based on recommendations of the Riverside County Flood Control District regarding the construction of County Master Plan Facilities.

78. All street dedications shall be free of all encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer.

Prior to Improvement Plan Approval

79. The developer shall submit clearances from all applicable agencies, and pay all applicable plan check fees.

80. The street improvement plans shall comply with current City policies, plans and applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.

81. The design plan and profile shall be based upon a centerline, extending beyond the project boundaries a minimum distance of 300 feet at a grade and alignment approved by the City Engineer.

82. Drainage facilities (i.e. catch basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.

83. The hydrology study shall be designed to accept and properly convey all off-site drainage flowing onto or through the site. In the event that the City Engineer permits the use of streets for drainage purposes, the provisions of current City standards shall apply. Should the quantities exceed the street capacity or the use of streets be

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

prohibited for drainage purposes, as in the case where one travel lane in each direction shall not be used for drainage conveyance for emergency vehicle access on streets classified as minor arterials and greater, the developer shall provide adequate facilities as approved by the City Engineer. [MC 9.14.110 A.2]

84. All public improvement plans (prepared by a licensed/registered civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

85. Any missing or deficient existing improvements along the project frontage within shall be constructed or secured for construction. The City Engineer may require the ultimate structural section for pavement to half-street width plus 18 feet or provide core test results confirming that existing pavement section is per current City Standards; additional signing & striping to accommodate increased traffic imposed by the development, etc.

86. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts for trench repairs may be allowed for emergency repairs or as specifically approved by the City Engineer.

87. All dry and wet utilities shall be shown on the plans and any crossings shall be potholed to determine actual location and elevation. Any conflicts shall be identified and addressed on the plans. The pothole survey data shall be submitted to Land Development with the public improvement plans for reference purposes only. The developer is responsible to coordinate with all affected utility companies and bear all costs of any utility relocation.

88. The developer shall coordinate with Riverside County Flood Control District regarding removal of their westerly access ramp at the southeast corner of the project.

89. Brodiaea Avenue, Collector, City Standard No. MVSI-106B-0 (66'/44' CC) shall be constructed to half-width plus 12' along the project's southerly frontage. Improvements shall consist of, but not limited to, pavement, curb and gutter, sidewalk, street lights, striping. In addition, the developer shall vacate 7' of right-of-way on the north side of the street along the project's southerly frontage.

Prior to Encroachment Permit

90. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

91. All applicable inspection fees shall be paid.

92. Any work performed within public right-of-way requires an encroachment permit.

Prior to Building Permit

93. An engineered-fill certification, rough grade certification and compaction report shall be submitted for review and approved by the City Engineer. A digital (pdf) copy of the approved compaction report shall be submitted to the Land Development Division. All pads shall meet pad elevations per approved grading plans as noted by the setting of "blue-top" markers installed by a registered land surveyor or licensed civil engineer.

94. For all subdivision projects, the map shall be recorded (excluding model homes). [MC 9.14.190]

95. Certification to the line, grade, flow test and system invert elevations for the water quality control BMPs shall be submitted for review and approved by the City Engineer (excluding models homes).

96. The developer shall submit for review and approval the legal documents for the quitclaim of existing Quincy Street right-of-way to Riverside County Flood Control. The limits shall be along the project's easterly boundary.

Prior to Occupancy

97. All outstanding fees shall be paid.

98. All required as-built plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

99. The final/precise grade certification shall be submitted for review and approved by the City Engineer.

100. The developer shall complete all public improvements in conformance with current City standards, except as noted in the Special Conditions, including but not limited to the following:

a. Street improvements including, but not limited to: pavement, base, curb and/or gutter, cross gutters, spandrel, sidewalks, drive approaches, pedestrian ramps, street lights, signing, striping, under sidewalk drains, landscaping and irrigation, medians, pavement tapers/transitions and traffic control devices as appropriate.

b. Storm drain facilities including, but not limited to: storm drain pipe, storm drain

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

laterals, open channels, catch basins and local depressions.

c. City-owned utilities.

d. Sewer and water systems including, but not limited to: sanitary sewer, potable water and recycled water.

e. Under grounding of all existing and proposed utilities adjacent to and on-site. [MC 9.14.130]

f. Relocation of overhead electrical utility lines including, but not limited to: electrical, cable and telephone.

101. For residential subdivisions, punch list work for improvements and capping of streets shall be completed and approved for acceptance by the City Engineer.

102. The applicant shall ensure the following, pursuant to Section XII. I. of the 2010 NPDES Permit:

a. Field verification that structural Site Design, Source Control and Treatment Control BMPs are designed, constructed and functional in accordance with the approved Final Water Quality Management Plan (WQMP).

b. Certification of best management practices (BMPs) from a state licensed civil engineer. An original WQMP BMP Certification shall be submitted for review and approved by the City Engineer.

103. The Developer shall comply with the following water quality related items:

a. Notify the Land Development Division prior to construction and installation of all structural BMPs so that an inspection can be performed.

b. Demonstrate that all structural BMPs described in the approved final project-specific WQMP have been constructed and installed in conformance with the approved plans and specifications;

c. Demonstrate that Developer is prepared to implement all non-structural BMPs described in the approved final project-specific WQMP; and

d. Demonstrate that an adequate number of copies of the approved final project-specific WQMP are available for future owners/occupants.

e. Clean and repair the water quality BMP's, including re-grading to approved civil drawing if necessary.

f. Obtain approval and complete installation of the irrigation and landscaping.

Special Districts Division

104. Prior to the issuance of the first building permit for this project, the Developer shall pay Advanced Energy fees for all applicable Residential and Arterial Street Lights required for this development. Payment shall be made to the City of Moreno Valley and collected by the Land Development Division. Fees are based upon the Advanced Energy fee rate in place at the time of payment, as set forth in the current Listing of City Fees, Charges, and Rates adopted by City Council. The Developer

shall provide a copy of the receipt to the Special Districts Division (specialdistricts@moval.org). Any change in the project which may increase the number of street lights to be installed will require payment of additional Advanced Energy fees at the then current fee. Questions may be directed to the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.

105. This project has been identified to potentially be included in the formation of a Map Act Area of Benefit Special District for the construction of major thoroughfares and/or freeway improvements. The property owner(s) shall participate in such District and pay any special tax, assessment, or fee levied upon the project property for such District. At the time of the public hearing to consider formation of the district, the property owner(s) will not protest the formation, but will retain the right to object any eventual assessment that is not equitable should the financial burden of the assessment not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting an application for the first building permit to determine whether the development will be subjected to this condition. If subject to the condition, the special election requires a 90 day process in compliance with the provisions of Article 13C of the California Constitution. (Street & Highway Code, GP Objective 2.14.2, MC 9.14.100).

106. This project is conditioned to provide a funding source for the operation and maintenance of public improvements and/or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options below.

a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

b. Establish an endowment fund to cover the future maintenance and/or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option prior to City Council action authorizing recordation of the final map for the development. A minimum of 90 days is needed to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution for conducting a special election.

The financial option selected shall be in place prior to the issuance of the first building permit for the project.

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

107. This project is conditioned to provide a funding source for the following special financing program(s):

a. Street Lighting Services for capital improvements, energy charges, and maintenance.

The Developer's responsibility is to provide a funding source for the capital improvements and the continued maintenance of the landscaped area. The Developer shall satisfy this condition with one of the options below.

i. Participate in a special election (mail ballot proceeding) and pay all associated costs of the special election and formation, if any. Financing may be structured through a Community Services District zone, Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

ii. Establish a Property Owner's Association (POA) or Home Owner's Association (HOA) which will be responsible for any and all operation and maintenance costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option prior to City Council action authorizing recordation of the final map for the development. The option for participating in a special election requires approximately 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution for conducting a special election.

The financial option selected shall be in place prior to the issuance of the first building permit for this project and prior to acceptance of any improvements.

108. This project has been conditioned to provide a funding source for the continued maintenance, enhancement, and/or retrofit of parks, open spaces, linear parks, and/or trail systems. The Developer shall satisfy this condition with one of the options below.

a. Participate in a special election for annexation into Community Facilities District No. 1 or other district and pay all associated costs of the special election process and formation, if any; or

b. Establish an endowment fund to cover future maintenance costs for new

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

neighborhood parks.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option prior to City Council action authorizing recordation of the final map for the development. A minimum of 90 days is needed to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution for conducting a special election.

Annexation to CFD No. 1 shall be completed or proof of payment to establish the endowment fund shall be provided prior to the issuance of the first building permit for this project.

109. This project has been identified to be included in the formation of a Community Facilities District for Public Safety services including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district that may already be established. The Developer must notify the Special Districts Division at 951.413.3480 or specialdistricts@moval.org of its intent to record the final map for the development 90 days prior to City Council action authorizing recordation of the map. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)

110. Residential (R) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the required continuous operation, maintenance, monitoring, systems evaluation and enhancements of on-site facilities and performing annual inspections of the affected areas to ensure compliance with state mandated storm water regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to City Council action authorizing recordation of the final map for the development and to participate in a special election process. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution. California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)

111. Street Light Authorization forms for all street lights that are conditioned to be installed as part of this project must be submitted to the Special Districts Division for approval, prior to street light installation. The Street Light Authorization form can be obtained from the utility company providing electric service to the project, either Moreno Valley Utility or Southern California Edison. For questions, contact the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.

112. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services) and Zone C (Arterial Street Lighting). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C for operations and capital improvements.

113. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.

Transportation Engineering Division

114. Prior to issuance of a construction permit, construction traffic control plans prepared by a qualified, registered Civil or Traffic engineer shall be required for plan approval by the City Traffic Engineer.

115. Conditions of approval may be modified or added if a phasing plan is submitted for this development.

116. All project driveways shall conform to Section 9.11.080, and Table 9.11.080-14 of the City's Development Code – Design Guidelines and City of Moreno Valley Standard Plans No. MVSI-111A~C-0 for residential driveway approaches.

117. Sight distance at the proposed roadways and driveways shall conform to City of Moreno Valley Standard No. MVSI-164A,B,C-0 at the time of preparation of final grading, landscape, and street improvement plans.

118. During construction activity, developer is responsible for regularly scheduled street sweeping per approved street sweeping schedule.

119. Prior to the final approval of the street improvement plans, a signing and striping plan shall be prepared per City of Moreno Valley Standard Plans - Section 4 for all streets within the project area.

120. Prior to issuance of a Building Final or Certificate of Occupancy, all approved street improvements shall be installed to the satisfaction of the City Engineer.

121. Prior to issuance of a Building Final or Certificate of Occupancy, all approved

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

signing and striping shall be installed per current City Standards and the approved plans.

122. Prior to acceptance of streets into the City-maintained road system, all approved signing and striping shall be installed per current City Standards and the approved plans.

123. Brodiaea Avenue is classified as a Collector (66'RW/44'CC) per City Standard Plan No. MVSI-106B-0. A 10:1 pavement transition shall be provided to meet the existing pavement edge. Any improvements to the roadway shall be per City standards or as approved by the City Engineer.

124. Prior to issuance of an encroachment permit for works within the public right-of-way, construction traffic control plans prepared by a qualified, registered Civil or Traffic engineer shall be required for plan approval by the City Traffic Engineer.

PARKS & COMMUNITY SERVICES DEPARTMENT

125. This project is subject to current Development Impact Fees.

126. This project is required to supply a funding source for the continued maintenance, enhancement, and or retrofit of neighborhood parks, open spaces, linear parks, and/or trails systems. This can be achieved through annexing into Community Facilities District No. 1 (Park Maintenance). Please contact the Special Districts Division at 951.413.3480 or specialdistricts@moval.org to complete the annexation process.

127. This project is subject to current Quimby Fees.

128. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks and Community Services). All assessable parcels therein shall be subject to the annual Zone 'A' charge for operations and capital improvements. Proof of such shall be supplied to Parks and Community Services upon Final Map and at Building Permits.

129. Lot 'C' shall be minimum 16' in width, dedicated easement to the Moreno Valley Community Services District for trail use, with an easement to Riverside County Flood Control and Water District.

130. The trail shall be comprised of 6" thick stabilized decomposed granite over 95% compacted native. City details provided by the CSD.

131. The trail shall be fully constructed with the channel and street improvements. Bonds for construction required.

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Exhibit A Conditions of Approval PEN18-0092 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Standard Conditions

132. Detailed final plans (mylars, PDF, and AutoCAD file on a DVD-R) for parks, trails/bikeways, fencing, and adjoining landscaped areas shall be submitted to and approved by the Director of Parks and Community Services, or his/her designee, prior to the issuance of any building permits. All plans are to include a profile showing grade changes.

133. Within the improvements for PCS, the applicant shall show all existing and planned easements on all maps and plans. Easements on City/CSD owned or maintained parks, trails, bikeways, and landscape shall be identified on each of these plans with the instrument number of the recorded easement.

134. Prior to recordation of the Final Map, the applicant shall post security to guarantee construction or modification of parks, trails and/or bikeways for the City/CSD. Copies of said documentation shall be provided to PCS, prior to the approval of the Final Map.

135. Applicable plan check and inspection fees shall be paid, per the approved City fee schedule.

136. A restriction shall be placed on lots that back up to City/CSD owned or maintained parks, trails, bikeways, and landscaped areas, preventing openings or gates accessing the City/CSD owned or maintained property. This shall be documented through Covenants, Conditions, and Restrictions (CC&R's). A copy of the CC&R's with this restriction noted shall be submitted and approved by the Director of Parks and Community Services or his/her designee, prior to the recordation of the Final Map.

137. The following plans require PCS written approval: Tentative tract/parcel maps; rough grading plans (including all Delta changes); Final Map; precise grading plans; street improvement plans; traffic signal plans; fence and wall plans; landscape plans for areas adjacent to bikeways; trail improvement plans. PCS will not approve any permits without review and approval of the above items.

URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

September 12, 2018

c/o Mr. Daniel C. Pocius
Frontier Communities
8300 Utica Avenue, Suite 300
Rancho Cucamonga, CA 91730

SUBJECT: BRODIAEA (TTM 37544) FOCUSED AIR QUALITY AND GREENHOUSE GAS ASSESSMENT

Dear Mr. Daniel C. Pocius:

Urban Crossroads, Inc. is pleased to submit this Air Quality and Greenhouse Gas Assessment for the proposed Brodiaea (TTM 37544) ("Project"), which is located in the City of Moreno Valley.

INTRODUCTION

This focused Air Quality and Greenhouse Gas Assessment has been completed to determine impacts associated with the development of the Brodiaea (TTM 37544) ("Project"). This study briefly describes the proposed Project and includes an analysis of the potential Project-related construction air quality and greenhouse gas impacts.

PROJECT DESCRIPTION

The Project is approximately 9.0 acres and is currently zoned for R-3 development (3 dwelling unit per acre or 27 units) and is proposing a zone change to R-10 (up to 10 dwelling units per acre). The Project is proposing development of up to 47 single-family detached residential dwelling units.

PROJECT-RELATED AIR QUALITY AND GREENHOUSE GAS EMISSIONS CALCULATIONS

Land uses such as the Project affect air quality through construction-source and operational-source emissions.

On October 2, 2013, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2013.2.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (NO_x, VOC, PM_{10}, $PM_{2.5}$, SO_x, and CO) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (1). Air Quality outputs from the model runs are provided in Attachments "A", "B", "C", and "D" and greenhouse gas outputs from the model runs are provided in Attachments "E" and "F".

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

AIR QUALITY

PROPOSED PROJECT: CONSTRUCTION EMISSIONS

The estimated maximum daily regional construction emissions without mitigation are summarized on Table 1. Detailed construction model outputs are presented in Attachment "A". Please note that credit for Rule 403 has been taken. As indicated at Table 1, emissions resulting from the Project construction would not exceed the applicable SCAQMD regional thresholds of significance for any criteria pollutant. As such, no mitigation is required.

TABLE 1: PROPOSED PROJECT CONSTRUCTION EMISSIONS SUMMARY

Year	Emissions (pounds per day)					
	VOC	NOx	CO	SO_x	PM_{10}	$PM_{2.5}$
2018	5.21	59.61	36.00	0.06	9.83	6.30
2019	26.84	23.34	19.16	0.03	1.61	1.36
Maximum Daily Emissions	**26.84**	**59.61**	**36.00**	**0.06**	**9.83**	**6.30**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

CURRENTLY ADOPTED LAND USE: CONSTRUCTION EMISSIONS

The estimated maximum daily regional construction emissions for the currently adopted land use are summarized on Table 2. Detailed construction model outputs are presented in Attachment "B". As indicated at Table 2, emissions resulting from the construction of the currently adopted land use would not exceed the applicable SCAQMD regional thresholds of significance for any criteria pollutant.

TABLE 2: CURRENTLY ADOPTED LAND USE CONSTRUCTION EMISSIONS SUMMARY

Year	Emissions (pounds per day)					
	VOC	NOx	CO	SO_x	PM_{10}	$PM_{2.5}$
2018	4.66	48.27	23.38	0.04	20.85	12.36
2019	15.57	23.08	18.85	0.031	1.51	1.33
Maximum Daily Emissions	**15.57**	**48.27**	**23.38**	**0.04**	**20.85**	**12.36**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

COMPARISON OF PROPOSED PROJECT TO THE CURRENTLY ADOPTED LAND USE

As summarized on Table 3, the proposed Project is anticipated to generate more emissions of VOCs, NO_X, CO, and SO_X as compared to the emissions from the currently adopted land use. However, since Project-related emissions do not have the potential to not exceed the applicable SCAQMD regional thresholds, the Project-related emissions are considered less than significant.

TABLE 3: PROPOSED PROJECT CONSTRUCTION EMISSIONS VS CURRENTLY ADOPTED LAND USE CONSTRUCTION EMISSIONS

Year	Emissions (pounds per day)					
	VOC	**NOx**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	26.84	59.61	36.00	0.06	9.83	6.30
Currently Adopted Land Use	15.57	48.27	23.38	0.04	20.85	12.36
Variance (Proposed – Current)	**11.27**	**11.34**	**12.62**	**0.02**	**-11.02**	**-6.06**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

OPERATIONAL EMISSIONS

Operational activities associated with the Project will result in emissions of CO, VOCs, NO_x, SO_x, PM_{10}, and $PM_{2.5}$. Operational related emissions are expected from the following primary sources: area source emissions, energy source emissions, and mobile source emissions.

Project mobile source air quality impacts are dependent on both overall daily vehicle trip generation and the effect of the Project on peak hour traffic volumes and traffic operations in the vicinity of the Project. The Project-related operational air quality impacts are derived primarily from vehicle trips generated by the Project. Trip characteristics available from the report, *Brodiaea (TTM 37544) Trip Generation Evaluation* (Urban Crossroads, Inc. 2018) were utilized in this analysis (2).

The estimated operational-source emissions for the proposed Project and the currently adopted land use are summarized and compared on Table 4. Detailed operational model outputs are presented in Attachment "C" and "D". As shown, the proposed Project would result in slightly more emissions VOCs, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ emissions as compared to the currently adopted land uses. However, since the variance in emissions is nominal and project-related emissions do not exceed the applicable SCAQMD regional thresholds, the Project-related emissions are considered less than significant.

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE 4: PROPOSED PROJECT OPERATIONAL EMISSIONS VS CURRENTLY ADOPTED LAND USE OPERATIONAL EMISSIONS

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Proposed Project	15.33	6.53	41.82	0.11	7.07	4.59
Currently Adopted Land Use	8.81	3.75	24.03	0.06	4.06	3.64
Variance (Proposed – Current)	**6.52**	**2.78**	**17.79**	**0.05**	**3.01**	**0.95**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Operational Activities – Winter Scenario	**Emissions (pounds per day)**					
	VOC	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	15.28	6.66	40.96	0.11	7.03	4.59
Currently Adopted Land Use	8.78	3.83	24.34	0.06	4.06	2.12
Variance (Proposed – Current)	**6.50**	**2.83**	**16.62**	**0.05**	**2.97**	**2.47**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

GREENHOUSE GAS

CONSTRUCTION AND OPERATIONAL EMISSIONS

Construction activities associated with the proposed Project will result in emissions of CO_2 and CH_4 from construction activities. For the construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total greenhouse gas emissions for the construction activities, dividing it by a 30-year project life then adding that number to the annual operational phase GHG emissions. As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions.

As previously noted, the site area for the proposed Project and the currently approved land use are generally consistent. As such, construction-source greenhouse gas emissions associated with development of the proposed Project are expected to be similar to and no more than what would occur if the currently approved land use were constructed. As such, no additional impacts would occur.

Operational activities associated with the proposed Project will result in emissions of CO_2, CH_4, and N_2O from the following primary sources: area source emissions, energy source emissions, mobile source emissions, solid waste, and water supply, treatment, and distribution.

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

PROPOSED PROJECT: GREENHOUSE GAS EMISSIONS

The annual GHG emissions associated with the construction and operation of the proposed Project are estimated to be 974.56 $MTCO_2e$ per year as summarized in Table 5. Detailed construction and operational model outputs are presented in Attachment "A" and "E". As shown, the proposed Project would not exceed the 3,000 $MTCO_2e$ threshold. As such, the proposed Project would result in a less than significant impact with respect to GHG emissions no mitigation is required.

TABLE 5: PROPOSED PROJECT GREENHOUSE GAS EMISSIONS

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	18.56	0.00	0.00	18.68
Area	15.38	0.02	0.00	15.87
Energy	207.27	0.01	0.00	208.19
Mobile Sources	679.50	0.04	0.00	680.41
Waste	11.15	0.66	0.00	27.63
Water Usage	20.51	0.10	0.00	23.78
Total CO_2E (All Sources)	**974.56**			
Screening Threshold (CO_2E)	**3,000**			
Threshold Exceeded?	**NO**			

CURRENTLY ADOPTED LAND USE: GREENHOUSE GAS EMISSIONS

The annual GHG emissions associated with the construction and operation of the proposed Project are estimated to be 564.41 $MTCO_2e$ per year as summarized in Table 6. Detailed construction and operational model outputs are presented in Attachment "B" and "F". As shown, the proposed Project would not exceed the 3,000 $MTCO_2e$ threshold. As such, the proposed Project would result in a less than significant impact with respect to GHG emissions no mitigation is required.

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE 6: CURRENTLY ADOPTED LAND USE GREENHOUSE GAS EMISSIONS

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	12.83	0.00	0.00	12.91
Area	8.83	0.01	0.00	9.12
Energy	119.07	0.00	0.00	119.60
Mobile Sources	392.73	0.02	0.00	393.26
Waste	6.41	0.38	0.00	15.88
Water Usage	11.78	0.06	0.00	13.66
Total CO_2E (All Sources)	**564.41**			
Screening Threshold (CO_2E)	**3,000**			
Threshold Exceeded?	**NO**			

COMPARISON OF PROPOSED PROJECT TO THE CURRENTLY ADOPTED LAND USE

The annual net GHG emissions associated with the proposed Project are estimated to be 947.56 $MTCO_2e$ per year and 564.43 $MTCO_2$ for the currently adopted land use, as summarized in Table 7. Although the proposed Project has the potential to result in more emissions compared to emissions expected from the currently adopted land use, the difference is nominal. As such, the proposed Project would result in a less than significant impact with respect to GHG emissions.

TABLE 7: GREENHOUSE GAS EMISSIONS SUMMARY PROPOSED PROJECT VS CURRENTLY APPROVED LAND USE

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Proposed Project	952.37	0.83	0.00	974.56
Currently Approved Land Use	551.65	0.47	0.00	564.43
Variance Total CO_2E (All Sources)	**410.15**			

If you have any questions, please contact me directly at (949) 336-5987.

Respectfully submitted,

URBAN CROSSROADS, INC.

Haseeb Qureshi,
Senior Associate

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

REFERENCES

1. **South Coast Air Quality Management District.** California Emissions Estimator Model. [Online] 2013. [Cited: November 13, 2013.] http://www.caleemod.com/.

2. **Urban Crossroads, Inc.** *Brodiaea (TTM 37544) Trip Generation Evaluation.* 2018.

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT A:

CALEEMOD AIR QUALITY PROPOSED PROJECT (CONSTRUCTION) EMISSIONS MODEL OUTPUTS

Brodiaea Residential Proposed (Construction-Unmitigated)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Brodiaea Residential Proposed (Construction-Unmitigated) - South Coast AQMD Air District, Winter

Project Characteristics -

Land Use -

Construction Phase -

Off-road Equipment - Hours based on 8 hour work day

Off-road Equipment -

Off-road Equipment - hours based on 8 hour work day

Vehicle Trips - Construction run only

Woodstoves - Construction run only

Energy Use - Construction run only

Water And Wastewater - Construction run only

Solid Waste - Construction run only

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/6/2019	11/8/2019
tblConstructionPhase	PhaseEndDate	10/11/2019	9/13/2019
tblConstructionPhase	PhaseEndDate	8/17/2018	7/20/2018
tblConstructionPhase	PhaseEndDate	11/8/2019	10/11/2019
tblConstructionPhase	PhaseEndDate	7/6/2018	6/8/2018
tblConstructionPhase	PhaseStartDate	11/9/2019	10/12/2019
tblConstructionPhase	PhaseStartDate	8/18/2018	7/21/2018
tblConstructionPhase	PhaseStartDate	7/7/2018	6/9/2018
tblConstructionPhase	PhaseStartDate	10/12/2019	9/14/2019
tblConstructionPhase	PhaseStartDate	6/23/2018	5/28/2018
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	39.95	0.00
tblFireplaces	NumberNoFireplace	4.70	0.00
tblFireplaces	NumberWood	2.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	54.94	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	3,062,239.20	0.00
tblWater	OutdoorWaterUseRate	1,930,542.11	0.00
tblWoodstoves	NumberCatalytic	2.35	0.00

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

tblWoodstoves	NumberNoncatalytic	2.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.2073	59.6064	35.9976	0.0643	18.2675	2.6355	20.8460	9.9840	2.4247	12.3563	0.0000	6,472.5643	6,472.5643	1.9518	0.0000	6,521.3583
2019	26.8394	23.3422	19.1571	0.0320	0.2220	1.3855	1.6076	0.0596	1.3009	1.3605	0.0000	3,100.2593	3,100.2593	0.7193	0.0000	3,117.9118
Maximum	**26.8394**	**59.6064**	**35.9976**	**0.0643**	**18.2675**	**2.6355**	**20.8460**	**9.9840**	**2.4247**	**12.3563**	**0.0000**	**6,472.5643**	**6,472.5643**	**1.9518**	**0.0000**	**6,521.3583**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.2073	59.6064	35.9976	0.0643	7.2470	2.6355	9.8256	3.9263	2.4247	6.2986	0.0000	6,472.5642	6,472.5642	1.9518	0.0000	6,521.3583
2019	26.8394	23.3422	19.1571	0.0320	0.2220	1.3855	1.6076	0.0596	1.3009	1.3605	0.0000	3,100.2593	3,100.2593	0.7193	0.0000	3,117.9118
Maximum	**26.8394**	**59.6064**	**35.9976**	**0.0643**	**7.2470**	**2.6355**	**9.8256**	**3.9263**	**2.4247**	**6.2986**	**0.0000**	**6,472.5642**	**6,472.5642**	**1.9518**	**0.0000**	**6,521.3583**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.60**	**0.00**	**49.08**	**60.31**	**0.00**	**44.16**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/20/2018	5	30	
3	Building Construction	Building Construction	7/21/2018	9/13/2019	5	300	
4	Paving	Paving	9/14/2019	10/11/2019	5	20	
5	Architectural Coating	Architectural Coating	10/12/2019	11/8/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 171,315; Residential Outdoor: 57,105; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	8.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	17.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**8.6733**	**2.6337**	**11.3071**	**3.5965**	**2.4230**	**6.0195**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1172	0.0846	0.9082	2.2900e-003	0.2236	1.7800e-003	0.2253	0.0593	1.6400e-003	0.0609		228.1358	228.1358	7.7800e-003		228.3305
Total	**0.1172**	**0.0846**	**0.9082**	**2.2900e-003**	**0.2236**	**1.7800e-003**	**0.2253**	**0.0593**	**1.6400e-003**	**0.0609**		**228.1358**	**228.1358**	**7.7800e-003**		**228.3305**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**3.3826**	**2.6337**	**6.0163**	**1.4026**	**2.4230**	**3.8257**	**0.0000**	**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1172	0.0846	0.9082	2.2900e-003	0.2236	1.7800e-003	0.2253	0.0593	1.6400e-003	0.0609		228.1358	228.1358	7.7800e-003		228.3305
Total	**0.1172**	**0.0846**	**0.9082**	**2.2900e-003**	**0.2236**	**1.7800e-003**	**0.2253**	**0.0593**	**1.6400e-003**	**0.0609**		**228.1358**	**228.1358**	**7.7800e-003**		**228.3305**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082		2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**		**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0222	0.6069	0.1675	1.2700e-003	0.0320	4.5000e-003	0.0365	9.2100e-003	4.3000e-003	0.0135		135.3782	135.3782	0.0102		135.6329
Worker	0.0996	0.0720	0.7720	1.9500e-003	0.1900	1.5100e-003	0.1915	0.0504	1.4000e-003	0.0518		193.9155	193.9155	6.6200e-003		194.0809
Total	**0.1218**	**0.6789**	**0.9395**	**3.2200e-003**	**0.2220**	**6.0100e-003**	**0.2280**	**0.0596**	**5.7000e-003**	**0.0653**		**329.2937**	**329.2937**	**0.0168**		**329.7138**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082	0.0000	2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**	**0.0000**	**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0222	0.6069	0.1675	1.2700e-003	0.0320	4.5000e-003	0.0365	9.2100e-003	4.3000e-003	0.0135		135.3782	135.3782	0.0102		135.6329
Worker	0.0996	0.0720	0.7720	1.9500e-003	0.1900	1.5100e-003	0.1915	0.0504	1.4000e-003	0.0518		193.9155	193.9155	6.6200e-003		194.0809
Total	**0.1218**	**0.6789**	**0.9395**	**3.2200e-003**	**0.2220**	**6.0100e-003**	**0.2280**	**0.0596**	**5.7000e-003**	**0.0653**		**329.2937**	**329.2937**	**0.0168**		**329.7138**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958		2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**		**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0201	0.5725	0.1540	1.2600e-003	0.0320	3.8500e-003	0.0359	9.2100e-003	3.6800e-003	0.0129		134.1581	134.1581	9.8200e-003		134.4036
Worker	0.0907	0.0635	0.6892	1.8900e-003	0.1900	1.4800e-003	0.1915	0.0504	1.3600e-003	0.0518		187.7915	187.7915	5.8700e-003		187.9382
Total	**0.1108**	**0.6360**	**0.8432**	**3.1500e-003**	**0.2220**	**5.3300e-003**	**0.2274**	**0.0596**	**5.0400e-003**	**0.0647**		**321.9496**	**321.9496**	**0.0157**		**322.3418**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958	0.0000	2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**	**0.0000**	**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0201	0.5725	0.1540	1.2600e-003	0.0320	3.8500e-003	0.0359	9.2100e-003	3.6800e-003	0.0129		134.1581	134.1581	9.8200e-003		134.4036
Worker	0.0907	0.0635	0.6892	1.8900e-003	0.1900	1.4800e-003	0.1915	0.0504	1.3600e-003	0.0518		187.7915	187.7915	5.8700e-003		187.9382
Total	**0.1108**	**0.6360**	**0.8432**	**3.1500e-003**	**0.2220**	**5.3300e-003**	**0.2274**	**0.0596**	**5.0400e-003**	**0.0647**		**321.9496**	**321.9496**	**0.0157**		**322.3418**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	26.4682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**26.8234**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0160	0.0112	0.1216	3.3000e-004	0.0335	2.6000e-004	0.0338	8.8900e-003	2.4000e-004	9.1300e-003		33.1397	33.1397	1.0400e-003		33.1656
Total	**0.0160**	**0.0112**	**0.1216**	**3.3000e-004**	**0.0335**	**2.6000e-004**	**0.0338**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**		**33.1397**	**33.1397**	**1.0400e-003**		**33.1656**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	26.4682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**26.8234**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0160	0.0112	0.1216	3.3000e-004	0.0335	2.6000e-004	0.0338	8.8900e-003	2.4000e-004	9.1300e-003		33.1397	33.1397	1.0400e-003		33.1656
Total	**0.0160**	**0.0112**	**0.1216**	**3.3000e-004**	**0.0335**	**2.6000e-004**	**0.0338**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**		**33.1397**	**33.1397**	**1.0400e-003**		**33.1656**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Unmitigated	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**		**0.0214**	**0.0214**		**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**		**0.0214**	**0.0214**		**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Brodiaea Residential Proposed (Construction-Unmitigated)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Project Characteristics -

Land Use -

Construction Phase -

Off-road Equipment - Hours based on 8 hour work day

Off-road Equipment -

Off-road Equipment - hours based on 8 hour work day

Vehicle Trips - Construction run only

Woodstoves - Construction run only

Energy Use - Construction run only

Water And Wastewater - Construction run only

Solid Waste - Construction run only

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/6/2019	11/8/2019
tblConstructionPhase	PhaseEndDate	10/11/2019	9/13/2019
tblConstructionPhase	PhaseEndDate	8/17/2018	7/20/2018
tblConstructionPhase	PhaseEndDate	11/8/2019	10/11/2019
tblConstructionPhase	PhaseEndDate	7/6/2018	6/8/2018
tblConstructionPhase	PhaseStartDate	11/9/2019	10/12/2019
tblConstructionPhase	PhaseStartDate	8/18/2018	7/21/2018
tblConstructionPhase	PhaseStartDate	7/7/2018	6/9/2018
tblConstructionPhase	PhaseStartDate	10/12/2019	9/14/2019
tblConstructionPhase	PhaseStartDate	6/23/2018	5/28/2018
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	39.95	0.00
tblFireplaces	NumberNoFireplace	4.70	0.00
tblFireplaces	NumberWood	2.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	54.94	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	3,062,239.20	0.00
tblWater	OutdoorWaterUseRate	1,930,542.11	0.00
tblWoodstoves	NumberCatalytic	2.35	0.00

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

tblWoodstoves	NumberNoncatalytic	2.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.1979	59.5991	36.0929	0.0645	18.2675	2.6355	20.8460	9.9840	2.4247	12.3563	0.0000	6,488.2987	6,488.2987	1.9523	0.0000	6,537.1060
2019	26.8381	23.3363	19.2161	0.0321	0.2220	1.3855	1.6075	0.0596	1.3008	1.3604	0.0000	3,117.1877	3,117.1877	0.7196	0.0000	3,134.8334
Maximum	**26.8381**	**59.5991**	**36.0929**	**0.0645**	**18.2675**	**2.6355**	**20.8460**	**9.9840**	**2.4247**	**12.3563**	**0.0000**	**6,488.2987**	**6,488.2987**	**1.9523**	**0.0000**	**6,537.1060**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.1979	59.5991	36.0929	0.0645	7.2470	2.6355	9.8256	3.9263	2.4247	6.2986	0.0000	6,488.2987	6,488.2987	1.9523	0.0000	6,537.1060
2019	26.8381	23.3363	19.2161	0.0321	0.2220	1.3855	1.6075	0.0596	1.3008	1.3604	0.0000	3,117.1877	3,117.1877	0.7196	0.0000	3,134.8334
Maximum	**26.8381**	**59.5991**	**36.0929**	**0.0645**	**7.2470**	**2.6355**	**9.8256**	**3.9263**	**2.4247**	**6.2986**	**0.0000**	**6,488.2987**	**6,488.2987**	**1.9523**	**0.0000**	**6,537.1060**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.60**	**0.00**	**49.08**	**60.31**	**0.00**	**44.16**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/20/2018	5	30	
3	Building Construction	Building Construction	7/21/2018	9/13/2019	5	300	
4	Paving	Paving	9/14/2019	10/11/2019	5	20	
5	Architectural Coating	Architectural Coating	10/12/2019	11/8/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 171,315; Residential Outdoor: 57,105; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	8.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	17.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**8.6733**	**2.6337**	**11.3071**	**3.5965**	**2.4230**	**6.0195**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1078	0.0773	1.0035	2.4500e-003	0.2236	1.7800e-003	0.2253	0.0593	1.6400e-003	0.0609		243.8703	243.8703	8.3200e-003		244.0782
Total	**0.1078**	**0.0773**	**1.0035**	**2.4500e-003**	**0.2236**	**1.7800e-003**	**0.2253**	**0.0593**	**1.6400e-003**	**0.0609**		**243.8703**	**243.8703**	**8.3200e-003**		**244.0782**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**3.3826**	**2.6337**	**6.0163**	**1.4026**	**2.4230**	**3.8257**	**0.0000**	**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1078	0.0773	1.0035	2.4500e-003	0.2236	1.7800e-003	0.2253	0.0593	1.6400e-003	0.0609		243.8703	243.8703	8.3200e-003		244.0782
Total	**0.1078**	**0.0773**	**1.0035**	**2.4500e-003**	**0.2236**	**1.7800e-003**	**0.2253**	**0.0593**	**1.6400e-003**	**0.0609**		**243.8703**	**243.8703**	**8.3200e-003**		**244.0782**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082		2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**		**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0213	0.6059	0.1509	1.3100e-003	0.0320	4.4300e-003	0.0364	9.2100e-003	4.2400e-003	0.0135		139.3290	139.3290	9.4800e-003		139.5661
Worker	0.0916	0.0657	0.8530	2.0800e-003	0.1900	1.5100e-003	0.1915	0.0504	1.4000e-003	0.0518		207.2898	207.2898	7.0700e-003		207.4665
Total	**0.1129**	**0.6716**	**1.0039**	**3.3900e-003**	**0.2220**	**5.9400e-003**	**0.2280**	**0.0596**	**5.6400e-003**	**0.0652**		**346.6188**	**346.6188**	**0.0166**		**347.0326**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082	0.0000	2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**	**0.0000**	**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0213	0.6059	0.1509	1.3100e-003	0.0320	4.4300e-003	0.0364	9.2100e-003	4.2400e-003	0.0135		139.3290	139.3290	9.4800e-003		139.5661
Worker	0.0916	0.0657	0.8530	2.0800e-003	0.1900	1.5100e-003	0.1915	0.0504	1.4000e-003	0.0518		207.2898	207.2898	7.0700e-003		207.4665
Total	**0.1129**	**0.6716**	**1.0039**	**3.3900e-003**	**0.2220**	**5.9400e-003**	**0.2280**	**0.0596**	**5.6400e-003**	**0.0652**		**346.6188**	**346.6188**	**0.0166**		**347.0326**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958		2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**		**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0193	0.5721	0.1383	1.3000e-003	0.0320	3.7900e-003	0.0358	9.2100e-003	3.6300e-003	0.0128		138.1099	138.1099	9.1400e-003		138.3383
Worker	0.0833	0.0579	0.7639	2.0200e-003	0.1900	1.4800e-003	0.1915	0.0504	1.3600e-003	0.0518		200.7681	200.7681	6.2800e-003		200.9251
Total	**0.1025**	**0.6301**	**0.9022**	**3.3200e-003**	**0.2220**	**5.2700e-003**	**0.2273**	**0.0596**	**4.9900e-003**	**0.0646**		**338.8780**	**338.8780**	**0.0154**		**339.2634**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958	0.0000	2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**	**0.0000**	**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0193	0.5721	0.1383	1.3000e-003	0.0320	3.7900e-003	0.0358	9.2100e-003	3.6300e-003	0.0128		138.1099	138.1099	9.1400e-003		138.3383
Worker	0.0833	0.0579	0.7639	2.0200e-003	0.1900	1.4800e-003	0.1915	0.0504	1.3600e-003	0.0518		200.7681	200.7681	6.2800e-003		200.9251
Total	**0.1025**	**0.6301**	**0.9022**	**3.3200e-003**	**0.2220**	**5.2700e-003**	**0.2273**	**0.0596**	**4.9900e-003**	**0.0646**		**338.8780**	**338.8780**	**0.0154**		**339.2634**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	26.4682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**26.8234**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0147	0.0102	0.1348	3.6000e-004	0.0335	2.6000e-004	0.0338	8.8900e-003	2.4000e-004	9.1300e-003		35.4297	35.4297	1.1100e-003		35.4574
Total	**0.0147**	**0.0102**	**0.1348**	**3.6000e-004**	**0.0335**	**2.6000e-004**	**0.0338**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**		**35.4297**	**35.4297**	**1.1100e-003**		**35.4574**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	26.4682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**26.8234**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0147	0.0102	0.1348	3.6000e-004	0.0335	2.6000e-004	0.0338	8.8900e-003	2.4000e-004	9.1300e-003		35.4297	35.4297	1.1100e-003		35.4574
Total	**0.0147**	**0.0102**	**0.1348**	**3.6000e-004**	**0.0335**	**2.6000e-004**	**0.0338**	**8.8900e-003**	**2.4000e-004**	**9.1300e-003**		**35.4297**	**35.4297**	**1.1100e-003**		**35.4574**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533
Unmitigated	1.9394	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	6.9820	6.9820	6.8500e-003	0.0000	7.1533

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**		**0.0214**	**0.0214**		**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**1.9394**	**0.0451**	**3.8968**	**2.0000e-004**		**0.0214**	**0.0214**		**0.0214**	**0.0214**	**0.0000**	**6.9820**	**6.9820**	**6.8500e-003**	**0.0000**	**7.1533**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Brodiaea Residential Proposed (Construction-Unmitigated)

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Project Characteristics -

Land Use -

Construction Phase -

Off-road Equipment - Hours based on 8 hour work day

Off-road Equipment -

Off-road Equipment - hours based on 8 hour work day

Vehicle Trips - Construction run only

Woodstoves - Construction run only

Energy Use - Construction run only

Water And Wastewater - Construction run only

Solid Waste - Construction run only

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/6/2019	11/8/2019
tblConstructionPhase	PhaseEndDate	10/11/2019	9/13/2019
tblConstructionPhase	PhaseEndDate	8/17/2018	7/20/2018
tblConstructionPhase	PhaseEndDate	11/8/2019	10/11/2019
tblConstructionPhase	PhaseEndDate	7/6/2018	6/8/2018
tblConstructionPhase	PhaseStartDate	11/9/2019	10/12/2019
tblConstructionPhase	PhaseStartDate	8/18/2018	7/21/2018
tblConstructionPhase	PhaseStartDate	7/7/2018	6/9/2018
tblConstructionPhase	PhaseStartDate	10/12/2019	9/14/2019
tblConstructionPhase	PhaseStartDate	6/23/2018	5/28/2018
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Brodiaea Residential Proposed (Construction-Unmitigated) - South Coast AQMD Air District, Annual

tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	39.95	0.00
tblFireplaces	NumberNoFireplace	4.70	0.00
tblFireplaces	NumberWood	2.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	54.94	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	3,062,239.20	0.00
tblWater	OutdoorWaterUseRate	1,930,542.11	0.00
tblWoodstoves	NumberCatalytic	2.35	0.00

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

tblWoodstoves	NumberNoncatalytic	2.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2731	2.6389	1.8010	3.0300e-003	0.2374	0.1460	0.3833	0.1081	0.1360	0.2442	0.0000	271.9740	271.9740	0.0698	0.0000	273.7182
2019	0.5241	2.3262	1.9422	3.2300e-003	0.0220	0.1374	0.1595	5.9200e-003	0.1290	0.1349	0.0000	284.9247	284.9247	0.0657	0.0000	286.5680
Maximum	**0.5241**	**2.6389**	**1.9422**	**3.2300e-003**	**0.2374**	**0.1460**	**0.3833**	**0.1081**	**0.1360**	**0.2442**	**0.0000**	**284.9247**	**284.9247**	**0.0698**	**0.0000**	**286.5680**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2731	2.6389	1.8010	3.0300e-003	0.1029	0.1460	0.2489	0.0449	0.1360	0.1810	0.0000	271.9737	271.9737	0.0698	0.0000	273.7179
2019	0.5241	2.3262	1.9422	3.2300e-003	0.0220	0.1374	0.1595	5.9200e-003	0.1290	0.1349	0.0000	284.9244	284.9244	0.0657	0.0000	286.5677
Maximum	**0.5241**	**2.6389**	**1.9422**	**3.2300e-003**	**0.1029**	**0.1460**	**0.2489**	**0.0449**	**0.1360**	**0.1810**	**0.0000**	**284.9244**	**284.9244**	**0.0698**	**0.0000**	**286.5677**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**51.84**	**0.00**	**24.77**	**55.41**	**0.00**	**16.67**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-28-2018	8-27-2018	1.5905	1.5905
2	8-28-2018	11-27-2018	0.9487	0.9487
3	11-28-2018	2-27-2019	0.8885	0.8885
4	2-28-2019	5-27-2019	0.8250	0.8250
5	5-28-2019	8-27-2019	0.8527	0.8527
6	8-28-2019	9-30-2019	0.2597	0.2597
		Highest	1.5905	1.5905

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3471	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3471**	**5.6400e-003**	**0.4871**	**3.0000e-005**	**0.0000**	**2.6700e-003**	**2.6700e-003**	**0.0000**	**2.6700e-003**	**2.6700e-003**	**0.0000**	**0.7917**	**0.7917**	**7.8000e-004**	**0.0000**	**0.8112**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3471	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3471**	**5.6400e-003**	**0.4871**	**3.0000e-005**	**0.0000**	**2.6700e-003**	**2.6700e-003**	**0.0000**	**2.6700e-003**	**2.6700e-003**	**0.0000**	**0.7917**	**0.7917**	**7.8000e-004**	**0.0000**	**0.8112**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Brodiaea Residential Proposed (Construction-Unmitigated) - South Coast AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/20/2018	5	30	
3	Building Construction	Building Construction	7/21/2018	9/13/2019	5	300	
4	Paving	Paving	9/14/2019	10/11/2019	5	20	
5	Architectural Coating	Architectural Coating	10/12/2019	11/8/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 171,315; Residential Outdoor: 57,105; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	8.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	17.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.9000e-004	4.2000e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9473	0.9473	3.0000e-005	0.0000	0.9481
Total	**4.8000e-004**	**3.9000e-004**	**4.2000e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.9473**	**0.9473**	**3.0000e-005**	**0.0000**	**0.9481**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0352	0.0000	0.0352	0.0194	0.0000	0.0194	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0352**	**0.0129**	**0.0481**	**0.0194**	**0.0119**	**0.0312**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.9000e-004	4.2000e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9473	0.9473	3.0000e-005	0.0000	0.9481
Total	**4.8000e-004**	**3.9000e-004**	**4.2000e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.9473**	**0.9473**	**3.0000e-005**	**0.0000**	**0.9481**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0764	0.8928	0.5263	9.3000e-004		0.0395	0.0395		0.0364	0.0364	0.0000	84.9728	84.9728	0.0265	0.0000	85.6341
Total	**0.0764**	**0.8928**	**0.5263**	**9.3000e-004**	**0.1301**	**0.0395**	**0.1696**	**0.0540**	**0.0364**	**0.0903**	**0.0000**	**84.9728**	**84.9728**	**0.0265**	**0.0000**	**85.6341**

3.3 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-003	1.3000e-003	0.0140	3.0000e-005	3.2900e-003	3.0000e-005	3.3200e-003	8.7000e-004	2.0000e-005	9.0000e-004	0.0000	3.1575	3.1575	1.1000e-004	0.0000	3.1602
Total	**1.5900e-003**	**1.3000e-003**	**0.0140**	**3.0000e-005**	**3.2900e-003**	**3.0000e-005**	**3.3200e-003**	**8.7000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**3.1575**	**3.1575**	**1.1000e-004**	**0.0000**	**3.1602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0507	0.0000	0.0507	0.0210	0.0000	0.0210	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0764	0.8928	0.5263	9.3000e-004		0.0395	0.0395		0.0364	0.0364	0.0000	84.9727	84.9727	0.0265	0.0000	85.6340
Total	**0.0764**	**0.8928**	**0.5263**	**9.3000e-004**	**0.0507**	**0.0395**	**0.0903**	**0.0210**	**0.0364**	**0.0574**	**0.0000**	**84.9727**	**84.9727**	**0.0265**	**0.0000**	**85.6340**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.3 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-003	1.3000e-003	0.0140	3.0000e-005	3.2900e-003	3.0000e-005	3.3200e-003	8.7000e-004	2.0000e-005	9.0000e-004	0.0000	3.1575	3.1575	1.1000e-004	0.0000	3.1602
Total	**1.5900e-003**	**1.3000e-003**	**0.0140**	**3.0000e-005**	**3.2900e-003**	**3.0000e-005**	**3.3200e-003**	**8.7000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**3.1575**	**3.1575**	**1.1000e-004**	**0.0000**	**3.1602**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1653	1.4633	1.0888	1.6700e-003		0.0932	0.0932		0.0875	0.0875	0.0000	147.8951	147.8951	0.0369	0.0000	148.8175
Total	**0.1653**	**1.4633**	**1.0888**	**1.6700e-003**		**0.0932**	**0.0932**		**0.0875**	**0.0875**	**0.0000**	**147.8951**	**147.8951**	**0.0369**	**0.0000**	**148.8175**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2600e-003	0.0359	9.2400e-003	8.0000e-005	1.8300e-003	2.6000e-004	2.0900e-003	5.3000e-004	2.5000e-004	7.7000e-004	0.0000	7.2437	7.2437	5.2000e-004	0.0000	7.2566
Worker	5.2400e-003	4.2900e-003	0.0460	1.1000e-004	0.0108	9.0000e-005	0.0109	2.8700e-003	8.0000e-005	2.9500e-003	0.0000	10.3777	10.3777	3.5000e-004	0.0000	10.3865
Total	**6.5000e-003**	**0.0401**	**0.0553**	**1.9000e-004**	**0.0127**	**3.5000e-004**	**0.0130**	**3.4000e-003**	**3.3000e-004**	**3.7200e-003**	**0.0000**	**17.6214**	**17.6214**	**8.7000e-004**	**0.0000**	**17.6432**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1653	1.4633	1.0888	1.6700e-003		0.0932	0.0932		0.0875	0.0875	0.0000	147.8949	147.8949	0.0369	0.0000	148.8174
Total	**0.1653**	**1.4633**	**1.0888**	**1.6700e-003**		**0.0932**	**0.0932**		**0.0875**	**0.0875**	**0.0000**	**147.8949**	**147.8949**	**0.0369**	**0.0000**	**148.8174**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2600e-003	0.0359	9.2400e-003	8.0000e-005	1.8300e-003	2.6000e-004	2.0900e-003	5.3000e-004	2.5000e-004	7.7000e-004	0.0000	7.2437	7.2437	5.2000e-004	0.0000	7.2566
Worker	5.2400e-003	4.2900e-003	0.0460	1.1000e-004	0.0108	9.0000e-005	0.0109	2.8700e-003	8.0000e-005	2.9500e-003	0.0000	10.3777	10.3777	3.5000e-004	0.0000	10.3865
Total	**6.5000e-003**	**0.0401**	**0.0553**	**1.9000e-004**	**0.0127**	**3.5000e-004**	**0.0130**	**3.4000e-003**	**3.3000e-004**	**3.7200e-003**	**0.0000**	**17.6214**	**17.6214**	**8.7000e-004**	**0.0000**	**17.6432**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2311	2.0890	1.6849	2.6500e-003		0.1270	0.1270		0.1192	0.1192	0.0000	231.8805	231.8805	0.0576	0.0000	233.3211
Total	**0.2311**	**2.0890**	**1.6849**	**2.6500e-003**		**0.1270**	**0.1270**		**0.1192**	**0.1192**	**0.0000**	**231.8805**	**231.8805**	**0.0576**	**0.0000**	**233.3211**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8100e-003	0.0536	0.0135	1.2000e-004	2.9000e-003	3.5000e-004	3.2500e-003	8.4000e-004	3.4000e-004	1.1700e-003	0.0000	11.3883	11.3883	7.9000e-004	0.0000	11.4080
Worker	7.5500e-003	6.0000e-003	0.0652	1.8000e-004	0.0172	1.4000e-004	0.0173	4.5600e-003	1.3000e-004	4.6800e-003	0.0000	15.9417	15.9417	5.0000e-004	0.0000	15.9542
Total	**9.3600e-003**	**0.0596**	**0.0787**	**3.0000e-004**	**0.0201**	**4.9000e-004**	**0.0206**	**5.4000e-003**	**4.7000e-004**	**5.8500e-003**	**0.0000**	**27.3300**	**27.3300**	**1.2900e-003**	**0.0000**	**27.3622**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2311	2.0890	1.6849	2.6500e-003		0.1270	0.1270		0.1192	0.1192	0.0000	231.8802	231.8802	0.0576	0.0000	233.3208
Total	**0.2311**	**2.0890**	**1.6849**	**2.6500e-003**		**0.1270**	**0.1270**		**0.1192**	**0.1192**	**0.0000**	**231.8802**	**231.8802**	**0.0576**	**0.0000**	**233.3208**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8100e-003	0.0536	0.0135	1.2000e-004	2.9000e-003	3.5000e-004	3.2500e-003	8.4000e-004	3.4000e-004	1.1700e-003	0.0000	11.3883	11.3883	7.9000e-004	0.0000	11.4080
Worker	7.5500e-003	6.0000e-003	0.0652	1.8000e-004	0.0172	1.4000e-004	0.0173	4.5600e-003	1.3000e-004	4.6800e-003	0.0000	15.9417	15.9417	5.0000e-004	0.0000	15.9542
Total	**9.3600e-003**	**0.0596**	**0.0787**	**3.0000e-004**	**0.0201**	**4.9000e-004**	**0.0206**	**5.4000e-003**	**4.7000e-004**	**5.8500e-003**	**0.0000**	**27.3300**	**27.3300**	**1.2900e-003**	**0.0000**	**27.3622**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.5 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.8000e-004	6.2500e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5289	1.5289	5.0000e-005	0.0000	1.5301
Total	**7.2000e-004**	**5.8000e-004**	**6.2500e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5289**	**1.5289**	**5.0000e-005**	**0.0000**	**1.5301**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.5 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.8000e-004	6.2500e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5289	1.5289	5.0000e-005	0.0000	1.5301
Total	**7.2000e-004**	**5.8000e-004**	**6.2500e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5289**	**1.5289**	**5.0000e-005**	**0.0000**	**1.5301**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2647					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5500e-003	0.0245	0.0246	4.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	3.4043	3.4043	2.9000e-004	0.0000	3.4115
Total	**0.2682**	**0.0245**	**0.0246**	**4.0000e-005**		**1.7200e-003**	**1.7200e-003**		**1.7200e-003**	**1.7200e-003**	**0.0000**	**3.4043**	**3.4043**	**2.9000e-004**	**0.0000**	**3.4115**

3.6 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.2000e-004	1.2500e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3058	0.3058	1.0000e-005	0.0000	0.3060
Total	**1.4000e-004**	**1.2000e-004**	**1.2500e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3058**	**0.3058**	**1.0000e-005**	**0.0000**	**0.3060**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2647					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5500e-003	0.0245	0.0246	4.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	3.4043	3.4043	2.9000e-004	0.0000	3.4115
Total	**0.2682**	**0.0245**	**0.0246**	**4.0000e-005**		**1.7200e-003**	**1.7200e-003**		**1.7200e-003**	**1.7200e-003**	**0.0000**	**3.4043**	**3.4043**	**2.9000e-004**	**0.0000**	**3.4115**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.6 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.2000e-004	1.2500e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3058	0.3058	1.0000e-005	0.0000	0.3060
Total	**1.4000e-004**	**1.2000e-004**	**1.2500e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3058**	**0.3058**	**1.0000e-005**	**0.0000**	**0.3060**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3471	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Unmitigated	0.3471	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0265					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0149	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Total	**0.3471**	**5.6400e-003**	**0.4871**	**3.0000e-005**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**0.7917**	**0.7917**	**7.8000e-004**	**0.0000**	**0.8112**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0265					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0149	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Total	**0.3471**	**5.6400e-003**	**0.4871**	**3.0000e-005**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**0.7917**	**0.7917**	**7.8000e-004**	**0.0000**	**0.8112**

7.0 Water Detail

7.1 Mitigation Measures Water

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT B:

CALEEMOD AIR QUALITY CURRENTLY ADOPTED LAND USE (CONSTRUCTION) MISSIONS MODEL OUTPUTS

Brodiaea Residential Current (Construction)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Project Characteristics -

Land Use -

Construction Phase - Current Proposed Construction Run Only (27 DU)

Off-road Equipment - Current Construction Run Only (27 DU)

Off-road Equipment - Construction Run Only (Current 27 DU)

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips - Current Construction Run Only (27 DU)

Woodstoves - Operations Run Only.

Energy Use - Operations Run Only.

Consumer Products -

Water And Wastewater - Operations Run Only.

Solid Waste - Operations Run Only.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00
tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	22.95	0.00
tblFireplaces	NumberNoFireplace	2.70	0.00

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

tblFireplaces	NumberWood	1.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	31.57	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	1,759,158.69	0.00
tblWater	OutdoorWaterUseRate	1,109,034.83	0.00
tblWoodstoves	NumberCatalytic	1.35	0.00
tblWoodstoves	NumberNoncatalytic	1.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.6682	48.2749	23.2937	0.0401	18.2675	2.5785	20.8460	9.9840	2.3722	12.3563	0.0000	4,036.9461	4,036.9461	1.1999	0.0000	4,066.9422
2019	15.5710	23.0870	18.8117	0.0307	0.1677	1.3834	1.5144	0.0445	1.2989	1.3340	0.0000	2,969.2701	2,969.2701	0.7193	0.0000	2,986.7640
Maximum	**15.5710**	**48.2749**	**23.2937**	**0.0401**	**18.2675**	**2.5785**	**20.8460**	**9.9840**	**2.3722**	**12.3563**	**0.0000**	**4,036.9461**	**4,036.9461**	**1.1999**	**0.0000**	**4,066.9422**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.6682	48.2749	23.2937	0.0401	7.2470	2.5785	9.8256	3.9263	2.3722	6.2986	0.0000	4,036.9461	4,036.9461	1.1999	0.0000	4,066.9422
2019	15.5710	23.0870	18.8117	0.0307	0.1677	1.3834	1.5144	0.0445	1.2989	1.3340	0.0000	2,969.2701	2,969.2701	0.7193	0.0000	2,986.7640
Maximum	**15.5710**	**48.2749**	**23.2937**	**0.0401**	**7.2470**	**2.5785**	**9.8256**	**3.9263**	**2.3722**	**6.2986**	**0.0000**	**4,036.9461**	**4,036.9461**	**1.1999**	**0.0000**	**4,066.9422**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.78**	**0.00**	**49.29**	**60.40**	**0.00**	**44.25**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/6/2018	5	20	
3	Building Construction	Building Construction	7/7/2018	5/24/2019	5	230	
4	Paving	Paving	5/25/2019	6/21/2019	5	20	
5	Architectural Coating	Architectural Coating	6/22/2019	7/19/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 98,415; Residential Outdoor: 32,805; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	10.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Site Preparation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.5523**	**1.5513**	**8.1037**	**3.3675**	**1.4272**	**4.7947**		**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0879**	**0.0635**	**0.6811**	**1.7200e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**171.1019**	**171.1019**	**5.8400e-003**		**171.2479**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.3 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**2.5554**	**1.5513**	**4.1067**	**1.3133**	**1.4272**	**2.7405**	**0.0000**	**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0879**	**0.0635**	**0.6811**	**1.7200e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**171.1019**	**171.1019**	**5.8400e-003**		**171.2479**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082		2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**		**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0133	0.3642	0.1005	7.6000e-004	0.0192	2.7000e-003	0.0219	5.5300e-003	2.5800e-003	8.1100e-003		81.2269	81.2269	6.1100e-003		81.3797
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.0719**	**0.4065**	**0.5546**	**1.9100e-003**	**0.1310**	**3.5900e-003**	**0.1346**	**0.0352**	**3.4000e-003**	**0.0386**		**195.2949**	**195.2949**	**0.0100**		**195.5450**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082	0.0000	2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**	**0.0000**	**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0133	0.3642	0.1005	7.6000e-004	0.0192	2.7000e-003	0.0219	5.5300e-003	2.5800e-003	8.1100e-003		81.2269	81.2269	6.1100e-003		81.3797
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.0719**	**0.4065**	**0.5546**	**1.9100e-003**	**0.1310**	**3.5900e-003**	**0.1346**	**0.0352**	**3.4000e-003**	**0.0386**		**195.2949**	**195.2949**	**0.0100**		**195.5450**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958		2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**		**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0121	0.3435	0.0924	7.6000e-004	0.0192	2.3100e-003	0.0215	5.5300e-003	2.2100e-003	7.7400e-003		80.4949	80.4949	5.8900e-003		80.6422
Worker	0.0533	0.0373	0.4054	1.1100e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		110.4656	110.4656	3.4500e-003		110.5519
Total	**0.0654**	**0.3808**	**0.4978**	**1.8700e-003**	**0.1310**	**3.1800e-003**	**0.1342**	**0.0352**	**3.0100e-003**	**0.0382**		**190.9605**	**190.9605**	**9.3400e-003**		**191.1940**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958	0.0000	2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**	**0.0000**	**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0121	0.3435	0.0924	7.6000e-004	0.0192	2.3100e-003	0.0215	5.5300e-003	2.2100e-003	7.7400e-003		80.4949	80.4949	5.8900e-003		80.6422
Worker	0.0533	0.0373	0.4054	1.1100e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		110.4656	110.4656	3.4500e-003		110.5519
Total	**0.0654**	**0.3808**	**0.4978**	**1.8700e-003**	**0.1310**	**3.1800e-003**	**0.1342**	**0.0352**	**3.0100e-003**	**0.0382**		**190.9605**	**190.9605**	**9.3400e-003**		**191.1940**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0800**	**0.0560**	**0.6081**	**1.6600e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**165.6984**	**165.6984**	**5.1800e-003**		**165.8278**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.2051					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**15.5604**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0107**	**7.4700e-003**	**0.0811**	**2.2000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**22.0931**	**22.0931**	**6.9000e-004**		**22.1104**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.2051					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**15.5604**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0107**	**7.4700e-003**	**0.0811**	**2.2000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**22.0931**	**22.0931**	**6.9000e-004**		**22.1104**

4.0 Operational Detail - Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Unmitigated	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Brodiaea Residential Current (Construction)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Project Characteristics -

Land Use -

Construction Phase - Current Proposed Construction Run Only (27 DU)

Off-road Equipment - Current Construction Run Only (27 DU)

Off-road Equipment - Construction Run Only (Current 27 DU)

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips - Current Construction Run Only (27 DU)

Woodstoves - Operations Run Only.

Energy Use - Operations Run Only.

Consumer Products -

Water And Wastewater - Operations Run Only.

Solid Waste - Operations Run Only.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00
tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	22.95	0.00
tblFireplaces	NumberNoFireplace	2.70	0.00

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

tblFireplaces	NumberWood	1.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	31.57	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	1,759,158.69	0.00
tblWater	OutdoorWaterUseRate	1,109,034.83	0.00
tblWoodstoves	NumberCatalytic	1.35	0.00
tblWoodstoves	NumberNoncatalytic	1.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.6597	48.2683	23.3795	0.0402	18.2675	2.5785	20.8460	9.9840	2.3722	12.3563	0.0000	4,051.1072	4,051.1072	1.2003	0.0000	4,081.1152
2019	15.5702	23.0835	18.8462	0.0308	0.1677	1.3834	1.5143	0.0445	1.2988	1.3340	0.0000	2,979.2745	2,979.2745	0.7196	0.0000	2,996.7642
Maximum	**15.5702**	**48.2683**	**23.3795**	**0.0402**	**18.2675**	**2.5785**	**20.8460**	**9.9840**	**2.3722**	**12.3563**	**0.0000**	**4,051.1072**	**4,051.1072**	**1.2003**	**0.0000**	**4,081.1152**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.6597	48.2683	23.3795	0.0402	7.2470	2.5785	9.8256	3.9263	2.3722	6.2986	0.0000	4,051.1072	4,051.1072	1.2003	0.0000	4,081.1152
2019	15.5702	23.0835	18.8462	0.0308	0.1677	1.3834	1.5143	0.0445	1.2988	1.3340	0.0000	2,979.2745	2,979.2745	0.7196	0.0000	2,996.7642
Maximum	**15.5702**	**48.2683**	**23.3795**	**0.0402**	**7.2470**	**2.5785**	**9.8256**	**3.9263**	**2.3722**	**6.2986**	**0.0000**	**4,051.1072**	**4,051.1072**	**1.2003**	**0.0000**	**4,081.1152**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.78**	**0.00**	**49.29**	**60.40**	**0.00**	**44.25**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/6/2018	5	20	
3	Building Construction	Building Construction	7/7/2018	5/24/2019	5	230	
4	Paving	Paving	5/25/2019	6/21/2019	5	20	
5	Architectural Coating	Architectural Coating	6/22/2019	7/19/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 98,415; Residential Outdoor: 32,805; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	10.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Site Preparation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.5523**	**1.5513**	**8.1037**	**3.3675**	**1.4272**	**4.7947**		**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0808**	**0.0580**	**0.7526**	**1.8400e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**182.9028**	**182.9028**	**6.2400e-003**		**183.0587**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.3 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**2.5554**	**1.5513**	**4.1067**	**1.3133**	**1.4272**	**2.7405**	**0.0000**	**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0808**	**0.0580**	**0.7526**	**1.8400e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**182.9028**	**182.9028**	**6.2400e-003**		**183.0587**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082		2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**		**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0128	0.3636	0.0905	7.9000e-004	0.0192	2.6600e-003	0.0219	5.5300e-003	2.5400e-003	8.0700e-003		83.5974	83.5974	5.6900e-003		83.7397
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.0667**	**0.4022**	**0.5923**	**2.0200e-003**	**0.1310**	**3.5500e-003**	**0.1345**	**0.0352**	**3.3600e-003**	**0.0385**		**205.5326**	**205.5326**	**9.8500e-003**		**205.7788**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8506	25.2288	18.7719	0.0288		1.6066	1.6066		1.5082	1.5082	0.0000	2,810.8008	2,810.8008	0.7012		2,828.3317
Total	**2.8506**	**25.2288**	**18.7719**	**0.0288**		**1.6066**	**1.6066**		**1.5082**	**1.5082**	**0.0000**	**2,810.8008**	**2,810.8008**	**0.7012**		**2,828.3317**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0128	0.3636	0.0905	7.9000e-004	0.0192	2.6600e-003	0.0219	5.5300e-003	2.5400e-003	8.0700e-003		83.5974	83.5974	5.6900e-003		83.7397
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.0667**	**0.4022**	**0.5923**	**2.0200e-003**	**0.1310**	**3.5500e-003**	**0.1345**	**0.0352**	**3.3600e-003**	**0.0385**		**205.5326**	**205.5326**	**9.8500e-003**		**205.7788**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958		2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**		**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0116	0.3433	0.0830	7.8000e-004	0.0192	2.2700e-003	0.0215	5.5300e-003	2.1800e-003	7.7000e-003		82.8659	82.8659	5.4800e-003		83.0030
Worker	0.0490	0.0341	0.4493	1.1900e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		118.0989	118.0989	3.6900e-003		118.1912
Total	**0.0605**	**0.3774**	**0.5323**	**1.9700e-003**	**0.1310**	**3.1400e-003**	**0.1341**	**0.0352**	**2.9800e-003**	**0.0382**		**200.9648**	**200.9648**	**9.1700e-003**		**201.1942**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5115	22.7062	18.3139	0.0288		1.3802	1.3802		1.2958	1.2958	0.0000	2,778.3097	2,778.3097	0.6904		2,795.5700
Total	**2.5115**	**22.7062**	**18.3139**	**0.0288**		**1.3802**	**1.3802**		**1.2958**	**1.2958**	**0.0000**	**2,778.3097**	**2,778.3097**	**0.6904**		**2,795.5700**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0116	0.3433	0.0830	7.8000e-004	0.0192	2.2700e-003	0.0215	5.5300e-003	2.1800e-003	7.7000e-003		82.8659	82.8659	5.4800e-003		83.0030
Worker	0.0490	0.0341	0.4493	1.1900e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		118.0989	118.0989	3.6900e-003		118.1912
Total	**0.0605**	**0.3774**	**0.5323**	**1.9700e-003**	**0.1310**	**3.1400e-003**	**0.1341**	**0.0352**	**2.9800e-003**	**0.0382**		**200.9648**	**200.9648**	**9.1700e-003**		**201.1942**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4544**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0735**	**0.0511**	**0.6740**	**1.7800e-003**	**0.1677**	**1.3000e-003**	**0.1690**	**0.0445**	**1.2000e-003**	**0.0457**		**177.1484**	**177.1484**	**5.5400e-003**		**177.2869**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.2051					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**15.5604**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**9.7900e-003**	**6.8200e-003**	**0.0899**	**2.4000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**23.6198**	**23.6198**	**7.4000e-004**		**23.6383**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.2051					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**15.5604**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**9.7900e-003**	**6.8200e-003**	**0.0899**	**2.4000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**23.6198**	**23.6198**	**7.4000e-004**		**23.6383**

4.0 Operational Detail - Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093
Unmitigated	1.1141	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	4.0109	4.0109	3.9400e-003	0.0000	4.1093

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**1.1141**	**0.0259**	**2.2386**	**1.2000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**4.0109**	**4.0109**	**3.9400e-003**	**0.0000**	**4.1093**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Brodiaea Residential Current (Construction)

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Project Characteristics -

Land Use -

Construction Phase - Current Proposed Construction Run Only (27 DU)

Off-road Equipment - Current Construction Run Only (27 DU)

Off-road Equipment - Construction Run Only (Current 27 DU)

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips - Current Construction Run Only (27 DU)

Woodstoves - Operations Run Only.

Energy Use - Operations Run Only.

Consumer Products -

Water And Wastewater - Operations Run Only.

Solid Waste - Operations Run Only.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	6,030.00	0.00
tblEnergyUse	T24E	951.67	0.00
tblEnergyUse	T24NG	24,566.15	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	22.95	0.00
tblFireplaces	NumberNoFireplace	2.70	0.00

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

tblFireplaces	NumberWood	1.35	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	31.57	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	1,759,158.69	0.00
tblWater	OutdoorWaterUseRate	1,109,034.83	0.00
tblWoodstoves	NumberCatalytic	1.35	0.00
tblWoodstoves	NumberNoncatalytic	1.35	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2356	2.1643	1.5074	2.4500e-003	0.1666	0.1299	0.2965	0.0862	0.1214	0.2076	0.0000	219.0092	219.0092	0.0546	0.0000	220.3736
2019	0.3047	1.3785	1.1569	1.8800e-003	8.5500e-003	0.0819	0.0905	2.2900e-003	0.0769	0.0792	0.0000	165.8376	165.8376	0.0398	0.0000	166.8332
Maximum	**0.3047**	**2.1643**	**1.5074**	**2.4500e-003**	**0.1666**	**0.1299**	**0.2965**	**0.0862**	**0.1214**	**0.2076**	**0.0000**	**219.0092**	**219.0092**	**0.0546**	**0.0000**	**220.3736**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2356	2.1643	1.5074	2.4500e-003	0.0715	0.1299	0.2014	0.0354	0.1214	0.1568	0.0000	219.0090	219.0090	0.0546	0.0000	220.3733
2019	0.3047	1.3785	1.1569	1.8800e-003	8.5500e-003	0.0819	0.0905	2.2900e-003	0.0769	0.0792	0.0000	165.8375	165.8375	0.0398	0.0000	166.8330
Maximum	**0.3047**	**2.1643**	**1.5074**	**2.4500e-003**	**0.0715**	**0.1299**	**0.2014**	**0.0354**	**0.1214**	**0.1568**	**0.0000**	**219.0090**	**219.0090**	**0.0546**	**0.0000**	**220.3733**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.28**	**0.00**	**24.57**	**57.44**	**0.00**	**17.73**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-28-2018	8-27-2018	1.0929	1.0929
2	8-28-2018	11-27-2018	0.9382	0.9382
3	11-28-2018	2-27-2019	0.8784	0.8784
4	2-28-2019	5-27-2019	0.8061	0.8061
5	5-28-2019	8-27-2019	0.3304	0.3304
		Highest	1.0929	1.0929

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1994	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1994**	**3.2400e-003**	**0.2798**	**1.0000e-005**	**0.0000**	**1.5300e-003**	**1.5300e-003**	**0.0000**	**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.4548**	**0.4548**	**4.5000e-004**	**0.0000**	**0.4660**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1994	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1994**	**3.2400e-003**	**0.2798**	**1.0000e-005**	**0.0000**	**1.5300e-003**	**1.5300e-003**	**0.0000**	**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.4548**	**0.4548**	**4.5000e-004**	**0.0000**	**0.4660**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/28/2018	6/8/2018	5	10	
2	Grading	Grading	6/9/2018	7/6/2018	5	20	
3	Building Construction	Building Construction	7/7/2018	5/24/2019	5	230	
4	Paving	Paving	5/25/2019	6/21/2019	5	20	
5	Architectural Coating	Architectural Coating	6/22/2019	7/19/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 98,415; Residential Outdoor: 32,805; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	10.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.9000e-004	4.2000e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9473	0.9473	3.0000e-005	0.0000	0.9481
Total	**4.8000e-004**	**3.9000e-004**	**4.2000e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.9473**	**0.9473**	**3.0000e-005**	**0.0000**	**0.9481**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Site Preparation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0352	0.0000	0.0352	0.0194	0.0000	0.0194	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0352**	**0.0129**	**0.0481**	**0.0194**	**0.0119**	**0.0312**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.9000e-004	4.2000e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9473	0.9473	3.0000e-005	0.0000	0.9481
Total	**4.8000e-004**	**3.9000e-004**	**4.2000e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.9473**	**0.9473**	**3.0000e-005**	**0.0000**	**0.9481**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0277	0.3067	0.1658	3.0000e-004		0.0155	0.0155		0.0143	0.0143	0.0000	27.1069	27.1069	8.4400e-003	0.0000	27.3178
Total	**0.0277**	**0.3067**	**0.1658**	**3.0000e-004**	**0.0655**	**0.0155**	**0.0810**	**0.0337**	**0.0143**	**0.0479**	**0.0000**	**27.1069**	**27.1069**	**8.4400e-003**	**0.0000**	**27.3178**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	6.5000e-004	7.0000e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5788	1.5788	5.0000e-005	0.0000	1.5801
Total	**8.0000e-004**	**6.5000e-004**	**7.0000e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5788**	**1.5788**	**5.0000e-005**	**0.0000**	**1.5801**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.3 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0256	0.0000	0.0256	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0277	0.3067	0.1658	3.0000e-004		0.0155	0.0155		0.0143	0.0143	0.0000	27.1068	27.1068	8.4400e-003	0.0000	27.3178
Total	**0.0277**	**0.3067**	**0.1658**	**3.0000e-004**	**0.0256**	**0.0155**	**0.0411**	**0.0131**	**0.0143**	**0.0274**	**0.0000**	**27.1068**	**27.1068**	**8.4400e-003**	**0.0000**	**27.3178**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	6.5000e-004	7.0000e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5788	1.5788	5.0000e-005	0.0000	1.5801
Total	**8.0000e-004**	**6.5000e-004**	**7.0000e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5788**	**1.5788**	**5.0000e-005**	**0.0000**	**1.5801**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1796	1.5894	1.1826	1.8100e-003		0.1012	0.1012		0.0950	0.0950	0.0000	160.6447	160.6447	0.0401	0.0000	161.6466
Total	**0.1796**	**1.5894**	**1.1826**	**1.8100e-003**		**0.1012**	**0.1012**		**0.0950**	**0.0950**	**0.0000**	**160.6447**	**160.6447**	**0.0401**	**0.0000**	**161.6466**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.2000e-004	0.0234	6.0200e-003	5.0000e-005	1.1900e-003	1.7000e-004	1.3600e-003	3.4000e-004	1.6000e-004	5.0000e-004	0.0000	4.7209	4.7209	3.4000e-004	0.0000	4.7293
Worker	3.3500e-003	2.7400e-003	0.0294	7.0000e-005	6.9100e-003	6.0000e-005	6.9700e-003	1.8400e-003	5.0000e-005	1.8900e-003	0.0000	6.6308	6.6308	2.3000e-004	0.0000	6.6364
Total	**4.1700e-003**	**0.0261**	**0.0354**	**1.2000e-004**	**8.1000e-003**	**2.3000e-004**	**8.3300e-003**	**2.1800e-003**	**2.1000e-004**	**2.3900e-003**	**0.0000**	**11.3517**	**11.3517**	**5.7000e-004**	**0.0000**	**11.3657**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1796	1.5894	1.1826	1.8100e-003		0.1012	0.1012		0.0950	0.0950	0.0000	160.6445	160.6445	0.0401	0.0000	161.6464
Total	**0.1796**	**1.5894**	**1.1826**	**1.8100e-003**		**0.1012**	**0.1012**		**0.0950**	**0.0950**	**0.0000**	**160.6445**	**160.6445**	**0.0401**	**0.0000**	**161.6464**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.2000e-004	0.0234	6.0200e-003	5.0000e-005	1.1900e-003	1.7000e-004	1.3600e-003	3.4000e-004	1.6000e-004	5.0000e-004	0.0000	4.7209	4.7209	3.4000e-004	0.0000	4.7293
Worker	3.3500e-003	2.7400e-003	0.0294	7.0000e-005	6.9100e-003	6.0000e-005	6.9700e-003	1.8400e-003	5.0000e-005	1.8900e-003	0.0000	6.6308	6.6308	2.3000e-004	0.0000	6.6364
Total	**4.1700e-003**	**0.0261**	**0.0354**	**1.2000e-004**	**8.1000e-003**	**2.3000e-004**	**8.3300e-003**	**2.1800e-003**	**2.1000e-004**	**2.3900e-003**	**0.0000**	**11.3517**	**11.3517**	**5.7000e-004**	**0.0000**	**11.3657**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1306	1.1807	0.9523	1.5000e-003		0.0718	0.0718		0.0674	0.0674	0.0000	131.0629	131.0629	0.0326	0.0000	131.8771
Total	**0.1306**	**1.1807**	**0.9523**	**1.5000e-003**		**0.0718**	**0.0718**		**0.0674**	**0.0674**	**0.0000**	**131.0629**	**131.0629**	**0.0326**	**0.0000**	**131.8771**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1000e-004	0.0182	4.5600e-003	4.0000e-005	9.8000e-004	1.2000e-004	1.1000e-003	2.8000e-004	1.1000e-004	4.0000e-004	0.0000	3.8621	3.8621	2.7000e-004	0.0000	3.8688
Worker	2.5100e-003	1.9900e-003	0.0217	6.0000e-005	5.7100e-003	5.0000e-005	5.7500e-003	1.5200e-003	4.0000e-005	1.5600e-003	0.0000	5.3003	5.3003	1.7000e-004	0.0000	5.3045
Total	**3.1200e-003**	**0.0202**	**0.0262**	**1.0000e-004**	**6.6900e-003**	**1.7000e-004**	**6.8500e-003**	**1.8000e-003**	**1.5000e-004**	**1.9600e-003**	**0.0000**	**9.1624**	**9.1624**	**4.4000e-004**	**0.0000**	**9.1733**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1306	1.1807	0.9523	1.5000e-003		0.0718	0.0718		0.0674	0.0674	0.0000	131.0627	131.0627	0.0326	0.0000	131.8770
Total	**0.1306**	**1.1807**	**0.9523**	**1.5000e-003**		**0.0718**	**0.0718**		**0.0674**	**0.0674**	**0.0000**	**131.0627**	**131.0627**	**0.0326**	**0.0000**	**131.8770**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1000e-004	0.0182	4.5600e-003	4.0000e-005	9.8000e-004	1.2000e-004	1.1000e-003	2.8000e-004	1.1000e-004	4.0000e-004	0.0000	3.8621	3.8621	2.7000e-004	0.0000	3.8688
Worker	2.5100e-003	1.9900e-003	0.0217	6.0000e-005	5.7100e-003	5.0000e-005	5.7500e-003	1.5200e-003	4.0000e-005	1.5600e-003	0.0000	5.3003	5.3003	1.7000e-004	0.0000	5.3045
Total	**3.1200e-003**	**0.0202**	**0.0262**	**1.0000e-004**	**6.6900e-003**	**1.7000e-004**	**6.8500e-003**	**1.8000e-003**	**1.5000e-004**	**1.9600e-003**	**0.0000**	**9.1624**	**9.1624**	**4.4000e-004**	**0.0000**	**9.1733**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.8000e-004	6.2500e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5289	1.5289	5.0000e-005	0.0000	1.5301
Total	**7.2000e-004**	**5.8000e-004**	**6.2500e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5289**	**1.5289**	**5.0000e-005**	**0.0000**	**1.5301**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.8000e-004	6.2500e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5289	1.5289	5.0000e-005	0.0000	1.5301
Total	**7.2000e-004**	**5.8000e-004**	**6.2500e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5289**	**1.5289**	**5.0000e-005**	**0.0000**	**1.5301**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1521					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5500e-003	0.0245	0.0246	4.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	3.4043	3.4043	2.9000e-004	0.0000	3.4115
Total	**0.1556**	**0.0245**	**0.0246**	**4.0000e-005**		**1.7200e-003**	**1.7200e-003**		**1.7200e-003**	**1.7200e-003**	**0.0000**	**3.4043**	**3.4043**	**2.9000e-004**	**0.0000**	**3.4115**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	8.0000e-005	8.3000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2039	0.2039	1.0000e-005	0.0000	0.2040
Total	**1.0000e-004**	**8.0000e-005**	**8.3000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2039**	**0.2039**	**1.0000e-005**	**0.0000**	**0.2040**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1521					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5500e-003	0.0245	0.0246	4.0000e-005		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	3.4043	3.4043	2.9000e-004	0.0000	3.4115
Total	**0.1556**	**0.0245**	**0.0246**	**4.0000e-005**		**1.7200e-003**	**1.7200e-003**		**1.7200e-003**	**1.7200e-003**	**0.0000**	**3.4043**	**3.4043**	**2.9000e-004**	**0.0000**	**3.4115**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	8.0000e-005	8.3000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2039	0.2039	1.0000e-005	0.0000	0.2040
Total	**1.0000e-004**	**8.0000e-005**	**8.3000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2039**	**0.2039**	**1.0000e-005**	**0.0000**	**0.2040**

4.0 Operational Detail - Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1994	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Unmitigated	0.1994	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1756					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.5700e-003	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Total	**0.1994**	**3.2400e-003**	**0.2798**	**1.0000e-005**		**1.5300e-003**	**1.5300e-003**		**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.4548**	**0.4548**	**4.5000e-004**	**0.0000**	**0.4660**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1756					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.5700e-003	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Total	**0.1994**	**3.2400e-003**	**0.2798**	**1.0000e-005**		**1.5300e-003**	**1.5300e-003**		**1.5300e-003**	**1.5300e-003**	**0.0000**	**0.4548**	**0.4548**	**4.5000e-004**	**0.0000**	**0.4660**

7.0 Water Detail

7.1 Mitigation Measures Water

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT C:

CALEEMOD AIR QUALITY PROPOSED PROJECT (OPERATIONAL) EMISSIONS MODEL OUTPUTS

Brodiaea Residential Proposed (Operation)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Operations Run Only

Off-road Equipment - Operations Run Only

Trips and VMT - Operations Run Only

Vehicle Trips - Trip Rates from Trip Generation by Urban Crossroads 2018

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Energy	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Mobile	0.9840	5.2794	13.0028	0.0422	3.3844	0.0498	3.4342	0.9057	0.0469	0.9525		4,281.0811	4,281.0811	0.2340		4,286.9310
Total	**15.2815**	**6.6628**	**40.9560**	**0.1057**	**3.3844**	**3.6908**	**7.0751**	**0.9057**	**3.6878**	**4.5935**	**440.2452**	**5,597.5663**	**6,037.8115**	**1.5626**	**0.0384**	**6,088.3140**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Energy	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Mobile	0.9840	5.2794	13.0028	0.0422	3.3844	0.0498	3.4342	0.9057	0.0469	0.9525		4,281.0811	4,281.0811	0.2340		4,286.9310
Total	**15.2815**	**6.6628**	**40.9560**	**0.1057**	**3.3844**	**3.6908**	**7.0751**	**0.9057**	**3.6878**	**4.5935**	**440.2452**	**5,597.5663**	**6,037.8115**	**1.5626**	**0.0384**	**6,088.3140**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9840	5.2794	13.0028	0.0422	3.3844	0.0498	3.4342	0.9057	0.0469	0.9525		4,281.0811	4,281.0811	0.2340		4,286.9310
Unmitigated	0.9840	5.2794	13.0028	0.0422	3.3844	0.0498	3.4342	0.9057	0.0469	0.9525		4,281.0811	4,281.0811	0.2340		4,286.9310

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	443.68	465.77	405.14	1,508,092	1,508,092
Total	443.68	465.77	405.14	1,508,092	1,508,092

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
NaturalGas Unmitigated	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3939.78	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Total		**0.0425**	**0.3631**	**0.1545**	**2.3200e-003**		**0.0294**	**0.0294**		**0.0294**	**0.0294**		**463.5033**	**463.5033**	**8.8800e-003**	**8.5000e-003**	**466.2577**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3.93978	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Total		**0.0425**	**0.3631**	**0.1545**	**2.3200e-003**		**0.0294**	**0.0294**		**0.0294**	**0.0294**		**463.5033**	**463.5033**	**8.8800e-003**	**8.5000e-003**	**466.2577**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Unmitigated	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.3157	0.9752	23.9019	0.0610		3.5903	3.5903		3.5903	3.5903	440.2452	846.0000	1,286.2452	1.3129	0.0299	1,327.9720
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**14.2551**	**1.0203**	**27.7987**	**0.0612**		**3.6116**	**3.6116**		**3.6116**	**3.6116**	**440.2452**	**852.9820**	**1,293.2271**	**1.3198**	**0.0299**	**1,335.1253**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.3157	0.9752	23.9019	0.0610		3.5903	3.5903		3.5903	3.5903	440.2452	846.0000	1,286.2452	1.3129	0.0299	1,327.9720
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**14.2551**	**1.0203**	**27.7987**	**0.0612**		**3.6116**	**3.6116**		**3.6116**	**3.6116**	**440.2452**	**852.9820**	**1,293.2271**	**1.3198**	**0.0299**	**1,335.1253**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Brodiaea Residential Proposed (Operation)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Operations Run Only

Off-road Equipment - Operations Run Only

Trips and VMT - Operations Run Only

Vehicle Trips - Trip Rates from Trip Generation by Urban Crossroads 2018

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Energy	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Mobile	1.0301	5.1489	13.8717	0.0446	3.3844	0.0495	3.4338	0.9057	0.0466	0.9522		4,523.0086	4,523.0086	0.2351		4,528.8854
Total	**15.3277**	**6.5323**	**41.8249**	**0.1081**	**3.3844**	**3.6904**	**7.0748**	**0.9057**	**3.6875**	**4.5932**	**440.2452**	**5,839.4939**	**6,279.7390**	**1.5637**	**0.0384**	**6,330.2684**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Energy	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Mobile	1.0301	5.1489	13.8717	0.0446	3.3844	0.0495	3.4338	0.9057	0.0466	0.9522		4,523.0086	4,523.0086	0.2351		4,528.8854
Total	**15.3277**	**6.5323**	**41.8249**	**0.1081**	**3.3844**	**3.6904**	**7.0748**	**0.9057**	**3.6875**	**4.5932**	**440.2452**	**5,839.4939**	**6,279.7390**	**1.5637**	**0.0384**	**6,330.2684**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0301	5.1489	13.8717	0.0446	3.3844	0.0495	3.4338	0.9057	0.0466	0.9522		4,523.0086	4,523.0086	0.2351		4,528.8854
Unmitigated	1.0301	5.1489	13.8717	0.0446	3.3844	0.0495	3.4338	0.9057	0.0466	0.9522		4,523.0086	4,523.0086	0.2351		4,528.8854

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	443.68	465.77	405.14	1,508,092	1,508,092
Total	443.68	465.77	405.14	1,508,092	1,508,092

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
NaturalGas Unmitigated	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3939.78	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Total		**0.0425**	**0.3631**	**0.1545**	**2.3200e-003**		**0.0294**	**0.0294**		**0.0294**	**0.0294**		**463.5033**	**463.5033**	**8.8800e-003**	**8.5000e-003**	**466.2577**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3.93978	0.0425	0.3631	0.1545	2.3200e-003		0.0294	0.0294		0.0294	0.0294		463.5033	463.5033	8.8800e-003	8.5000e-003	466.2577
Total		**0.0425**	**0.3631**	**0.1545**	**2.3200e-003**		**0.0294**	**0.0294**		**0.0294**	**0.0294**		**463.5033**	**463.5033**	**8.8800e-003**	**8.5000e-003**	**466.2577**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253
Unmitigated	14.2551	1.0203	27.7987	0.0612		3.6116	3.6116		3.6116	3.6116	440.2452	852.9820	1,293.2271	1.3198	0.0299	1,335.1253

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.3157	0.9752	23.9019	0.0610		3.5903	3.5903		3.5903	3.5903	440.2452	846.0000	1,286.2452	1.3129	0.0299	1,327.9720
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**14.2551**	**1.0203**	**27.7987**	**0.0612**		**3.6116**	**3.6116**		**3.6116**	**3.6116**	**440.2452**	**852.9820**	**1,293.2271**	**1.3198**	**0.0299**	**1,335.1253**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1450					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6751					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.3157	0.9752	23.9019	0.0610		3.5903	3.5903		3.5903	3.5903	440.2452	846.0000	1,286.2452	1.3129	0.0299	1,327.9720
Landscaping	0.1193	0.0451	3.8968	2.0000e-004		0.0214	0.0214		0.0214	0.0214		6.9820	6.9820	6.8500e-003		7.1533
Total	**14.2551**	**1.0203**	**27.7987**	**0.0612**		**3.6116**	**3.6116**		**3.6116**	**3.6116**	**440.2452**	**852.9820**	**1,293.2271**	**1.3198**	**0.0299**	**1,335.1253**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT D:

CALEEMOD AIR QUALITY CURRENTLY ADOPTED LAND USE (OPERATIONAL) MISSIONS MODEL OUTPUTS

Brodieaea Residential Current (Operations)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Current Operations Run Only

Construction Phase - Current Operations Run Only (27 DU)

Off-road Equipment - Operations Run Only (27 DU)

Vehicle Trips - Trip Rates from Trip Generator by Urban Crossroads 2018

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.8069	38.3860	22.9852	0.0405	0.1677	1.9399	2.1076	0.0445	1.8061	1.8505	0.0000	4,042.8684	4,042.8684	1.0726	0.0000	4,069.6822
Maximum	**3.8069**	**38.3860**	**22.9852**	**0.0405**	**0.1677**	**1.9399**	**2.1076**	**0.0445**	**1.8061**	**1.8505**	**0.0000**	**4,042.8684**	**4,042.8684**	**1.0726**	**0.0000**	**4,069.6822**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.8069	38.3860	22.9852	0.0405	0.1677	1.9399	2.1076	0.0445	1.8061	1.8505	0.0000	4,042.8684	4,042.8684	1.0726	0.0000	4,069.6822
Maximum	**3.8069**	**38.3860**	**22.9852**	**0.0405**	**0.1677**	**1.9399**	**2.1076**	**0.0445**	**1.8061**	**1.8505**	**0.0000**	**4,042.8684**	**4,042.8684**	**1.0726**	**0.0000**	**4,069.6822**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Brodieaea Residential Current (Operations) - South Coast AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Energy	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Mobile	0.5653	3.0329	7.4697	0.0242	1.9442	0.0286	1.9728	0.5203	0.0269	0.5472		2,459.3444	2,459.3444	0.1344		2,462.7050
Total	**8.7788**	**3.8276**	**23.5279**	**0.0607**	**1.9442**	**2.1202**	**4.0644**	**0.5203**	**2.1185**	**2.6388**	**252.9068**	**3,215.6232**	**3,468.5300**	**0.8977**	**0.0221**	**3,497.5421**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Energy	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Mobile	0.5653	3.0329	7.4697	0.0242	1.9442	0.0286	1.9728	0.5203	0.0269	0.5472		2,459.3444	2,459.3444	0.1344		2,462.7050
Total	**8.7788**	**3.8276**	**23.5279**	**0.0607**	**1.9442**	**2.1202**	**4.0644**	**0.5203**	**2.1185**	**2.6388**	**252.9068**	**3,215.6232**	**3,468.5300**	**0.8977**	**0.0221**	**3,497.5421**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**		**1.9386**	**1.9386**		**1.8048**	**1.8048**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0879**	**0.0635**	**0.6811**	**1.7200e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**171.1019**	**171.1019**	**5.8400e-003**		**171.2479**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**		**1.9386**	**1.9386**		**1.8048**	**1.8048**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0879**	**0.0635**	**0.6811**	**1.7200e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**171.1019**	**171.1019**	**5.8400e-003**		**171.2479**

4.0 Operational Detail - Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5653	3.0329	7.4697	0.0242	1.9442	0.0286	1.9728	0.5203	0.0269	0.5472		2,459.3444	2,459.3444	0.1344		2,462.7050
Unmitigated	0.5653	3.0329	7.4697	0.0242	1.9442	0.0286	1.9728	0.5203	0.0269	0.5472		2,459.3444	2,459.3444	0.1344		2,462.7050

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	257.04	267.57	232.74	871,623	871,623
Total	257.04	267.57	232.74	871,623	871,623

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
NaturalGas Unmitigated	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2263.28	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Total		**0.0244**	**0.2086**	**0.0888**	**1.3300e-003**		**0.0169**	**0.0169**		**0.0169**	**0.0169**		**266.2679**	**266.2679**	**5.1000e-003**	**4.8800e-003**	**267.8502**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2.26328	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Total		**0.0244**	**0.2086**	**0.0888**	**1.3300e-003**		**0.0169**	**0.0169**		**0.0169**	**0.0169**		**266.2679**	**266.2679**	**5.1000e-003**	**4.8800e-003**	**267.8502**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Unmitigated	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.0750	0.5602	13.7309	0.0350		2.0625	2.0625		2.0625	2.0625	252.9068	486.0000	738.9068	0.7542	0.0172	762.8775
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**8.1891**	**0.5861**	**15.9695**	**0.0352**		**2.0748**	**2.0748**		**2.0748**	**2.0748**	**252.9068**	**490.0109**	**742.9177**	**0.7582**	**0.0172**	**766.9869**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.0750	0.5602	13.7309	0.0350		2.0625	2.0625		2.0625	2.0625	252.9068	486.0000	738.9068	0.7542	0.0172	762.8775
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**8.1891**	**0.5861**	**15.9695**	**0.0352**		**2.0748**	**2.0748**		**2.0748**	**2.0748**	**252.9068**	**490.0109**	**742.9177**	**0.7582**	**0.0172**	**766.9869**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Brodieaea Residential Current (Operations)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Current Operations Run Only

Construction Phase - Current Operations Run Only (27 DU)

Off-road Equipment - Operations Run Only (27 DU)

Vehicle Trips - Trip Rates from Trip Generator by Urban Crossroads 2018

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.7998	38.3805	23.0567	0.0407	0.1677	1.9399	2.1076	0.0445	1.8061	1.8505	0.0000	4,054.6693	4,054.6693	1.0730	0.0000	4,081.4931
Maximum	**3.7998**	**38.3805**	**23.0567**	**0.0407**	**0.1677**	**1.9399**	**2.1076**	**0.0445**	**1.8061**	**1.8505**	**0.0000**	**4,054.6693**	**4,054.6693**	**1.0730**	**0.0000**	**4,081.4931**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.7998	38.3805	23.0567	0.0407	0.1677	1.9399	2.1076	0.0445	1.8061	1.8505	0.0000	4,054.6693	4,054.6693	1.0730	0.0000	4,081.4930
Maximum	**3.7998**	**38.3805**	**23.0567**	**0.0407**	**0.1677**	**1.9399**	**2.1076**	**0.0445**	**1.8061**	**1.8505**	**0.0000**	**4,054.6693**	**4,054.6693**	**1.0730**	**0.0000**	**4,081.4930**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Brodieaea Residential Current (Operations) - South Coast AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Energy	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Mobile	0.5918	2.9579	7.9688	0.0256	1.9442	0.0284	1.9726	0.5203	0.0267	0.5470		2,598.3241	2,598.3241	0.1350		2,601.7001
Total	**8.8053**	**3.7526**	**24.0271**	**0.0621**	**1.9442**	**2.1200**	**4.0642**	**0.5203**	**2.1184**	**2.6386**	**252.9068**	**3,354.6028**	**3,607.5096**	**0.8983**	**0.0221**	**3,636.5372**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Energy	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Mobile	0.5918	2.9579	7.9688	0.0256	1.9442	0.0284	1.9726	0.5203	0.0267	0.5470		2,598.3241	2,598.3241	0.1350		2,601.7001
Total	**8.8053**	**3.7526**	**24.0271**	**0.0621**	**1.9442**	**2.1200**	**4.0642**	**0.5203**	**2.1184**	**2.6386**	**252.9068**	**3,354.6028**	**3,607.5096**	**0.8983**	**0.0221**	**3,636.5372**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**		**1.9386**	**1.9386**		**1.8048**	**1.8048**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0808**	**0.0580**	**0.7526**	**1.8400e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**182.9028**	**182.9028**	**6.2400e-003**		**183.0587**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**		**1.9386**	**1.9386**		**1.8048**	**1.8048**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0808**	**0.0580**	**0.7526**	**1.8400e-003**	**0.1677**	**1.3400e-003**	**0.1690**	**0.0445**	**1.2300e-003**	**0.0457**		**182.9028**	**182.9028**	**6.2400e-003**		**183.0587**

4.0 Operational Detail - Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5918	2.9579	7.9688	0.0256	1.9442	0.0284	1.9726	0.5203	0.0267	0.5470		2,598.3241	2,598.3241	0.1350		2,601.7001
Unmitigated	0.5918	2.9579	7.9688	0.0256	1.9442	0.0284	1.9726	0.5203	0.0267	0.5470		2,598.3241	2,598.3241	0.1350		2,601.7001

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	257.04	267.57	232.74	871,623	871,623
Total	257.04	267.57	232.74	871,623	871,623

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
NaturalGas Unmitigated	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2263.28	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Total		**0.0244**	**0.2086**	**0.0888**	**1.3300e-003**		**0.0169**	**0.0169**		**0.0169**	**0.0169**		**266.2679**	**266.2679**	**5.1000e-003**	**4.8800e-003**	**267.8502**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2.26328	0.0244	0.2086	0.0888	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.2679	266.2679	5.1000e-003	4.8800e-003	267.8502
Total		**0.0244**	**0.2086**	**0.0888**	**1.3300e-003**		**0.0169**	**0.0169**		**0.0169**	**0.0169**		**266.2679**	**266.2679**	**5.1000e-003**	**4.8800e-003**	**267.8502**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869
Unmitigated	8.1891	0.5861	15.9695	0.0352		2.0748	2.0748		2.0748	2.0748	252.9068	490.0109	742.9177	0.7582	0.0172	766.9869

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.0750	0.5602	13.7309	0.0350		2.0625	2.0625		2.0625	2.0625	252.9068	486.0000	738.9068	0.7542	0.0172	762.8775
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**8.1891**	**0.5861**	**15.9695**	**0.0352**		**2.0748**	**2.0748**		**2.0748**	**2.0748**	**252.9068**	**490.0109**	**742.9177**	**0.7582**	**0.0172**	**766.9869**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9623					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.0750	0.5602	13.7309	0.0350		2.0625	2.0625		2.0625	2.0625	252.9068	486.0000	738.9068	0.7542	0.0172	762.8775
Landscaping	0.0685	0.0259	2.2386	1.2000e-004		0.0123	0.0123		0.0123	0.0123		4.0109	4.0109	3.9400e-003		4.1093
Total	**8.1891**	**0.5861**	**15.9695**	**0.0352**		**2.0748**	**2.0748**		**2.0748**	**2.0748**	**252.9068**	**490.0109**	**742.9177**	**0.7582**	**0.0172**	**766.9869**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT E:

CALEEMOD PROPOSED PROJECT GREENHOUSE GAS EMISSIONS MODEL OUTPUTS

Brodiaea Residential Proposed (Operation)

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	47.00	Dwelling Unit	15.26	84,600.00	134

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Operations Run Only

Off-road Equipment - Operations Run Only

Trips and VMT - Operations Run Only

Vehicle Trips - Trip Rates from Trip Generation by Urban Crossroads 2018

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5010	0.0178	0.7859	7.9000e-004		0.0476	0.0476		0.0476	0.0476	4.9923	10.3852	15.3775	0.0157	3.4000e-004	15.8701
Energy	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	207.2693	207.2693	6.8600e-003	2.5200e-003	208.1923
Mobile	0.1661	0.9272	2.2783	7.3700e-003	0.5731	8.5400e-003	0.5816	0.1536	8.0400e-003	0.1616	0.0000	679.5040	679.5040	0.0364	0.0000	680.4147
Waste						0.0000	0.0000		0.0000	0.0000	11.1523	0.0000	11.1523	0.6591	0.0000	27.6294
Water						0.0000	0.0000		0.0000	0.0000	0.9715	19.5384	20.5099	0.1006	2.5200e-003	23.7765
Total	**0.6749**	**1.0113**	**3.0923**	**8.5800e-003**	**0.5731**	**0.0615**	**0.6345**	**0.1536**	**0.0610**	**0.2145**	**17.1161**	**916.6969**	**933.8130**	**0.8186**	**5.3800e-003**	**955.8830**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5010	0.0178	0.7859	7.9000e-004		0.0476	0.0476		0.0476	0.0476	4.9923	10.3852	15.3775	0.0157	3.4000e-004	15.8701
Energy	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	207.2693	207.2693	6.8600e-003	2.5200e-003	208.1923
Mobile	0.1661	0.9272	2.2783	7.3700e-003	0.5731	8.5400e-003	0.5816	0.1536	8.0400e-003	0.1616	0.0000	679.5040	679.5040	0.0364	0.0000	680.4147
Waste						0.0000	0.0000		0.0000	0.0000	11.1523	0.0000	11.1523	0.6591	0.0000	27.6294
Water						0.0000	0.0000		0.0000	0.0000	0.9715	19.5384	20.5099	0.1006	2.5200e-003	23.7765
Total	**0.6749**	**1.0113**	**3.0923**	**8.5800e-003**	**0.5731**	**0.0615**	**0.6345**	**0.1536**	**0.0610**	**0.2145**	**17.1161**	**916.6969**	**933.8130**	**0.8186**	**5.3800e-003**	**955.8830**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	0	8.00	158	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1661	0.9272	2.2783	7.3700e-003	0.5731	8.5400e-003	0.5816	0.1536	8.0400e-003	0.1616	0.0000	679.5040	679.5040	0.0364	0.0000	680.4147
Unmitigated	0.1661	0.9272	2.2783	7.3700e-003	0.5731	8.5400e-003	0.5816	0.1536	8.0400e-003	0.1616	0.0000	679.5040	679.5040	0.0364	0.0000	680.4147

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	443.68	465.77	405.14	1,508,092	1,508,092
Total	443.68	465.77	405.14	1,508,092	1,508,092

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	130.5311	130.5311	5.3900e-003	1.1100e-003	130.9981
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	130.5311	130.5311	5.3900e-003	1.1100e-003	130.9981
NaturalGas Mitigated	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	76.7382	76.7382	1.4700e-003	1.4100e-003	77.1942
NaturalGas Unmitigated	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	76.7382	76.7382	1.4700e-003	1.4100e-003	77.1942

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.43802e+006	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	76.7382	76.7382	1.4700e-003	1.4100e-003	77.1942
Total		**7.7500e-003**	**0.0663**	**0.0282**	**4.2000e-004**		**5.3600e-003**	**5.3600e-003**		**5.3600e-003**	**5.3600e-003**	**0.0000**	**76.7382**	**76.7382**	**1.4700e-003**	**1.4100e-003**	**77.1942**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.43802e+006	7.7500e-003	0.0663	0.0282	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	76.7382	76.7382	1.4700e-003	1.4100e-003	77.1942
Total		**7.7500e-003**	**0.0663**	**0.0282**	**4.2000e-004**		**5.3600e-003**	**5.3600e-003**		**5.3600e-003**	**5.3600e-003**	**0.0000**	**76.7382**	**76.7382**	**1.4700e-003**	**1.4100e-003**	**77.1942**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	409675	130.5311	5.3900e-003	1.1100e-003	130.9981
Total		**130.5311**	**5.3900e-003**	**1.1100e-003**	**130.9981**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	409675	130.5311	5.3900e-003	1.1100e-003	130.9981
Total		**130.5311**	**5.3900e-003**	**1.1100e-003**	**130.9981**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5010	0.0178	0.7859	7.9000e-004		0.0476	0.0476		0.0476	0.0476	4.9923	10.3852	15.3775	0.0157	3.4000e-004	15.8701
Unmitigated	0.5010	0.0178	0.7859	7.9000e-004		0.0476	0.0476		0.0476	0.0476	4.9923	10.3852	15.3775	0.0157	3.4000e-004	15.8701

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0265					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1540	0.0122	0.2988	7.6000e-004		0.0449	0.0449		0.0449	0.0449	4.9923	9.5935	14.5858	0.0149	3.4000e-004	15.0590
Landscaping	0.0149	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Total	**0.5010**	**0.0178**	**0.7859**	**7.9000e-004**		**0.0476**	**0.0476**		**0.0476**	**0.0476**	**4.9923**	**10.3852**	**15.3775**	**0.0157**	**3.4000e-004**	**15.8701**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0265					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1540	0.0122	0.2988	7.6000e-004		0.0449	0.0449		0.0449	0.0449	4.9923	9.5935	14.5858	0.0149	3.4000e-004	15.0590
Landscaping	0.0149	5.6400e-003	0.4871	3.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	0.7917	0.7917	7.8000e-004	0.0000	0.8112
Total	**0.5010**	**0.0178**	**0.7859**	**7.9000e-004**		**0.0476**	**0.0476**		**0.0476**	**0.0476**	**4.9923**	**10.3852**	**15.3775**	**0.0157**	**3.4000e-004**	**15.8701**

7.0 Water Detail

7.1 Mitigation Measures Water

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	20.5099	0.1006	2.5200e-003	23.7765
Unmitigated	20.5099	0.1006	2.5200e-003	23.7765

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	3.06224 / 1.93054	20.5099	0.1006	2.5200e-003	23.7765
Total		**20.5099**	**0.1006**	**2.5200e-003**	**23.7765**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	3.06224 / 1.93054	20.5099	0.1006	2.5200e-003	23.7765
Total		**20.5099**	**0.1006**	**2.5200e-003**	**23.7765**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	11.1523	0.6591	0.0000	27.6294
Unmitigated	11.1523	0.6591	0.0000	27.6294

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	54.94	11.1523	0.6591	0.0000	27.6294
Total		**11.1523**	**0.6591**	**0.0000**	**27.6294**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	54.94	11.1523	0.6591	0.0000	27.6294
Total		**11.1523**	**0.6591**	**0.0000**	**27.6294**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ATTACHMENT F:

CALEEMOD CURRENTLY ADOPTED LAND USE GREENHOUSE GAS EMISSIONS MODEL OUTPUTS

Brodieaea Residential Current (Operations)

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	27.00	Dwelling Unit	8.77	48,600.00	77

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Current Operations Run Only

Construction Phase - Current Operations Run Only (27 DU)

Off-road Equipment - Operations Run Only (27 DU)

Vehicle Trips - Trip Rates from Trip Generator by Urban Crossroads 2018

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/22/2018	5/28/2018

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	1.9000e-003	0.0192	0.0115	2.0000e-005	8.0000e-005	9.7000e-004	1.0500e-003	2.0000e-005	9.0000e-004	9.2000e-004	0.0000	1.8351	1.8351	4.9000e-004	0.0000	1.8473
Maximum	**1.9000e-003**	**0.0192**	**0.0115**	**2.0000e-005**	**8.0000e-005**	**9.7000e-004**	**1.0500e-003**	**2.0000e-005**	**9.0000e-004**	**9.2000e-004**	**0.0000**	**1.8351**	**1.8351**	**4.9000e-004**	**0.0000**	**1.8473**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	1.9000e-003	0.0192	0.0115	2.0000e-005	8.0000e-005	9.7000e-004	1.0500e-003	2.0000e-005	9.0000e-004	9.2000e-004	0.0000	1.8351	1.8351	4.9000e-004	0.0000	1.8473
Maximum	**1.9000e-003**	**0.0192**	**0.0115**	**2.0000e-005**	**8.0000e-005**	**9.7000e-004**	**1.0500e-003**	**2.0000e-005**	**9.0000e-004**	**9.2000e-004**	**0.0000**	**1.8351**	**1.8351**	**4.9000e-004**	**0.0000**	**1.8473**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**5-28-2018**	**8-27-2018**	0.0151	0.0151
		Highest	0.0151	0.0151

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2878	0.0102	0.4515	4.5000e-004		0.0273	0.0273		0.0273	0.0273	2.8679	5.9660	8.8339	9.0000e-003	1.9000e-004	9.1169
Energy	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	119.0696	119.0696	3.9400e-003	1.4500e-003	119.5998
Mobile	0.0960	0.5359	1.3168	4.2600e-003	0.3312	4.9400e-003	0.3361	0.0888	4.6500e-003	0.0934	0.0000	392.7289	392.7289	0.0211	0.0000	393.2552
Waste						0.0000	0.0000		0.0000	0.0000	6.4084	0.0000	6.4084	0.3787	0.0000	15.8766
Water						0.0000	0.0000		0.0000	0.0000	0.5581	11.2242	11.7823	0.0578	1.4500e-003	13.6589
Total	**0.3883**	**0.5842**	**1.7844**	**4.9500e-003**	**0.3312**	**0.0353**	**0.3665**	**0.0888**	**0.0350**	**0.1238**	**9.8344**	**528.9886**	**538.8231**	**0.4705**	**3.0900e-003**	**551.5074**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2878	0.0102	0.4515	4.5000e-004		0.0273	0.0273		0.0273	0.0273	2.8679	5.9660	8.8339	9.0000e-003	1.9000e-004	9.1169
Energy	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	119.0696	119.0696	3.9400e-003	1.4500e-003	119.5998
Mobile	0.0960	0.5359	1.3168	4.2600e-003	0.3312	4.9400e-003	0.3361	0.0888	4.6500e-003	0.0934	0.0000	392.7289	392.7289	0.0211	0.0000	393.2552
Waste						0.0000	0.0000		0.0000	0.0000	6.4084	0.0000	6.4084	0.3787	0.0000	15.8766
Water						0.0000	0.0000		0.0000	0.0000	0.5581	11.2242	11.7823	0.0578	1.4500e-003	13.6589
Total	**0.3883**	**0.5842**	**1.7844**	**4.9500e-003**	**0.3312**	**0.0353**	**0.3665**	**0.0888**	**0.0350**	**0.1238**	**9.8344**	**528.9886**	**538.8231**	**0.4705**	**3.0900e-003**	**551.5074**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/28/2018	5/28/2018	5	1	

Acres of Grading (Site Preparation Phase): 0

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8600e-003	0.0192	0.0112	2.0000e-005		9.7000e-004	9.7000e-004		9.0000e-004	9.0000e-004	0.0000	1.7562	1.7562	4.8000e-004	0.0000	1.7683
Total	**1.8600e-003**	**0.0192**	**0.0112**	**2.0000e-005**		**9.7000e-004**	**9.7000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**1.7562**	**1.7562**	**4.8000e-004**	**0.0000**	**1.7683**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.5000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0789	0.0789	0.0000	0.0000	0.0790
Total	**4.0000e-005**	**3.0000e-005**	**3.5000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0789**	**0.0789**	**0.0000**	**0.0000**	**0.0790**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8600e-003	0.0192	0.0112	2.0000e-005		9.7000e-004	9.7000e-004		9.0000e-004	9.0000e-004	0.0000	1.7562	1.7562	4.8000e-004	0.0000	1.7683
Total	**1.8600e-003**	**0.0192**	**0.0112**	**2.0000e-005**		**9.7000e-004**	**9.7000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**1.7562**	**1.7562**	**4.8000e-004**	**0.0000**	**1.7683**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.5000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0789	0.0789	0.0000	0.0000	0.0790
Total	**4.0000e-005**	**3.0000e-005**	**3.5000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0789**	**0.0789**	**0.0000**	**0.0000**	**0.0790**

4.0 Operational Detail - Mobile

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0960	0.5359	1.3168	4.2600e-003	0.3312	4.9400e-003	0.3361	0.0888	4.6500e-003	0.0934	0.0000	392.7289	392.7289	0.0211	0.0000	393.2552
Unmitigated	0.0960	0.5359	1.3168	4.2600e-003	0.3312	4.9400e-003	0.3361	0.0888	4.6500e-003	0.0934	0.0000	392.7289	392.7289	0.0211	0.0000	393.2552

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	257.04	267.57	232.74	871,623	871,623
Total	257.04	267.57	232.74	871,623	871,623

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	74.9860	74.9860	3.1000e-003	6.4000e-004	75.2542
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	74.9860	74.9860	3.1000e-003	6.4000e-004	75.2542
NaturalGas Mitigated	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	44.0836	44.0836	8.4000e-004	8.1000e-004	44.3456
NaturalGas Unmitigated	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	44.0836	44.0836	8.4000e-004	8.1000e-004	44.3456

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	826096	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	44.0836	44.0836	8.4000e-004	8.1000e-004	44.3456
Total		**4.4500e-003**	**0.0381**	**0.0162**	**2.4000e-004**		**3.0800e-003**	**3.0800e-003**		**3.0800e-003**	**3.0800e-003**	**0.0000**	**44.0836**	**44.0836**	**8.4000e-004**	**8.1000e-004**	**44.3456**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	826096	4.4500e-003	0.0381	0.0162	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	44.0836	44.0836	8.4000e-004	8.1000e-004	44.3456
Total		**4.4500e-003**	**0.0381**	**0.0162**	**2.4000e-004**		**3.0800e-003**	**3.0800e-003**		**3.0800e-003**	**3.0800e-003**	**0.0000**	**44.0836**	**44.0836**	**8.4000e-004**	**8.1000e-004**	**44.3456**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	235345	74.9860	3.1000e-003	6.4000e-004	75.2542
Total		**74.9860**	**3.1000e-003**	**6.4000e-004**	**75.2542**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	235345	74.9860	3.1000e-003	6.4000e-004	75.2542
Total		**74.9860**	**3.1000e-003**	**6.4000e-004**	**75.2542**

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2878	0.0102	0.4515	4.5000e-004		0.0273	0.0273		0.0273	0.0273	2.8679	5.9660	8.8339	9.0000e-003	1.9000e-004	9.1169
Unmitigated	0.2878	0.0102	0.4515	4.5000e-004		0.0273	0.0273		0.0273	0.0273	2.8679	5.9660	8.8339	9.0000e-003	1.9000e-004	9.1169

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1756					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0884	7.0000e-003	0.1716	4.4000e-004		0.0258	0.0258		0.0258	0.0258	2.8679	5.5112	8.3791	8.5500e-003	1.9000e-004	8.6509
Landscaping	8.5700e-003	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Total	**0.2878**	**0.0102**	**0.4515**	**4.5000e-004**		**0.0273**	**0.0273**		**0.0273**	**0.0273**	**2.8679**	**5.9660**	**8.8339**	**9.0000e-003**	**1.9000e-004**	**9.1169**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1756					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0884	7.0000e-003	0.1716	4.4000e-004		0.0258	0.0258		0.0258	0.0258	2.8679	5.5112	8.3791	8.5500e-003	1.9000e-004	8.6509
Landscaping	8.5700e-003	3.2400e-003	0.2798	1.0000e-005		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	0.4548	0.4548	4.5000e-004	0.0000	0.4660
Total	**0.2878**	**0.0102**	**0.4515**	**4.5000e-004**		**0.0273**	**0.0273**		**0.0273**	**0.0273**	**2.8679**	**5.9660**	**8.8339**	**9.0000e-003**	**1.9000e-004**	**9.1169**

7.0 Water Detail

7.1 Mitigation Measures Water

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	11.7823	0.0578	1.4500e-003	13.6589
Unmitigated	11.7823	0.0578	1.4500e-003	13.6589

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.75916 / 1.10903	11.7823	0.0578	1.4500e-003	13.6589
Total		**11.7823**	**0.0578**	**1.4500e-003**	**13.6589**

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.75916 / 1.10903	11.7823	0.0578	1.4500e-003	13.6589
Total		**11.7823**	**0.0578**	**1.4500e-003**	**13.6589**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.4084	0.3787	0.0000	15.8766
Unmitigated	6.4084	0.3787	0.0000	15.8766

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	31.57	6.4084	0.3787	0.0000	15.8766
Total		**6.4084**	**0.3787**	**0.0000**	**15.8766**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	31.57	6.4084	0.3787	0.0000	15.8766
Total		**6.4084**	**0.3787**	**0.0000**	**15.8766**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment: Bio Report March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of

BURROWING OWL SURVEY REPORT

MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

(Township 3 South, Range 3 West, Section 14)

Owner/Applicant

FH II, LLC
2151 E. Convention Center Way
Suite 100
Ontario, California 91764

Prepared by:
RCA Associates, Inc.
15555 Main Street, #D4-235
Hesperia, California 92345

Principal Investigators:
Randall Arnold, Senior Biologist
Blake Curran, Environmental Biologist
Parker Smith, Project Manager

Project No: RCA#2018-21

March 2018

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TITLE PAGE

Date Report Written: March 27, 2018

Date Field Work Completed: March 12th, March 16th, March 21th, and March 26th 2018

Report Title: Burrowing Owl Focused Survey Report

Assessor's Parcel Number: 478-080-014

Prepared for:
FH II, LLC
2151 E. Convention Center Way
Suite 100
Ontario, California 91764

Principal Investigators:
Randall C. Arnold, Jr., Senior Biologist
Parker L. Smith, Biological Field Technician
Blake Curran, Environmental Biologist

Contact Information:
Randall C. Arnold, Jr.
RCA Associates Inc.
15555 Main Street, #D4-235
Hesperia, CA 92345
(760) 956-9212
rarnold@rcaassociatesllc.com
www.rcaassociatesllc.com

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Table of Contents

Section		Page
Executive Summary		1
1.0	Project and Property Description	2
2.0	Literature and Record Review - Burrowing Owl	3
3.0	Methodology	4
4.0	General Biological Survey Results	5
5.0	Results – Burrowing Owl	6
6.0	Impacts and Recommendations	8
7.0	References	9
Certification		20

Figures

Appendix A - Burrowing Owl Occurrences

Appendix B - Flora and Fauna Compendia

Certification

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

EXECUTIVE SUMMARY

A focused burrowing owl (*Athene cunicularia*) survey was performed on a parcel located in the incorporated city of Moreno Valley, California (Township 3 South, Range 3 West, Section 14, USGS Sunnymead, California Quadrangle, 1956) (Figures 1, 2, 3). The site has been cleared of native vegetation several years ago; however, there has been some revegetation on the site. The site is heavily disturbed by past human activity. Observing historical aerial photographs, the property was used for agriculture production. The property has been cleared and supports mostly non-native grasses and scrubs. The site is fully enclosed by a chain-link fence.

It was determined during an initial assessment that the site supports potential habitat for burrowing owls. Therefore, focused surveys were required to be completed prior to the start of any construction activities. Four site visits were completed in March 2018 during which transects were walked throughout the site to determine the presence or absence of suitable (i.e., occupiable) burrows and/or burrowing owls. The survey was performed as per the requirements of the California Department of Fish and Wildlife (CDFW) survey protocol (March 7, 2012).

No burrowing owls or owl sign were observed during the surveys and no suitable burrows were identified. Based on these factors and lack of suitable, there is very little potential for the property to support populations of the burrowing owl in the future. The following sections provide a discussion of the survey results which are valid for 30-days as per CDFW requirements. If burrowing owls are observed on the property in the future, the owls should not be removed, harassed, or in any way disturbed regardless of the results of this survey. To do so may constitute a violation of State and City regulations.

If owls are encountered during future development activities, all activities should cease and CDFW should be notified.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

1.0 PROJECT AND PROPERTY DESCRIPTION

The property is approximately 10-acres in size and is located north of Brodiaea Road. Brodiaea Road borders the site on its southern boundary and vacant land borders the site on the north, east, and west in the incorporated city of Moreno Valley, California (Township 3 South, Range 3 West, Section 14, USGS Sunnymead, California Quadrangle, 1956) (Appendix A: Figures 1, 2, and 3). The site has been cleared of native vegetation several years ago; however, there has been some revegetation on the site. The site is heavily disturbed by past human activity. Observing historical aerial photographs, the property was used for agriculture production. The property has been cleared and supports mostly non-native grasses and scrubs. The site is fully enclosed by a chain-link fence.

The plant species that were identified on site included California buckwheat (*Eriogonum fasciculatum*), Fiddlenecks (*Amsinckia spp*.), brome grasses *(Bromus sp.),* annual bursage (Ambrosia acanthicarpa), and Erodium (*Erodium sp.*). Table 1 provides a list of all plants occurring on the site and in the immediate surrounding area.

No sensitive habitats or wildlife movement corridors were noted on the property, and although intermittent blueline channels are present throughout the area according to the Sunnymead Quad map, the proposed project will not have an effect on any of these channels.

A total of four (4) focused burrowing owl surveys were performed on March 12th, March 16th, March 21th, and March 26th of 2018 during which meandering 30-meter transects were walked throughout the site to determine the presence/absence of burrowing owls, active owl burrows, and/or owl sign (excrement, casting, etc.). Weather conditions during the 2018 surveys consisted of winds ranging from 0 to 5 mph, temperatures in the mid 40's (AM, °F) to mid-60's (AM, °F) with approximately 0-50 percent cloud coverage.

The project proponent is proposing to sub-divide the 10-acre parcel into 37 parcels on which residential housing will be built.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2.0 LITERATURE AND RECORD REVIEW - BURROWING OWL

As part of the environmental process, California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS) data sources were reviewed prior to initiation of field surveys to determine if burrowing owls have been documented on the site or in the area surrounding the property. Based on the literature review and evaluation of the CNDDB database for the area, it was determined that the property is located within the general distribution of the burrowing owl. In addition, three documented occurrences of burrowing owls have been identified in the surrounding area according to CNDDB (2018). However, owls have not been previously identified on the site, and the nearest documented owl observation is about two miles southwest of the property (CNDDB, 2018).

The burrowing owl is a year-long resident of open, dry grassland and desert habitats. The species was formerly common throughout central and southern California; however, the species has seen a significant reduction over the last few decades due to development activities; farming activities, predation by dogs and cats, and habitat destruction (Zeiner 1990). Conversions of grassland and desert habitats to agricultural fields and residential developments have contributed to the greatest amount of habitat destruction in recent decades. The reduction in population levels was noted as early as the 1940s. Burrowing owls primarily prey upon insects; although, small mammals, lizards, birds, and carrion make up a portion of the owl's diet (Zeiner 1990). Burrowing owls typically utilize abandoned California ground squirrel burrows for roosting and nesting.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3.0 METHODOLOGY

The California Burrowing Owl Consortium's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC 1993) recommend a four-step approach to surveying for this species. An initial assessment of the site by biologists from RCA Associates, Inc. (Blake Curran and Parker Smith) determined that suitable owl habitat was present on the property. Because the assessment indicated that the site does contain suitable burrowing owl habitat, the remaining three phases of the survey were performed. Burrowing owls are typically found in a wide variety of habitats including disturbed grasslands, agricultural areas, and developed areas. Therefore, focused surveys were performed on March 12th, March 16th, March 21th, and March 26th of 2018 to determine if any owls, owl sign, or suitable burrows are currently present on the site.

As required by survey protocol, 30-meter, parallel belt transects were walked in a north-south direction until the site had been checked for owls and/or owl sign (burrows, tracks, scats, etc.). The survey protocol also requires that zone of influence (ZOI) surveys be conducted in the surrounding area out to a distance of 500-feet. All transects were walked at a pace that allowed careful observations along the transect routes and in the immediate vicinity. Field notes were recorded regarding native plant assemblages, wildlife sign, and human effects in order to determine the presence or absence of suitable owl habitat. Each survey was performed from about 0700 to 1000 hours.

Focused surveys combined with the identification of the habitat on the site and in the surrounding area will provide data on the potential presence or absence of burrowing owls. Temperatures during the surveys were in the mid 40's (AM, °F) to mid-60's (AM, °F) with approximately 0-50 percent cloud coverage and winds ranging from 0 to 5 mph. No precipitation was recorded during the surveys.

Limitations:

The results of this report do not constitute authorization for the "take" (impact) of burrowing owls or any other listed or sensitive wildlife species. The authorization to impact the burrowing owl can only be granted by CDFW.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

4.0 GENERAL BIOLOGICAL SURVEY RESULTS

The field investigations were conducted on March 12th, March 16th, March 21th, and March 26th of 2018. The plant species that were identified on site included California buckwheat (*Eriogonum fasciculatum*), Fiddlenecks (*Amsinckia spp.*), brome grasses *(Bromus sp.),* annual bursage (Ambrosia acanthicarpa), and Erodium (*Erodium sp.*). Table 1 provides a list of all plants occurring on the site and in the immediate surrounding area. The site is not expected to support a variety of wildlife species on the site; however, only a few species have potential to be seen during the field investigations. Mammals observed on the site or which are expected to inhabit the site include jackrabbits (*Lepus californicus*), cottontails (*Sylvilagus audubonii*), and California ground squirrel (*Otospermophilus beecheyi*).

Reptiles are typically inactive during the winter months; however, species common in the region which is expected to inhabit the site include desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), western whiptail lizard (*Cnemidophorus tigris*), and rattlesnake (*Crotolus sp.*). Table 2 provides a compendium of wildlife species observed during the various surveys and those likely to occur in the area.

No sensitive habitats (e.g., wetlands, vernal pools, critical habitats for sensitive species, etc.) were observed on the site during the field investigations.

There is a blue-lined channel that borders the property to the east, this channel is off-site of the property. The channel supports a riparian habitat and the channel flows in a north-south direction.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.0 RESULTS – BURROWING OWL

PHASE I HABITAT ASSESSMENT RESULTS

During the Phase I habitat assessment, physical and biological characteristics of the project site were compared to burrowing owl habitat requirements in an effort to determine whether the site is suitable for this species. The project site is within the geographic range of the burrowing owl, as depicted on current range maps, and on-site elevations are within the range occupied by the species (Haug et al. 1993). Vegetation on-site is composed invasive disturbed agricultural land, a community that is well represented throughout Moreno Valley and that is known to be capable of supporting burrowing owls. Based on this information, the project site contains suitable habitat for the burrowing owl.

PHASE II TRANSECT SURVEY RESULTS

During Phase II transect surveys, the overall density of animal burrows within the project site was observed to be low. Occasional small mammal burrows, likely those of kangaroo rats (*Dipodomys spp.*), pocket mouse (*Perognathus spp.*), and/or woodrat (*Neotoma spp.*) were observed but were not of sufficient size to accommodate a burrowing owl. From the results of the transect survey, it was determined the project site did not contain any suitable burrowing for the burrowing owl. As per requested by the MSHCP, a full nesting season survey was to be performed for this particular project.

PHASE III OWL CENSUS AND OBSERVATION RESULTS

Phase III of the burrowing owl survey protocol was performed for the project site to monitor for any observations of owl sightings or activity.

The focused surveys for the burrowing owl conducted on March 12th, March 16th, March 21th, and March 26th of 2018 did not identify any owls or owl sign (i.e., whitewash, castings, etc.). In addition, no occupiable burrows were observed on the site reducing the likelihood the species will inhabit the site in the future given the fact burrowing owls rely upon abandoned burrows which have been excavated by other animals (i.e., coyotes, foxes, ground squirrels, etc.).

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

PHASE IV SURVEY REPORT

Phase IV of the burrowing owl survey protocol involves preparing a survey report that presents the results of the protocol surveys. This Focused Burrowing Owl Survey Report constitutes the Phase IV report for the project site.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

6.0 IMPACTS AND RECOMMENDATIONS

Future development of the site is not expected to have any direct or indirect impacts on burrowing owls or occupied owl habitat based on the results of the focused surveys conducted on March 12th, March 16th, March 21th, and March 26th of 2018. No additional investigations are recommended at this time. However, CDFW may require a 30-day pre-construction survey be performed immediately prior (i.e., 30-days or less) to the start of any future construction activities to determine if any owls have moved onto the site since the March 2018 surveys.

If any special status wildlife species are observed on the property during future development activities, CDFW and USFWS (as applicable) should be contacted to discuss specific mitigation measures which may be required for the individual species. CDFW and USFWS are the only agencies which can grant authorization for the "take" of any sensitive species.

This Focused Burrowing Owl Survey Report and mitigation measures recommended herein do not constitute authorization for incidental take of migratory birds.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

7.0 REFERENCES

American Ornithologists' Union. 1989. Thirty-Seventh Supplement to the American Ornithologists' Union Checklist of North American Birds. Auk, 106:532-538.

Baldwin, Bruce G, et. al.
2002. The Jepson Desert Manual. Vascular Plants of Southeastern California. University of California Press, Berkeley, CA.

California Department of Fish and Game
1990. California Wildlife: Volume 1 (Amphibians and Reptiles), Volume II (Birds), and Volume III (Mammals).

California Department of Fish and Game
1990 California's Wildlife, Volumes 1, 2, and 3. Sacramento.

California Department of Fish and Game
1995. Staff Report on Burrowing Owl Mitigation.

California Department of Fish and Game
March 7, 2012 (a). Staff Report on Burrowing Owl Mitigation. 34 pp.

California Department of Fish and Game
2015 Natural Diversity Data Base (b). Sacramento

Ehrlich, P., Dobkin., Wheye, D.
Birder's Handbook. A Field Guide to the Natural History of North American Birds. Simon & Schuster Building Rockefeller Center 1230 Avenue of the Americas. New York, New York 10020.

Grenfell, W.E. Jr., and W.F. Laudenslayer, Jr. editors. 1983. Distribution of California Birds. California Wildlife/Habitat Relationship Program. Publication No. 4 California Department of Fish and Game, Sacramento, and USDA Forest Service.

Hickman, James C.
The Jepson Manual Higher Plants of California. University of California Press. Berkeley, CA. 3rd Edition. 1996.

Holland, R.
1986. A Description of the Terrestrial Natural Communities of California.
California Department of Fish and Game, October.

Jaeger, Edmund C.
1969. Desert Wild Flowers. Stanford University Press, Stanford, California. 321 pp.
Kays, R. W. & Wildson, D. E.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Mammals of North America. Princeton University Press, Princeton, New Jersey. 2002.

Munz, Philip A.
1974. A Flora of Southern California. University of California Press, Berkeley, California. 1086 pp.

Sibley, David Allen.
National Audubon Society. The Sibley guide to Birds. Alfred A Knopf, Inc. 2000.

Stebbins, Robert C.
A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Company. 2003.

Whitaker, John O.
The Audubon Society Field Guide to North American Mammals. Alfred A Knopf, Inc. 1980.

Williams, D. F.
1986. Mammal Species of Special Concern in California, Timton Kangaroo Rat.
California Department of Fish and Game.

Zeiner, D. C., W., F. Laudenslayer, Jr., K. E. Mayer, M. White. Editors.
1990. California's Wildlife. Volume 2. Birds. State of California, Department of Fish and Game. Sacramento, California. 731 pp.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

FIGURES

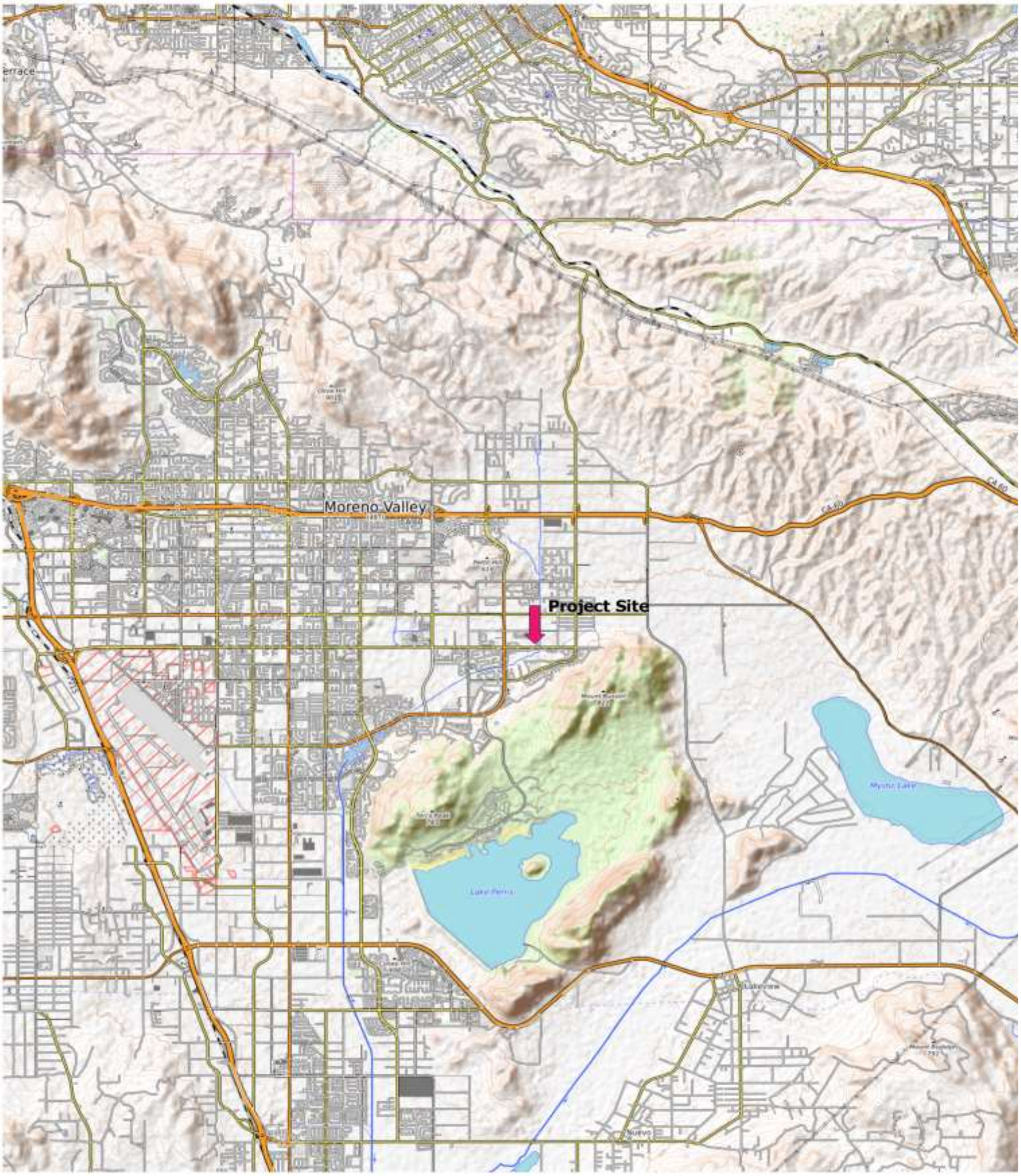
Figure 1

Regional Vicinity Map

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Figure 2

Local Topographic Map



Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Figure 3

Local Vicinity Map

25 0 25 50 75 100 m

Legend

Property Border

N

RCA

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX A

Burrowing Owl Occurrences

Burrowing Owl occurrences within the region based on the California Diversity Data Base (2018). (SC = Species of special concern)

Name	Listing Status	Habitat Requirements	Presence/Absence	Comments (Other owl colonies in the region.)
Burrowing owl (*Athene cuniculuria*)	CDFW: SC	Various: desert scrub, agricultural lands, disturbed areas	Site does support suitable habitat for the species; however, no burrowing owls or sign observed on site.	Five (2) documented occurrences within approximately 5 miles of the property.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX B

Flora and Fauna Compendia

Table 1 - Plants observed on the site and known to occur in the immediate surrounding area.

Common Name	Scientific Name	Comments
Snakeweed	*Gutierrezia sarothrea*	Observed on-site and Surrounding Area
Telegraph weed	*Heterotheca gradifolia*	"
Fiddleneck	*Amsinckia tessellate*	"
Black mustard	*Brassica nigra*	"
Plantain	*Plantago erecta*	"
Pearly everlasting	*Gnaphalium californicum*	"
Phacelia	*Phacelia distans*	"
Lambs quarters	*Chenopodium califonicum*	"
Centaurem	*Centaurea squarrosa*	"
Brome grass	*Bromus sp.*	"
Dove weed	*Eremocarpus setigerus*	Surrounding Area
Tobacco	*Nicotiana attenuta*	"
Lamb's quarters	*Chenopodium album*	"
Arroyo Willow	(*Salix lasiolepis*	"
Heliotrope	*Heliotropium sp.*	"
Buckwheat	*Eriogonum fasciculatum*	"
Erodium	*Erodium cicutarium*	"
Goldfields	*Lasthenia californica*	"
Russian thistle	*Salsola tragus*	"
Stephanomeria	*Stephanomeria sp.*	"
Mustard	*Brassica tourneforti*	"
Tamarisk	*Tamarix ramoissina*	"

Note: The above list is not intended to be a comprehensive list of every plant which may occur on the site or in the zone of influence.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Table 2 - Wildlife observed on the site during the field investigations.

Common Name	Scientific Name	Location
Common raven	*Corvus corax*	On-site and in the surrounding area.
Anna's hummingbird	*Calypte anna*	"
White-crowned sparrow	*Zonotrichia leucophrys*	"
Say' Phoebe	*Sayornis saya*	"
California ground squirrel	*Spermophilus beecheyi*	"
Song sparrow	*Melospiza melodia*	"
House sparrow	*Passer domesticus*	"
House finch	*Carpodacus mexicanus*	"
Northern mockingbird	*Mimus polyglottus*	"
Mourning dove	*Zenaida macroura*	"
Turkey vulture	*Cathertes aura*	On site and surrounding area
Red-tailed hawk	*Buteo jamaicensis*	"
Western flycatcher	*Tyrannus verticalis*	Surrounding area
Western whiptail lizard	*Cnemidophorus tigris*	"
Side-blotched lizard	*Uta stansburiana*	"
Spiny lizard	*Sceloporus magister*	"
Cottontail	*Sylvilagus auduboni*	"
Jackrabbit	*Lepus Californicus*	"
Coyotes	*Canis latrans*	"

Note: The above Table is not a comprehensive list of every animal species which may occur in the area, but is a list of those common species which were identified on the site or which have been observed in the region by biologists from RCA Associates, Inc.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits, present the data and information required for this biological evaluation and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Fieldwork conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project.

Date: 03/29/2018 Signed: Blake Curran
Report Author

Field Work Performed By: Randall Arnold
Senior Biologist

Field Work Performed By: Parker Smith
Biological Technician

Field Work Performed By: Blake Curran
Environmental Biologist

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

SECTION 8.0 LEGAL STATUS

The burrowing owl is a migratory bird species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter, any migratory bird listed in 50 C.F.R.Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3503, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (March 1 - August 15, annually). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend is considered "taking" and is potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g.,MBTA).

The burrowing owl is a Species of Special Concern to California because of declines of suitable habitat and both localized and statewide population declines. Guidelines for the Implementation of the California Environmental Quality Act (CEQA) provide that a species be considered as endangered or "rare" regardless of appearance on a formal list for the purposes of the CEQA (Guidelines, Section 15380, subsections b and d). The CEQA requires a mandatory finding of significance if impacts to threatened or endangered species are likely to occur (Sections 21001(c), 21083. Guidelines 15380, 15064, 15065). Avoidance or mitigation must be presented to reduce impacts to less than significant levels.

CEQA AND SUBDIVISION MAP ACT

CEQA Guidelines Section 15065 directs that a mandatory finding of significance is required for projects that have the potential to substantially degrade or reduce the habitat of or restrict the range of a threatened or endangered species. CEQA requires agencies to implement feasible mitigation measures or feasible alternatives identified in EIR's for projects which will otherwise cause significant adverse impacts (Sections 21002, 21081, 21083; Guidelines, sections 15002, subd. (a)(3), 15021, subd. (a)(2), 15091, subd. (a).). To be legally adequate, mitigation measures must be capable of "avoiding the impact altogether by not taking a certain action or parts of an action";

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

"minimizing impacts by limiting the degree or magnitude of the action and its implementation"; "rectifying the impact by repairing, rehabilitating or restoring the impacted environment"; "or reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action." (Guidelines, Section 15.370). Section 66474 (e) of the Subdivision Map Act states "a legislative body of a city or county shall deny approval of a tentative map or parcel map for which a tentative map was not required, if it makes any of the following findings: (e) that the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish and wildlife or their habitat". In recent court cases, the court upheld that Section 66474(e) provides for environmental impact review separate from and independent of the requirements of CEQA (Topanga Assn. for a Scenic Community v. County of Los Angeles, 263 Cal. Rptr. 214 (1989).). The finding in Section 66174 is in addition to the requirements for the preparation of an EIR or Negative Declaration.

Attachment: Burrowing Owl RCAA March 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

REVISED
Phase I Cultural Resources Assessment for the Brodiaea, Moreno Valley Residential Development, Brodiaea Avenue and Quincy Street, Riverside County, California

(Township 3 South, Range 3 West, Section 14, Sunnymead 7.5' USGS, California Quadrangle)

Prepared for:

Frontier Homes

Prepared by:

Dr. Alan Garfinkel Gold, RPA,
Principal Investigator /Cultural Resources Manager
Ryan Gerstner, B.S., Cultural Resources Specialist
Alina Landa, B.S., Cultural Resources Specialist

RCA Associates, Inc.
15555 Main Street, #D4-235
Hesperia, CA 92345

Project: #2018-23
Type of Study: Phase 1 Cultural Resource Assessment
Key Words: Negative Results, Moreno Valley, Cahuilla, Luiseno, cultural resources

Revised
September 6, 2018

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS

EXECUTIVE SUMMARY..... 2
INTRODUCTION 4
NATURAL SETTING.....4
CULTURAL SETTING.....5
Prehistory.....5
Ethnography.....16
History.....19
PERSONNEL.....20
METHODS.....20
Research.....20
Field Survey.....20
RESULTS.....21
Native American Consultation 21
Cultural Resources Records Search 21
Field Survey..... 23
Shovel-test Pits.....23
CONCLUSION.....23
REFERENCES.....25

Appendix A- Figures
Appendix B- Native American Consultation
Appendix C- Resumes

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

EXECUTIVE SUMMARY

RCA Associates, Inc. is under contract to conduct a Phase I Cultural Resources Assessment for the proposed Brodiaea Residential Development in Moreno Valley. This work is being completed for a Project located northwest of the intersection of Brodiaea Avenue and Quincy Street in the city of Moreno Valley in Riverside County, California. The parcel of land under study is currently being employed as agricultural land and can be found on the Sunnymead, United States Geological Survey (USGS) Topographic Quadrangle Map (Figures 1 and 2). This cultural resources study was performed pursuant to the California Environmental Quality Act (CEQA). A cultural resources records search, pedestrian field survey, shovel test pits, and Native American consultation and coordination were all elements of this project that were included within the present Scope of Work. Native American individuals and tribal groups were contacted by letter, email, and telephone for the Consultation and Coordination elements and their views on the project and input were solicited. The letters and outreach action list documents these efforts and a summary of this work is provided in Appendix B.

Field survey investigations were conducted on March 16, 2018 by RCA Associates, Inc. and did not result in the identification of any cultural resources (prehistoric / historic archaeological artifacts, sites or historic architectural remains). No cultural resources of any kind were noted within the Project boundaries. Four shovel-test pits were excavated on the property and these pits did not yield any materials of historic or prehistoric origin that could be considered cultural resources. A cultural resources records search was completed (in person) on March 15, 2018 at the Eastern Information Center (EIC) at the University of California, Riverside which showed there were no cultural resources that had been previously recorded within the Project area itself. However, one cultural resource was noted within a half mile radius of the Project (19919) and six previous cultural resource reports (0414, 2171, 4717, 6754, 8802, and 9083) had been previously completed within the half mile buffer surrounding the Project site.

The Native American Heritage Commission (NAHC) completed a Sacred Lands File Search, which yielded negative results for Sacred Lands in the general Project area. Of the six Native American tribes that were sent consultation letters, the San Manuel Band of Mission Indians (SMBMI) and the Temecula Band of Luiseño Mission Indians (Pechanga Cultural Resources) were the groups that replied. The SMBMI advised that this particular project area is not of great concern. However, the region in general remains a highly sensitive location for cultural resources. As a result, SMBMI prefers to consult with the lead agency as a point of contact for this project area. The Temecula Band of Luiseño Mission Indians recommends that Archaeological and Native American Monitoring mitigation measures be added for this Project. They state that, "the Project is located between a historic trail and the Russell Mountains…The Tribe believes the possibility of uncovering sub-surface resources is high." The Soboba Band of Luiseno Indians (Tribal Historic Preservation Officer) advised via mailed letter that the Project location is culturally sensitive as it was used in ongoing trade between the Tribes. The Tribe would like to initiate consultation with the Lead Agency as a result.

Given the Temecula Band's concerns, our recommendation would be to retain both an Archaeological (Cultural Resources) and a Native American Monitor during ground disturbing construction activities for the Project. This recommendation is the same as that supplied in letter form with their comments addressing the original version of this report (Appendix B).

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

If previously undocumented cultural resources are identified during earthmoving construction activities, a qualified (RPA certified) archaeologist must be contacted to assess the nature and significance of the find. Project construction activities shall be diverted if necessary.

If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 applies and these provisions state that no further disturbance shall occur until the County Coroner has made a determination of the origin and disposition of the remains pursuant to Public Resources Code Section 5097.98. The County Coroner must also be immediately notified of the find. If the remains are determined to be prehistoric or protohistoric and of Native American origin, the Coroner or the Project Archaeologist will notify the NAHC. The NAHC shall determine and identify a Most Likely Descendant (MLD) that will consult with RCA Associates and recommend the manner of treatment for any human remains and associated religious offerings. With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

INTRODUCTION

RCA Associates, Inc. is under contract with Frontier Homes to complete a Phase 1 Cultural Resources Assessment for a proposed residential development project in Moreno Valley, Riverside County, California (Township 3 South, Range 3 West, Section 14, Sunnymead, California USGS Quadrangle) (Figures 1 and 2). This study was performed pursuant to the California Environmental Quality Act (CEQA).

The California Environmental Quality Act (CEQA) requires consideration of project impacts on archaeological or historical sites deemed to be "historical resources." Under CEQA, a substantial adverse change in the significant qualities of an historical resource is considered a significant effect on the environment. For the purposes of CEQA, an "historical resource" is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (Title 14 CCR §15064.5(a)(1)-(3)). Historical resources may include, but are not limited to, "any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (PRC §5020.1(j)).

The eligibility criteria for the California Register are the definitive characteristics for assessing the significance of historical resources for purposes of CEQA (Office of Historic Preservation). Generally, a resource is considered "historically significant" if it meets one or more of the following criteria for listing on the California Register:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

NATURAL SETTING

The City of Moreno Valley is located in northwestern Riverside County. It is further situated along the valley floor and is bounded by the hills and mountains of the "Badlands" to the east, Old Highway 215 to the west, the Box Springs Mountains to the north, and Lake Perris State Recreation Area to the south. The area is developed with residential, commercial, and industrial land use. Lands in current agricultural production are concentrated in the eastern portion of the City. Elevations in the general area range from a low of approximately 1,550 feet above mean sea level (amsl) to a high of 1,800 feet amsl. The area gradually slopes to the south and southwest with the higher elevations north of State Route 60 and the lower elevations near March Air Reserve Base.

The City of Moreno Valley lies primarily on bedrock geology known as the Perris Block. This structural unit is located within the Peninsular Range Geomorphic Province, one of the major

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

geologic landforms of Southern California. The Perris Block is a large granitic mass of rock bounded by the San Jacinto Fault, Elsinore Fault, and Santa Ana River. The Perris Block has a history of tectonic land movements of several thousand feet due to shifts in the Elsinore and San Jacinto Faults. The primary source of strong seismic activity is the San Jacinto fault. The San Jacinto Fault Zone traverses the eastern portion of the general Project area. The project area and vicinity is within the Santa Ana River and San Jacinto River watersheds.

The climate of the area is characterized by warm, dry summers and mild winters. Most rain falls between the months of November and March. Occasionally, in the fall, cyclical breezes are interrupted by strong, dry, warm desert winds (identified locally as Santa Anas) from the north/northeast.

The natural habitat of the area is largely disturbed by urban development, weed abatement or agricultural activities. However, the area does support certain native or semi-native plant communities including sagebrush scrub, non-native grassland, chaparral, riparian scrub, disturbed alluvium, alkali playa, alluvial fan sagebrush scrub, and marsh.

The area has a rich diversity of native wildlife species. Mammals, including mule deer, and large carnivores, including coyotes, bobcats, badgers, and gray fox, exist in the more undeveloped areas. Opossums, raccoons, skunks, cottontail and jack rabbits, and many rodent species are common. A wide variety of reptiles can be found. Additionally, over one hundred species of birds, including owls, hawks, and other birds of prey can be noted in the area.

CULTURAL SETTING

Prehistory

Synthetic treatments of the prehistory of Inland California are found in a number of academic references. The latter sources include topical treatments in Basgall (1993), Basgall and Hall (1994), Basgall et al. (1988), Bettinger and Taylor (1974), Garfinkel (2007), Garfinkel and Williams (2011, 2015), Garfinkel et al. (2010), Gilreath and Hildebrandt (1997), Grayson (2011), Lengner (2013), Schneider et al. (2000), Sutton et al. (2007), Ugan and Rosenthal (2015), Van Tilburg et al. (2012), Warren (1984), Warren and Crabtree (1986), Whitley (1998), Ugan and Rosenthal (2015) and Yohe (1992).

Research into the prehistory of the Inland California has a lengthy pedigree. Perhaps some of the earliest scientific investigations were those conducted by the husband-wife team of William and Elizabeth Campbell working out of the Southwest Museum (Campbell 1931; Campbell and Campbell 1935; Campbell et al. 1935). During this same general time period Malcolm Rogers was conducting studies through his association with the San Diego Museum of Man. His research emphasized the identification of the flaked stone artifacts and prehistoric cultures mainly found in the Colorado Desert but overlapping also into the Mojave Desert as well (Rogers 1939). Another very early researcher in the area was Mark Raymond Harrington who conducted archaeological studies at the Stahl Site, Stahl Site Cave and Fossil Falls sites in the Coso Range of eastern California while engaged by the Southwest Museum (1948a, 1948b, 1949, 1950, 1951, 1952, 1953, 1957).

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

In the 1960's Edward Lanning working with the University of California, Berkeley wrote up the previous research completed at Rose Spring (CA-INY-372) in the Coso Range of eastern California and this work served as a critical benchmark and anchor to develop the regional cultural sequence and chronology for Inland California and the southwestern Great Basin. Robert Yohe returned to Rose Spring much later and provided an even more detailed and well-supported chronology bolstered by a suite of precise radiocarbon dates for this physically and culturally stratified site (Yohe 1992).

Much of the scholarly research in Inland California has been completed under the umbrella of cultural resource management studies. Many federal and state agencies (Bureau of Land Management, California Department of Transportation, California Department of Parks and Recreation, and United States Forest Service) and also private developers (relating to the construction of renewable energy initiatives employing both solar and wind) have been the major proponents and financial underwriters for these investigations.

Inland California has seen much archaeological study. This research has spawned some of the contentious dialogues in professional archaeology with respect to competing models attempting to illuminate the nature and antiquity of various prehistoric cultural manifestations. The focus of these debates relate to the nature and timing of various cultural transformations. Such discussions hinge on the age and character of technological shifts, settlement-subsistence change, economic developments, artistic and ideological transitions, prehistoric population movements / replacements and linguistic prehistory (cf. Garfinkel 2006, 2007; Garfinkel and Austin 2011; Garfinkel et al. 2007, 2009, 2010; Grant et al. 1968; Goldsmith and Garfinkel 2013; Gilreath 2007; Gilreath and Hildebrandt 2008, 2011; Hedges 2001; Hildebrandt and McGuire 2002; McGuire and Hildebrandt 2005; Stewart et al. 2005; Van Tilburg et al. 2012; Whitley 1987; 1998; 2003; Whitley and Dorn 1987, 2011). Given the critical nature and central importance of chronological controls for Inland California, a prehistoric cultural sequence and the associated identification of specific temporal periods remain an important and salient topic for continuing research.

Cultural Sequence

Late Pleistocene: Paleo-Indian / Western Clovis Period

Basally-fluted, projectile points of the Clovis (aka Western Clovis) cultural complex are generally considered to be the most dominant, hallmark of prehistoric occupation during the Late Pleistocene era. These Clovis points and their associated cultural materials have been the focus of intensive study and the general consensus is that they date from about 13,500 to 12,500 calibrated radiocarbon years (cal) before present (BP). Some researchers have tried to pinpoint the duration of the Clovis tradition to an even more exacting and narrower time span (12,800 to 13,200 cal BP) but recent critiques of that perspective support the notion that at least a millennium of time was necessary for the wide-ranging Clovis tradition to have developed and spread within the continental United States (cf. Goebel et al. 2008; Waters and Stafford 2007).

Until recently, the Clovis complex was considered to be the basement cultural expression in the Americas. However, reports from sites like Monte Verde (Chile), Paisley Cave (Oregon), the Schaefer and Hebior sites (Wisconsin), Meadowcroft Shelter (Pennsylvania), Page-Ladson (Florida), and the Debra L. Friedkin Site (Texas), have now provided substantial and persuasive

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

evidence for pre-Clovis occupation dating to a period from ca. 16,000 and 14,000 cal BP, the latter archaeological complex having occurred some two to three thousand years before Clovis (Gilbert et al. 2008; Goebel et al. 2008; Waters et al. 2011b).

Unfortunately, as of yet, there is no tangible and compelling evidence within California or the Great Basin for such early pre-Clovis discoveries. Yet, there have been a number of claims (Davis 1978; Leakey et al. 1968) based on heavily weathered and crude cobble and core tools as part of a pre-projectile point tradition (cf. Moratto 1984:29-73). However, such claims have not withstood the test of time.

Nevertheless, although California has posted early claims of great human antiquity, even Clovis-like fluted points discoveries themselves are fairly rare (cf. Rondeau et al. 2007). When such finds are identified they are most frequently isolates and typically found in association with now dry Pleistocene lakebeds. Besides the limited discoveries of fluted points, we have little in the way of related diagnostic elements of Clovis technology that would provide a more complete picture of the entire archaeological assemblage. Complementary artifacts, such as prismatic blades, blade cores and bone tools are commonly described from the Clovis heartland in the American Southwest and Plains (however cf. Fenenga 2015).

Further, there is long-standing ambiguity in the age and sequence of terminal Pleistocene cultural complexes in California and the Great Basin generally. Some researchers have expressed doubts as to whether the Clovis Complex per se has a temporally or geographically extensive presence in California and the Great Basin. Furthermore, some researchers question the true antiquity of these putative earliest California and Great Basin projectile point forms. Finally, other confounding issues remain with respect to the chronological relationship of one projectile point type to another (e.g. Western Fluted vs. Concave Base vs. Western Stemmed forms).

China Lake Basin and the adjacent Rose Valley are home to some of the largest concentrations of fluted and concave base points in California. The sites in Rose Valley are located on relict terraces of the Lower Pleistocene Owens River. The Rose Valley sites were initially recognized and studied by Ferris Borden and the Archaeological Survey Association (Borden 1971; Moratto et al. 2018). The China Lake sites were researched by Emma Lou Davis (Davis 1978). A number of the fluted and unfluted concave base points discovered in the Coso Basin have yielded putatively ancient obsidian hydration dates that would provide a tentative late Pleistocene age determination (cf. Garfinkel et al. 2008; Moratto et al. 2018). Yet, no direct and associated radiocarbon determinations exist that demonstrate the age of these early points and there are only a handful (n = 4) of radiocarbon determinations dating to the Clovis age for any archaeological expressions in all of prehistoric California.

Nevertheless, recent obsidian hydration data provides a growing number of very large hydration rim measurements (greater than 16.0 microns) from several sites in the China Lake Basin and vicinity. These hydration measurements do support an age for both Western Fluted and Basally Thinned Concave Base points dating to a time from about 12,000 to 13,500 cal BP. (Giambastiani and Bullard 2010; Rogers 2011; Garfinkel and Hopkins 2008; Garfinkel et al. 2016; Moratto et al. 2018). If those ages are further substantiated, that would imply a prehistoric California Paleoindian complex of equivalent age to the Clovis tradition of the American Southwest and Plains. Significantly, the technological and typological elements for these early California

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

projectile points appear slightly different and may represent a somewhat distinctive tradition - a bit different from their kindred artifacts in other areas of the United States.

In contradistinction to the above discussion, Beck and Jones (2010; see also Bryan 1988) argue, that Western Stemmed Points are in fact characteristic of the terminal Pleistocene and would be contemporaneous with the Clovis Complex. While it is widely assumed that fluted and unfluted concave-base points date to the terminal Pleistocene in the Mojave Desert, this has never been demonstrated radiometrically or chrono-stratigraphically. Nevertheless, recent finds at China Lake have noted that Fluted and Concave Base points have a different overall spatial distribution than Western Stemmed points. Finally, all three projectile point styles (Western Stemmed, Fluted and Concave Base) often occur in the same microenvironments, in closely similar depositional contexts, and at the very same sites (Basgall 1988, 2007; Basgall and Hall 1991; Giambastiani 2008, 2010; Giambastiani and Bullard 2010).

Early Holocene: Mojave or Lake Mojave Period

Significant environmental changes, correlating with broad shifts in regional temperature, occurred in the post-Pleistocene with only minor changes in rainfall. Increased runoff from glacial melting resulted in the infilling of valleys and basins by streams, marshes, and lakes. Initially these large bodies of water supported great amounts of biota – including big game animals (e.g., deer, antelope, and bighorn). During this time there exists an ancient, well-established and wide-ranging prehistoric tradition dating from ca. 12,000 to 8,000 cal BP. This archaeological complex is a well-known expression and received its geographic referent from the landmark studies of Campbell et al. (1937).

The Campbells and their research associates focused their work along the relict shorelines of Pleistocene Soda Lake and Silver Lake in the eastern Mojave Desert near Baker, California. These early Holocene assemblages are recognized for their distinctive formalized flaked stone tool kits. The Lake Mojave flaked stone tools include large stemmed points (identified as either the larger and more robust Lake Mojave type or the smaller Silver Lake form) that are considered chronological diagnostics. Associated with these temporally sensitive point/tool forms are other stone tools including bifacial crescents, heavily worked domed (steep-sided) unifaces (end scrapers and side scrapers), knives, bifaces, gravers, plano-convex limaces and large core-cobble tools (cf. Beck and Jones 1997).

Throughout southern California (and especially in eastern California) Lake Mojave era sites have been recognized with a variety of other identifiers. In the Colorado Desert, Malcolm Rogers calls similar traditions as his Playa Complex (Rogers 1939, 1966). In the San Diego area, the related assemblages have been designated as San Dieguito (Warren 1967; Warren and True 1961). William Wallace (1962) employs the Lake Mojave moniker for all such expressions throughout southern California.

Significantly, the majority of the Lake Mojave sites are exclusively surface expressions making them difficult to date and only infrequently are they dated directly by employing radiocarbon assays. Nonetheless, Beck and Jones (1997, 2010; cf. Willig et al. 1988) have assembled a series of radiocarbon dates for these stemmed point, early Holocene prehistoric expressions in the northern and central Great Basin. Their research indicates that the Lake Mojave related materials

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

are older than 9500 cal BP and are possibly as ancient as 13,200 cal BP. If such dates were to apply in California they would be contemporaneous with the ages applied to the Clovis Tradition in the American Southwest and on the Plains. Yet, perhaps contrary to expectations, dates for the Lake Mojave materials at Fort Irwin cluster from 9500 to 11,000 cal BP (Basgall 1993b; Sutton et al. 2007).

Claude Warren and his colleagues (Warren 1967, 1984, 1986, 2008; Warren and Crabtree 1986; Warren and Schneider 2003; Warren et al 1986) and other researchers (cf. Bedwell 1970) recognize that Western Stemmed point sites of the Lake Mojave Tradition were most often associated with extinct lakes. Since these materials are clustered around ancient shorelines, the logical conclusion was that this early lifeway was lacustrine based and that the artifacts would best be interpreted as representing a hunting emphasis on lakeshore resources. Further, since few artifacts were discovered that could be interpreting as representing milling equipment, only a very minor expression of plant food exploitation was indicated.

However, more recent research in the central and western Mojave Desert attests to a different perspective with a wider range of habitats for sites outside of lakeshore settings (Basgall 1993b; Basgall and Hall 1994c; Basgall et al. 1988; Sutton et al. 2007). Further, the faunal remains recovered from such sites attest to a dominant expression of small mammal (especially lagomorphs) and reptile exploitation rather than large game such as deer, pronghorn and bighorn sheep. Additionally, milling equipment, although evidently only a minor element in the Lake Mojave archaeological assemblages, are indeed a regular part of the documented cultural materials at such sites. The latter perhaps indicates that plant food was of some importance in the diet of these early Holocene peoples. Nevertheless, use-wear studies suggest that corms and bulbs, especially marshland taxa rather than small seeds, were the plant foods processed (Basgall 1993b, 2000).

Most researchers agree that high diversity of toolstone material and extensive curation and maintenance of Lake Mojave age tools supports the conclusion that very large foraging areas and frequent residential moves were typical (Basgall 1989; Basgall and Hall 1994c; Basgall and McGuire 1988; Delacorte 199; Delacorte and McGuire 1993). It is posited that these foraging groups were limited to a small number of family units and the groups themselves were quite small in size. The food resources that were extracted would have been exhausted quickly causing people to move about the landscape often. Considering these frequent moves, the stone tool assemblages remained small and relatively homogenous (Kelly 1983, 1985, 1988; Shott 1986, 1989; Thomas 1983a, 1983b).

Middle Holocene: Little Lake or Pinto Period

In the Middle Holocene during the time from ca. 8,000 to 4,000 cal BP temperature and aridity peaked. Lowland bodies of water shrank in size and associated plant communities dwindled - reaching a state that was incapable of supporting the former abundance of large game (Sutton et al. 2007). With the exception of certain rare refuge areas, human land use shifted to upland areas where a few relict streams and lakes remained. Correlating with these changes was the inception of a cultural expression known as the Pinto Complex.

Researchers have recognized that it has been challenging to clearly articulate the Middle Holocene

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

cultural-historical traditions and settlement systems since few prehistoric sites date within this specific time frame. The latter circumstance may owe to a lack of geological visibility (Basgall 2009; Meyer and Rosenthal 2010) or alternatively this may be a reflection of the heightened aridity or a corollary demographic collapse (Elston 1982; Grayson 2011; Sutton et al. 2007; Warren 1986). From either perspective, there are a paucity of radiocarbon assays that fall within the Middle Holocene time and these expressions are especially absent during the waning years of this period - from ca. 5000 and 4000 cal BP (Sutton et al. 2007).

The Pinto Complex, rather than representing a different cultural group, is posited as an outgrowth of the former hunting tradition of the Lake Mojave Complex of the Early Holocene. Such a model is based on a variety of similarities in the two traditions. Spatial and temporal overlap in projectile point forms, the continued use of difficult to reduce toolstone (basalt and igneous fine-grained materials) for bifacial tools - distinctly different from the use of cryptocrystalline and obsidian materials so common to later periods, continuity in the character of flaked stone production emphasizing percussion flaking in contrast with a later emphasis on pressure flaking, and the continued popularity of specialized tool forms (biface knives, ovate domed and keeled scrapers, and engravers) - all suggest a pattern of continuity.

Pinto Complex sites decline in number during the driest portion of the Middle Holocene era from 6500 to 4000 cal BP and are largely restricted to spring-side localities. Besides the differing land use patterns, the stone tool assemblage changes at this time from the formalized stone tool forms of the Early Holocene to the more perfunctory flake scrapers, handstones, and milling slabs. Ground stone implements signal an important distinction and a growing emphasis on small seed use. Since hunting equipment persists, Claude Warren and others (Warren 1967, 1984, 1986) have suggested that large game procurement continued despite deteriorating climatic conditions and declining big game populations.

Archaeofaunal assemblages from Pinto sites attest to the fact that artiodactyls by this time are almost completely absent - with small game, including tortoise, becoming the norm. Pinto populations, originally geared towards hunting, would have been hard-pressed to accommodate the changing environmental conditions and their adaptation may have ultimately failed. Populations may have either suffered extinction or perhaps migrated to more well-watered areas, abandoning their desert homes.

A few Middle Holocene sites in the southern Owens Valley and Rose Valley have produced assemblages similar to those in the Mojave Desert and appear to be consistent with generalized adaptations of highly mobile foragers with wide-ranging settlement patterns. However, substantial house floors discovered at Lubkin Creek (CA-INY-30) and the diverse array of occupational debris having been recovered at the Stahl Site (CA-INY-182) at Little Lake (on the western edge of the Coso Range) has led some researchers to posit much greater residential stability and a degree of permanence in settlement pattern in some exceptional instances.

The hallmark and defining diagnostics for this period are large, heavy, bifurcate-stemmed dart points known as the Little Lake Series (Basgall and Hall 1992, 1994c, 2000; Bettinger and Taylor 1974; Fitzgerald et al. 2005; Harrington 1957; Lanning 1963; Vaughan and Warren

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

1987). Researchers have recognized that these Pinto-like points were most frequent at the Stahl site near Little Lake (Harrington 1957).

The Pinto-like points that were discovered at Little Lake were originally thought to be morphologically distinct from Pinto points identified at the type site in the Pinto Basin in Riverside County in the southern Mojave Desert (Amsden 1937; Campbell and Amsden 1934; Campbell and Campbell 1935; Schroth 1994). In-depth research (Basgall and Hall 2000) relating to the questions of chronology and point classification suggests that the Little Lake points are largely indistinguishable from Mojave Desert examples typically identified as Pinto points.

The research of Basgall and Hall redefined the Pinto Series indicating that there existed a larger, heavier, and more robust variant of this point style that has an age range from 7500-4000 rcybp. A smaller, lighter, and more gracile form, more characteristic of the northern Great Basin, is equivalent with the Gatecliff Split-stem type previously identified by David Hurst Thomas (1981). Those latter artifacts are argued to date to a more recent vintage, consistent with a temporal range from ca. 5000-3200 rcybp. A further result of the Basgall-Hall Study was the discovery that there is considerable spatial overlap between both the robust and gracile variants with both forms having substantial representation.

Other researchers disagree with the Basgall and Hall Pinto point chronology. Haynes (2004) argues that Pinto points range in age from 9,500 to 5,500 radiocarbon years before present (rcybp). Perhaps an age range of 11,000 to 3,500 cal BP is a more accurate representation for the full span of use of this rather enigmatic point form. Recent studies have in fact led many researchers to conclude that Pinto points have a much longer duration than has been typically applied. Pinto points, based on their most recent re-evaluations, are sometimes contemporaneous with the Western Stemmed Series (as above). However, Pinto points were infrequent during the earliest years of their introduction but flourished and endured for a much longer period time after Western Stemmed points ceased.

Heavily worn stone tools crafted from exotic toolstone suggests that prehistoric Middle Holocene Natives were still highly mobile. These patterns led Basgall and Hall (1992c, 1994c) to conclude that both early and middle Holocene adaptations in the Mojave Desert represent a more generalized subsistence orientation than conventionally portrayed by Warren (1967, 1984, 1986) and others.

Late Holocene: Newberry Period or Gypsum Complex

In the Late Holocene, beginning ca. 4000 / 3500 cal BP and continuing to about 2000 cal BP, significant interregional variability in aboriginal land use can be recognized. With respect to the local environmental conditions. Mehringer and Sheppard (1978), based on lake-core sampling at Little Lake, identify that available water increased about 3000 cal BP, with a subsequent dry period at about 2000 cal BP. Hence, cool winters and relatively wet intervals were characteristic of what is known as the Neo-pluvial Period that occurred between 4000 and 2000 rcybp (Wigand and Rhode 2002).

In the Mojave Desert, Basgall and Hall (1992, 1994c) identified cultural deposits from Fort Irwin that include a full complement of milling equipment, flaked stone tools, and the replacement of basalt and rhyolite by cryptocrystalline silicate toolstone. The occurrence of bifaces increases

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

dramatically during this time. Nonetheless, prehistoric sites are often small and it has been argued that these settlements represent wide-ranging mobility oriented to short-term occupations rather than targeted procurement of specialized resources.

Many radiocarbon assays from houses and features are documented from the southern Owens Valley (Basgall and Delacorte 2012; Basgall and McGuire 1988; Byrd and Hale 2003). These well-built houses and associated remains provide robust data for chronological controls. Their remains indicate an emphasis on cached and curated articles (including bifaces, bone tools, and milling equipment) and lend credence to the premise that these particular sites were seasonally re-occupied. Obsidian tool/debitage sources appear to indicate a wide-ranging and extremely expansive, yet regularized annual settlement round. From food remains (faunal material and plant macrofossils) one may infer that logistical forays were made to long-distance upland settings to procure specialized resources (pinyon nuts, bighorn sheep, and marmots) that were brought back to the base camp.

Warren et al. (1984) provide a contrasting view for this period and argue for the prominence of large game hunting due in part to their natural abundance based on ameliorating climatic conditions. Additional intensification in the use of plant foods is represented by increased numbers of milling equipment. Warren and others identify a change in social organization from the smaller family-band units in earlier eras to multi-family groups. William Hildebrandt and Kelly McGuire (2002) similarly argue that settlements during the Late Holocene (Middle Archaic also known as the Newberry Period) may have been less mobile than originally implied and may be best interpreted as year-round occupations. They also argue that the characteristic settlement pattern appears to have incorporated sedentary occupations of ecological sweet spots where women remained at hamlets while men ranged to distant outlying areas for artiodactyl hunting.

One implication of this emphasis on artiodactyl exploitation was the necessity of serviceable hunting equipment. Stone tool reduction and particularly obsidian biface manufacture became critically important from about 2500 to 1500 cal BP. Amy Gilreath and William Hildebrandt (1997, 2011) argue that in the Coso Basin, obsidian stone tool reduction reached a peak level of task specialization where early stoneworkers produced bifaces in enormous numbers both for domestic use but mostly as surplus exports intended for trans-Sierran trade. During this same time span, an enormous number of rock drawings (petroglyphs) are recognized and appear to be associated with increase rites, revealing a level of socio-ceremonial complexity exceeding that of earlier and later periods (Garfinkel 2006; Garfinkel et al. 2009; Yohe and Garfinkel 2012).

Prehistoric settlements dating to the Late Holocene are marked by the occurrence of medium-sized to large stemmed and notched points. The most frequent point forms are variants of the Elko, Humboldt (Concave Base and Basal-notched), and Gypsum Series. Heizer and Baumhoff (1961) were the first to define Elko points. This series is composed of large, heavy, notched points with variable stem characteristics (Heizer et al. 1968; O'Connell 1967). These include eared, corner- and side-notched specimens. Elko Contracting stem forms are often assigned to the Gypsum type having the same general chronological frame. In the western Great Basin, Elko points have often been found in contexts dating from 3750-1290 cal years B.P. (Basgall and McGuire 1988; Bettinger and Taylor 1974; Gilreath and Hildebrandt 1997; Heizer and Hester 1978; Justice 2002; Thomas 1981). Such a chronological position is supported by a plethora of radiocarbon,

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

stratigraphic, and obsidian hydration data. However, it is becoming increasingly apparent that large corner-notched and side-notched variants of this Elko form sometimes occur in earlier contexts.

Gilreath and Hildebrandt (1997) observed that more robust Elko points, especially those thicker than 6.5 mm, regularly produce obsidian hydration measurements that are more ancient than the Newberry Period. One explanation for this problem is the difficulty in identifying between earlier Pinto and the more recent look-alike Elko forms (Basgall and Hall 2000; Vaughan and Warren 1987). Finally, the Rose Spring site (CA-INY-372) on the western edge of the Coso Range is a culturally and naturally stratified deposit. Five separate successive units provided cultural material amenable to dating. The lower three strata range in age from ca. 4000 to 1700 cal BP and as such fall within this period (Clewlow et al. 1970; Yohe 1992).

Late Holocene: Haiwee, Rose Spring, Saratoga Springs Period

Inland California witnessed a significant series of adaptation shifts beginning in this time period (ca. 2000 to 700 cal BP). During the onset of the period a dramatic set of subsistence-settlement changes were documented. These changes include: the introduction of the bow and arrow replacing the dart and atlatl, a dramatic decrease in large game hunting, increased reliance on dryland hard seeds, the beginning of intensive green-cone piñon pine nut exploitation, and the development of sites emphasizing the acquisition of easily procured and abundant small game animals (especially with respect to large numbers of lagomorphs and grebes). These cultural changes may reflect a Numic (Great Basin Paiute-Shoshone) in-migration.

It is important to note that the Project area under study includes the Luiseño and they are a different and distinct language group representing the Californian Uto-Aztecan branch while the Shoshonean languages are of the Northern Uto-Aztecan Branch.

Also certain technological innovations and labor-intensive adaptive strategies are also broadly consistent with those of the intrusive Numic groups (Bettinger and Baumhoff 1982; Delacorte 1994, 1995).

In the western Mojave Desert specialized sites first occur that are single component loci targeting small, easily-harvested, game animals harvested through communal hunts and mass capture that focus on jack rabbits and grebes (Gold 2005; Garfinkel 2006; McGuire et al. 1982). These sites and similar localities often contain abundant portable milling equipment, rock ring structures, bedrock milling, and plant food threshing features. These data reflect a shift to more intensive use of small game and local plants (dryland hard seeds) perhaps as a means of mitigating increasing human population pressure – consistent with the model presented by Bettinger and Baumhoff for Numic adaptations (1982).

Such an adaptation would have perhaps provided Numic peoples with a competitive advantage over existing pre-Numic populations since it would have enabled them to exploit a wider range of resources that were more costly to collect and process. Hence, resources with high extractive and processing costs would have been exploited only after the arrival of Numic groups in the area (cf. Bettinger and Baumhoff 1982; Delacorte and McGuire 1993).

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

From a careful study of the archaeological record, a pattern of lowland, intensive small-game hunting camps appear to have occurred with the development of large-scale, intensive, upland green-cone piñon pine nut exploitation. This pattern is contemporaneous with an initial focus on the acquisition, mass processing, and storage of dryland seeds (Basgall and Delacorte 2003; Basgall and Giambastiani 1995). These seed camps routinely include rock rings, thought to be the foundations of brush structures. Many of these rock structures contain doorways facing toward the rising sun and are associated with numerous handstones, milling slabs, and bedrock grinding features.

Single-component Haiwee-age hunting camps are frequently located in "geographically isolated areas" (Delacorte 1994). Such localities provided access to a limited range of biotic communities and appear to have a rather specialized focus on a narrow array of subsistence resources. Hence, these settlements are a distinctly different group of sites from earlier or later occupations that tend to overlap at the same settlements and hence evince a lack of continuity from earlier settlements.

Gilreath and Hildebrandt (1997) note that Coso obsidian lithic production shifts to major obsidian outcrops in Late Newberry (500 B.C. to A.D. 600) and this pattern continues into the Haiwee interval (A.D. 600 to 1300). Obsidian quarrying during this time is confined to a few massive exposures rather than the less plentiful but more widespread secondary deposits. In the Haiwee Period, nearly exclusive use of the massive Sugarloaf Mountain, Coso obsidian exposure occurs with other deposits largely ignored.

On the margins of Koehn Lake in Fremont Valley, south of the Indian Wells Valley and the Coso Range, Sutton (1987, 1991) reports on a village site (CA-KER-875) dating to this period. House structures with juniper center posts (*Juniperus* sp.) were documented. The site is well dated with radiocarbon assays and Coso obsidian hydration dates and appears to have been associated with a standing lake. The site was abandoned during the drying up of the area correlating with the initiation of a series of epic droughts known as the Medieval Climatic Anomaly (ca. AD 970 to 1350).

Rose Spring points are one of the key hallmarks of this time period. These points were originally recognized and described from the type-site of that same name, located in southern Owens Valley (also known as Rose Valley) on the western edge of the Coso Range (Lanning 1963: Yohe 1992, 1999, 2000). The Rose Spring arrow point is a small, narrow, triangular arrow point with a variety of stem forms. Rose Spring points are time markers and date primarily to the interval from ca. 2000-650 cal B.P. in the western Great Basin (Basgall and McGuire 1988; Bettinger and Taylor 1974; Garfinkel 2007; Gilreath and Hildebrandt 1997; Thomas 1981; Yohe 1992, 1999, 2000).

Recent Holocene: Marana, Late Prehistoric

This final cultural period (700 cal BP to the historic) represents the ethnographic occupation of historic Native American groups (including the Serrano and Luiseno). Desert Side-notched and Cottonwood arrow points are characteristic and brownware ceramics, soapstone beads, and pictographs also date to this time frame, as do many sites associated with systematic and intensive upland piñon exploitation (Bettinger 1978; Garfinkel and McGuire 1980; McGuire and Garfinkel 1976, 1980).

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Resource intensification that began in the prior period continues and strengthens with settlements tied to seasonal differences in resource availability. The most spatially confined seasonal movement and the smallest foraging ranges occur during this time period. Region-wide expansion of diet breadth and intensification of small seed resources involved a change in the technology used in the collection and processing of these resources. It is argued that cutting and mass collecting of green, dryland, hard seeds provided a considerably higher return than was possible using the former method of seed beating. This pattern begins about 1300 cal BP but increases substantially throughout the Late Prehistoric (650 cal BP – Contact) and into the Protohistoric era. Direct flotation evidence indicates mass harvesting and threshing of Indian rice grass (*Achnatherum hymenoides*), cattail (*Typha* spp.), goosefoot (*Chenopodium* spp.), and blazing star (*Mentzelia* spp.) seeds.

This time period also sees the final collapse of trans-Sierran trade in Coso obsidian. The early emphasis (ca. 8000-1000 cal B.P.) on biface preform or flake blank technology gives way to flake-based reduction. Large bifaces decrease in abundance, yet also diminish in size and formality ultimately being replaced by more numerous flake-based tools. Artiodactyl exploitation is dramatically reduced and replaced by procurement of small game including a tremendous increase in desert tortoise and reptile use. Evidence of increased contact with outside populations (e.g., the American Southwest) and the expansion of Numic-affiliated populations out of eastern California into most areas of the Great Basin and much of the Mojave Desert are recognized during the last 1000 years (Bettinger and Baumhoff 1982; Fowler 1972; Lamb 1958).

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Table 1. Prehistoric Cultural Sequence for the Inland California Region

Cultural Complex	Approximate Time Period in Calibrated Radiocarbon Years Before Present (cal B.P.) and Calendar Years Approximated as AD/BC	Artifact Characteristic
Fluted and Concave Base points, Late Pleistocene Period (Paleoindian)	12,000 – 13,500 cal B.P.; 10,000 BC to 11,500 BC	Fluted points and Concave Base points (Western Clovis)
Lake Mojave Period	12,000 – 8,000 cal B.P.; 10,000 BC to 6,000 BC	Western Stemmed points (Lake Mojave, Silver Lake)
Little Lake (Pinto) Period	8,000 – 4,000 cal B.P.; 6,000 BC to 2000 BC	Pinto and Leaf-shaped points
Newberry (Gypsum) Period	4,000 – 2,000 cal B.P.; 2000 BC to AD 1	Gypsum, Elko, and Humboldt Series points
Haiwee (Saratoga Spring) Period	2000 – 700 cal B.P.; A.D. 1 – 1300	Rose Spring, Eastgate, Saratoga Springs points
Marana (Late Prehistoric) Period	700 cal B.P.; A.D. 1300 – Historic Contact with European explorers ca. 1770	Desert Series points, ceramics

(Warren 1980, 1984, Bettinger and Taylor 1974)

Ethnography

The project area is located between the aboriginal territories of two ethnolinguistic groups: the Cahuilla and the Luiseno. Anthropological research on these two groups is rather extensive and data on these Native Californian pre-contact cultures has been collected since about 1900 (Barrows 1900; Bean 1972, 1978; Bean and Saubel 1972; Bean and Shipek 1978; Kroeber 1908, 1925; Sparkman 1908; Strong 1929; White 1963).

Cahuilla

Cahuilla territory was near the geographic center of Southern California. The Cahuilla aboriginal homeland was bounded to the north by the San Bernardino Mountains, to the south by Borrego Springs and the Chocolate Mountains, to the east by the Colorado Desert, and to the west by the San Jacinto Plain and the eastern slopes of the Palomar Mountains (Bean 1978). Cahuilla traditional areas also dominated the Peninsular and Transverse Mountain Ranges and the San Jacinto Plain, ranging east into the Colorado Desert Region and south into areas beyond the Salton Sea (Bean and Shipek 1978:550-575).

Cahuilla settlements were generally located at high elevations in well-watered canyons or on fans near streams and springs and when situated at lower elevations near natural springs (Moratto

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

1984). Hence, Cahuilla villages occupied both high-altitude locations as well as low desert lands. In general they were positioned in close proximity to canyons with high precipitation levels or plentiful water sources (mountainous locations). Such settlements were typically also situated near fresh water sources or at the terminus of alluvial fans where the high water table provided abundant mesquite and shallow wells could be dug. House structures ranged from brush shelters to dome-shaped or rectangular structures some 15-20 feet long (Bean 1978).

Cahuilla social structure revolved around clans and exogamous moieties (components connected through inter-marriage). Hunting, in conjunction with the exploitation of a variety of available natural plant resources governed the Cahuilla subsistence strategy. The Cahuilla used a great range of wild resources, such as acorns and piñon nuts, deer, desert bighorn sheep, rabbits, fish, and quail. Agricultural techniques were present within the Cahuilla, particularly among those groups living near the Colorado River.

The material culture of the Cahuilla was extensive and varied, and included pottery, ornamental items, charmstones, and a variety of flaked stone implements. Unlike other Native American populations in Southern California, the Cahuilla were able to retain their autonomy even after the arrival and increasing control of European explorers and the settling governments that followed. It was not until 1891 that Cahuilla Native culture and the indigenous population began to succumb to the pressures and impacts of European displacements and, later, were adversely affected by the United States governing bodies (Bean 1978; Bean and Smith 1978).

The Cahuilla also had well-developed trade networks with neighboring Serrano and Diegueño groups (Bean 1978).

Luiseño

The Luiseño spoke a language considered to be a member of the Takic subgroup of the Shoshonean language family which is an element of the larger and wide-ranging Utoaztecan linguistic stock. It is important to note the in the Archaeological Background Section we detailed some of the changes characteristic of the ancestors of the people who are classified as speaking a Numic Language.

The people who represent speakers of a Numic language are typically identified as members of the Great Basin or Far Western Paiute and Shoshone. These Numic speaking peoples are classified as an element of the Shoshonean Languages of Uto-Aztecan language stock. The Luiseno language is classified as an element of the Californian Languages of Uto-Aztgecan or the Takic branch of Uto-Aztecan.

The name Luiseno emanates from the indigenous mission association of these Native Californians. It was Mission San Luis Rey de Francia that principally served the region and incorporated the Luiseño people as converts composing part of the Mission population. The aboriginal population of the Luiseño Native people at the time of Euroamerican contact was very likely not more than 4000 individuals (Heizer et al. 1974:172-176).

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Anthropologists have considered the Luiseño to be best classified into two large environmental units – differentiating the interior from the coastal groups. The Native population at the time of Euroamerican contact has been estimated at 4000 persons (Heizer et al. 1974:172-176). The metropolitan communities of Riverside and Jurupa are near the nexus or contiguous territorial boundaries for the Luiseño, Cahuilla, and Serrano Native Californian homelands (Kroeber 1908:32-33). Notable ethnographic and ethnohistoric research is available in the studies of Bean and Shipek (1978), Boscana (1947), Kroeber (1925), Robinson (1947), Shipek (1977), Sparkman (1908), Talley (1982) and White (1963).

The native pre-contact cultural traditions of the Luiseño have been summarized in Heizer et al. (1974:97-206) and in Sparkman (1908:187-204). DuBois (1908:70-186) has contributed an authoritative discussion on Luiseño world view and religious ceremonialism. The discussion below is a summary of these and other primary and secondary sources.

As with most Native Californian cultures, the Luiseño were exclusively foragers (hunter-gatherers). Men hunted large and small game and women acquired the bulk of the basic subsistence resources which were mostly plant foods. The acorn was the central stable nut crop (specifically a number of species of *Quercus* including the favored black oak [*Quercus kellogii*]).

Unusual by world standards for hunter-gatherer groups, the Luiseño lived in permanent, year round villages located in the vicinity of a relatively permanent source of potable water. Inter-village contacts were frequent. Trail systems allowed for travel and trade. The Luiseño sociopolitical organization and kinship systems were based on exogamous partrilineages that were formed into clans.

Bean and Shipek (1978:550) note that the sociopolitical organization of the Luiseño included an extensive array of social statuses. This group exhibited explicitly delineated ruling families that had reciprocal relations with various villages creating what might be best termed a formalized ethnic nationality. Further, the Luiseño were recognized or their elaborate cosmology that included the use of the psychoactive drug (*Datura* spp., aka jimsonweed). Finally, the Luiseño were recognized for their sophisticated religious expressions that included cosmological ritual practices incorporating ceremonial symbolism with sand paintings representing an avenging supra-mundane being name Chinigchingish.

*Luiseño Self-identification and Sacred Religious Traditions**

The Luiseño recognize that the world was created in the area now known as Temecula (Masiel-Zamora 2016), and the Luiseño People have been in this area since the beginning of time. The Pechanga Tribe asserts that the Project area is part of the 'Atáaxum (Luiseno), and therefore has, since time immemorial, been within the Tribe's aboriginal territory. The Pechanga Tribe's knowledge of ancestral boundaries is based on information passed down from their elders through songs and stories; published academic works in the areas of anthropology, history and ethno-history; and through unpublished ethnographic and linguistic field notes. Many anthropologists and historians have proposed boundaries of the Luiseño traditional territory and have included the

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Project area in their descriptions (Kroeber 1925; Drucker 1939; Heizer and Whipple 1951; Smith and Freers 1994).

***The preceding material was kindly provided by Molly Earp-Escobar, Pechanga Cultural Resources Specialist, Temecula Band of Luiseño Mission Indians via letter and specific comments pertaining to the original version of this report. This report has been revised in light of the input from the Temecula Band of Luiseño Mission Indians. The authors and RCA Associates greatly appreciate the insights and corrections of the Pechanga and the Temecula Band of the Luiseño Mission Indians and want to recognize their contribution to our greater understanding of the Project area and further details on their cultural values.**

General History

The Historic era of California is divided into the Mission or Spanish Period (1769 to 1831), the Mexican or Rancho Period (1831 to 1848), and the American Period (1848 to present).

Spanish Period (1769-1831): The first known European explorers to pass through the Mojave Desert and travel into the San Bernardino Mountains were Lieutenant Pedro Fages and a party of soldiers in 1769. A group of explorers were led by Spanish priest, Francisco Garces, who guided Juan Bautista de Anza through the high desert region. In 1771, De Anza led a group from Arizona to create a headquarters at the Mission San Gabriel near what is now the City of Pasadena. The Mojave Trail was established in 1776 as a route across the Mojave Desert to the San Gabriel Mission (Beck and Haase 1974).

Mexican or Rancho Period (1831-1848): Spanish rule was overthrown by Mexico in 1791, and the missions lost their land holdings as the Mexican government passed the Secularization Act in 1833 (Beattie and Beattie 1974). The notable Old Spanish Trail was established between southern California and Sante Fe, New Mexico in the 1830s (Beck and Haase 1974).

American Period (1848 - Present): After the Mexican-American War in 1848 and the discovery of gold in California, the Old Spanish Road was a widely-used trade route for the shipment of goods and Mexican mules and horses. This allowed travelers from Salt Lake City to Las Vegas through the Cajon Pass to reach San Bernardino and Los Angeles. In the 1870s and afterward, small towns in the high desert region and near the Calico Mountains were established as railway stops on the Sante Fe Railroad (Kyle 1990). A silver strike in the Calico Mountains brought a modest mining boom in 1881 (Schuiling 1984:95).

Moreno Valley Local History

Moreno Valley is located immediately outside the boundary of Rancho San Jacinto Nuevo y Portero, a San Jacinto land grant. The Anza expedition may have passed through the valley of San Jacinto in 1774 referring to it as a "Valley of Paradise". Cattle belonging to Mission San Luis Rey were grazed in the valley and an adobe was also built there. The large, 35,000 acre, Rancho San

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Jacinto Viejo, extended to the communities of Hemet and San Jacinto. The Rancho was a land grant to Jose Antonio Estudillo made in 1842 as payment for efforts during mission secularization.

After California statehood in 1850 the Butterfield Overland Mail Company state passed through the area (City of Moreno Valley 1996-2006). Frank E. Brown (Moreno in Spanish) established the Bear Valley Land and Water Company in 1883. Much of the present street grid was built out by 1901.

March Field constructed in 1918 ushered in a new series of developments for Moreno Valley. The field was initially employed to train fighter pilots. It had a short use life closing in 1922 but re-opening in 1927. The field became a permanent military established named March Air Force Base and has had an active and important history for the last 70 years. In 1996, March Field was established as an Air Reserve Base. The city of Moreno Valley itself was incorporated in 1984. The metropolitan area for the city includes the communities of Moreno, Sunnymead and Edgemont.

PERSONNEL

Dr. Alan Garfinkel Gold, RPA completed a records search at Eastern Information Center, University of California, Riverside to conduct a cultural resource records search. Following receipt of the data from SCCIC, a systematic pedestrian field survey was conducted by Dr. Gold and Alina Landa on March 16, 2018. Following completion of the field survey, this report was prepared based on the results of the data search and the field investigations.

METHODS

Research

A cultural resources records search was completed (in person) on March 15, 2018 at the Eastern Information Center (EIC) at the University of California, Riverside which showed there were no cultural resources that had been previously recorded within the Project area itself. The results of the records search are summarized in this report. Native American Consultation and Coordination included a Sacred Lands File Search conducted by the Native American Heritage Commission (NAHC) on March 22, 2018. Native American individuals and groups identified by the NAHC as interested parties associated with the Project area were all contacted for consultation. Copies of the letters are provided in Appendix B.

Field Survey

A comprehensive archaeological field survey was conducted by Alan Garfinkel Gold and Alina Landa on March 16, 2018. The survey was conducted by walking parallel transects in a north-south direction. The transects were spaced approximately 10 to 15 meters apart in order to provide reasonably comprehensive coverage of the site. Four shovel test pits were excavated at a depth of approximately 30 cm.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

RESULTS

Native American Consultation

The NAHC conducted a Sacred Lands file search on March 22, 2018, which returned negative results for Sacred Lands in or near the proposed project area. Potentially interested tribes that are associated with the project area were contacted. The contact list is made available in Appendix B. The San Manuel Band of Mission Indians, Twenty-nine Palms Band of Mission Indians and the Temecula Band of Luiseno Mission Indians (Pechanga Cultural Resources) responded to the inquiries.

The SMBMI advised that this particular project area is not of great concern. However, the High Desert Region in general remains a highly sensitive location for cultural resources. As a result, SMBMI prefers to consult with the lead agency as a point of contact for this project area.

The Twenty-Nine Palms Band of Mission Indians indicated that they have no specific information regarding previously recorded cultural resources in or near the Project.

The Soboba Band of Luiseno Indians (Tribal Historic Preservation Officer) advised via mailed letter that the Project location is culturally sensitive as it was used in ongoing trade between the Tribes. The Tribe would like to initiate consultation with the Lead Agency as a result.

The Temecula Band of Luiseño Mission Indians recommends that Archaeological and Native American Monitoring mitigation measures be added for this Project. They state that, "the Project is located between a historic trail and the Russell Mountains…The Tribe believes the possibility of uncovering sub-surface resources is high."

Cultural Resources Records Search

A cultural resources records search was completed (in person) on March 15, 2018 at the Eastern Information Center (EIC) at the University of California, Riverside, which showed there were no cultural resources that had been previously recorded within the Project area itself. The record search of previously documented cultural resources and cultural resource surveys previously completed within the boundaries of the Project and within a half mile buffer. The search included a review of all recorded historic and prehistoric archaeological resources and any built-environment historical resources as well. Additionally, this review includes an archival search of the existing cultural resource reports on file with the Information Center. Also included was a search of the California Points of Historical Interest (CPHI), California Historical Landmarks (CHL), California Register of Historical Resources (CALREG), National Register of Historic Places (NRHP), and California State Historic Properties Directory (CHPD) listings. **Table 2 (below)** provides a summary of the previously recorded cultural resource directly located within the half-mile buffer of the Project area.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Table 2. Known Cultural Resources Within a ½ mile Buffer of the Project Area

Primary Number	Trinomial	Age	Type	Previous Evaluation
P-33-019919	None	Historic	Irrigation	C. Cotterman, ECORP

Site P-33-019919

Site P-33-019919 was identified within the cultural resources records search completed (in person) on March 15, 2018 at the Eastern Information Center (EIC) at the University of California, Riverside. This historic period site consists of the remains of an irrigation pumping feature and a capped well, located in a former agricultural field. Two features were recorded.

Feature 1 is a possible pump stand, now missing its pumping equipment. It includes a concrete slab footing measuring approximately 5 feet (east-west) by 4 feet (north-south), with an 8-inch-diameter steel pipe projecting upwards from its east half to a height of approximately 6 feet. A horizontal steel pipe connects the vertical pipe to a pipe junction at the west end of the slab, but the junction is no longer connected to any other pipe. The concrete footing and steel pipes are flanked by two concrete irrigation standpipes. One of the standpipes, adjacent to the north side of the footing, is 18 inches in diameter and approximately 12 inches high. The other standpipe, near the south side of the footing, is 15 inches in diameter and approximately 18 inches high.

Feature 2 appears to be a capped well, located approximately 55 feet north-northeast of Feature 1. Feature 2 consists of a 12-inch-diameter steel pipe, set in concrete, and projecting to a height of 42 inches above the surrounding ground surface. The top of the pipe is covered with a flat steel plate, and the sides of the pipe are coated with tar. Feature 1 is at the east end of an east-west row of olive trees that extends approximately 300 feet towards the west.

The site record, completed in 2010, includes a photograph of the features and a sketch map of the various elements identified with respect to their aerial extent and spatial relationships. The site record was crafted by C. Cotterman of ECORP Consulting, Inc. Redlands, California.

Table 3 (below) provides a list of the six cultural resources survey reports identified from archival studies with the Information Center that are located within the half-mile buffer of the proposed Project.

Table 3. Cultural Resources Reports Within a ½ mile Buffer of the Project Area

InfoCenter No.	Authors	Title	Year
RI-00414	Thomas Holcomb, Archaeological Research Unit, UC Riverside	Environmental Impact Evaluation: Archaeological Assessment of Two Portions of Land in Moreno Valley, Riverside County, CA	1978
RI-02171	Daniel F. McCarthy Archaeological Research Unit, UC Riverside	Cultural Resources Inventory for the City of Moreno Valley, Riverside County, CA	1987

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

RI-04717	Keith A. O'Connell URS Corporation	Results of Archaeological Survey Conducted at the Proposed Moreno Beach Verizon Wireless Tower, Riverside, CA	2007
RI-06754	Affinis, El Cajon, CA	Cultural Resources Inventory, Lowes Moreno Valley Project, Moreno Valley, Riverside County, CA	2006
RI8802	Bai "Tom" Tang and Michael Hogan, CRM Tech	Phase I Archaeological Assessment Moreno Master Drainage Plan Revision, City of Moreno Valley Riverside County, CA	2012
RI9803	Bai "Tom" Tang and Michael Hogan, CRM Tech	Phase I Archaeological Assessment Tentative Tract Map, Parcel No. 36740, City of Moreno Valley, Riverside County, CA	2011

Field Survey

During the field survey conducted on March 16, 2018 the Project area was carefully inspected for the presence of any cultural resources, including prehistoric or historic remains and historic buildings. No cultural resources were discovered for the Project area. The survey was conducted by walking parallel transects in an east-west direction. These transects were spaced approximately 10 to 15 meters apart. Four shovel-test pits were excavated during the survey. The test pits were excavated to a depth of approximately 20 cm. No buried cultural resources were discovered upon excavation of the shovel test pits (STPs).

Shovel Test Pits

During the field survey, shovel-test pits were excavated in order to further evaluate the cultural significance of the project area. These test pits were excavated to a depth of approximately 20 cm. No cultural resources (flaked stone, bone, charcoal, historic or prehistoric artifacts [e.g. projectiles points, stone tools, unmodified flakes, shell or stone beads]) were found based on the excavations performed at these test pits.

CONCLUSION

This cultural study was completed pursuant to CEQA. Field survey investigations conducted on March 16, 2018 by RCA Associates, Inc. did not identify any cultural resources, including prehistoric / historic archaeological remains or historic buildings within the Project boundaries. Shovel-test pits excavated on the property did not yield any subsurface cultural remains. A cultural resources records search was conducted by SCCIC which showed that no cultural resources had been previously recorded on the Project property. The NAHC conducted a Sacred Lands File Search and provided a list of potentially interest parties and affiliated Native California individuals and groups.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

The NAHC search yielded negative results for Sacred Lands in the immediate Project area. Follow up and Native American consultation and coordination with the six Native American tribes were completed. All parties were sent consultation letters. The San Manuel Band of Mission Indians replied by email. The Tribe initially advised that although this particular project area is not of great concern, the region remains a highly sensitive location for cultural resources. As a result, SMBMI elects to consult with the lead agency as a point of contact for this project.

The Soboba Band of Luiseno Indians (Tribal Historic Preservation Officer) advised via mailed letter that the Project location is culturally sensitive as it was used in ongoing trade between the Tribes. The Tribe would like to initiate consultation with the Lead Agency as a result.

The Temecula Band of Luiseño Mission Indians recommends that Archaeological and Native American Monitoring mitigation measures be added for this Project. They state that, "the Project is located between a historic trail and the Russell Mountains…The Tribe believes the possibility of uncovering sub-surface resources is high."

Given the Soboba and Temecula Band's concerns, our recommendation would be to retain both an Archaeological (Cultural Resources) and a Native American Monitor during ground disturbing construction activities for the Project. This recommendation is the same as that supplied in letter form with their comments addressing the original version of this report.

If previously undocumented cultural resources are identified during earthmoving activities, a qualified archaeologist should be contacted to assess the nature and significance of the find, diverting construction excavation if necessary. If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

REFERENCES

Barrows, David P.
1900 *The Ethno-Botany of the Cahuilla Indians of Southern California.* University of Chicago Press, Chicago.

Basgall, Mark E.
1988 Archaeology of the Komodo Site, an Early Holocene Occupation in Central Eastern California. In *Early Human Occupation in Far Western North America: The Clovis-Archaic Interface*, edited by Judith A. Willig, C. Melvin Aikens, and John L. Fagan, pp. 103–119. Nevada State Museum Anthropological Papers, Vol. 21. Nevada Department of Cultural Affairs, Division of Museums and History, Carson City, Nevada.

1993 Early Holocene Prehistory of the North-central Mojave Desert. Ph.D. dissertation, Department of Anthropology, University of California, Davis.

2007a Another Look at the Ancient Californians: Resurvey of the Emma Lou Davis Stake Areas and Reassessment of Collections, Naval Air Weapons Station, China Lake, Kern County, California. On file, Naval Air Weapons Station, China Lake, California.

2007b Prehistoric People in an Evolving Landscape: A Sample Survey of the China Lake Basin and its Implications for Paleoindian Land Use. On file, Naval Air Weapons Station, China Lake, California.

2012 Middle Archaic Cultural Adaptations in the Eastern Sierra Nevada: Data Recovery Excavations at CA-INY-1384/H, INY-6249/H, INY-6250, and INY-6251/H. Submitted by Archaeological Research Center, Department of Anthropology, California State University, Sacramento. On file, California Department of Transportation, District 9, Bishop.

Basgall, Mark E. and Mark A. Giambastiani
1995 Prehistoric Use of a Marginal Environment: Continuity and Change in Occupation of the Volcanic Tablelands, Mono and Inyo Counties, California. *Center for Archaeological Research at Davis Publication* 12.

Basgall, Mark E. and Matthew C. Hall
1991 Relationship between Fluted and Stemmed Points in the Mojave Desert. *Current Research in the Pleistocene* 8:61–63.

1992 Fort Irwin Archaeology: Emerging Perspectives on Mojave Desert Prehistory. *Society for California Archaeology Newsletter* 26(5):1–7.

1994 Status Report on Cultural Resources Management at the National Training Center, Fort Irwin, 1993–1994: An Addendum to the Fort Irwin Historic Preservation Plan. Submitted by Far Western Anthropological Research Group, Inc., Davis, California. On file, US Department of Defense, National Training Center, Fort Irwin, California.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2000 Morphological and Temporal Variation in Bifurcate-Stemmed Dart Points of the Western Great Basin. *Journal of California and Great Basin Anthropology* 22(2):237–276.

Basgall, Mark E. and Kelly R. McGuire
1988 The Archaeology of CA-INY-30: Prehistoric Culture Change in the Southern Owens Valley, California. On file, California Department of Transportation, Office of Environmental Analysis, Sacramento.

Bean, Lowell John
1972 *Mukat's People: The Cahuilla Indians of Southern California*. Berkeley: University of California Press.

1978 Cahuilla. In Handbook of North American Indians, Volume 8, *California*, Robert F. Heizer, editor, pp.575-587. Washington: Smithsonian Institution.

Bean, Lowell John and Charles Smith
1978 Serrano. In Handbook of North American Indians, Volume 8, *California*, Robert F. Heizer, editor, pp. 570-574. Washington: Smithsonian Institution.

Bean, Lowell John, and Katherine Siva Saubel
1972 *Temalpakh: Cahuilla Indian Knowledge and Usage of Plants*. Banning: Malki Museum Press.

Bean, Lowell John, and Florence Shipek
1978 Luiseno. In Handbook of North American Indians, Volume 8, Robert F. Heizer, editor, pp. 550-563. Washington: Smithsonian.

Bean, Lowell John, Sylvia Brakke Vane, Michael Lerch, and Jackson Young
1981 *Native American Places in the San Bernardino National Forest*. On file at the Department of Agriculture, United States Forest Service, South Zone Office, Arcadia, California.

Beck, Warren A., and Ynez D. Haase
1974 *Historical Atlas of California*. Oklahoma City: University of Oklahoma Press.

Beck, Charlotte and George T. Jones
1997 The Terminal Pleistocene/Early Holocene Archaeology of the Great Basin. *Journal of World Prehistory* 11(2):161–236.

2010 Clovis and Western Stemmed: Population Migration and the Meeting of Two Technologies in the Intermountain West. *American Antiquity* 75(1):81–116.

Bedwell, Stephen F.
1970 *Prehistory and Environment of the Pluvial Fork Rock Lake Area of South-Central Oregon*. Ph.D. dissertation, Department of Anthropology, University of Oregon, Eugene.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Benedict, Ruth
1924 A Brief Sketch of Serrano Culture. *American Anthropologist* 26(3):366-392.

Bettinger, Robert L.
1978 Alternative Adaptive Strategies in the Prehistoric Great Basin. *Journal of Anthropological Research* 34(1):27–46.

Bettinger, Robert L. and Martin A. Baumhoff
1982 The Numic Spread: Great Basin Cultures in Competition. *American Antiquity* 47(3):485–503.

Bettinger, Robert L. and R. Ervin Taylor
1974 Suggested Revisions in Archaeological Sequences of the Great Basin and Interior Southern California. *Nevada Archaeological Survey Research Papers* 5:1–26. Reno, Nevada.

Blackburn, Thomas C. and Lowell John Bean
1978a Kitanemuk. In Handbook of North American Indians, Volume 8, *California*, Robert F. Heizer, editor, pp. 564-569. Washington: Smithsonian Institution.

1978b Serrano. In Handbook of North American Indians, Volume 8, *California*, Robert F. Heizer, editor, pp. 570-574. Washington: Smithsonian Institution.

Borden, Ferris W.
1971 The Use of Surface Erosion Observations to Determine Chronological Sequence in Artifacts from a Mohave Desert Site. *Archaeological Survey Association of Southern California Papers* 7.

Boscana, Geronimo
1947 *Chinigchinich. A Historical Account of the Origin, Customs, and Traditions of the Indians at the Missionary Establishment of St. Juan Capistrano, Alta-California.* Translated by A. Robinson. Biobooks, Oakland.

Bryan, Alan L.
1988 The Relationship of the Stemmed Point and Fluted Point Traditions in the Great Basin. *Nevada State Museum Anthropological Papers* 22:53–74.

Byrd, Brian F., and Micah Hale
2003 Lacustrine Lifestyles along Owens Lake: National Register Historic Places (NRHP) Evaluation of 15 Prehistoric Sites for the Olancha/Cartago Four-Lane Project, United States Route 395, Inyo County, California. On file, California Department of Transportation, District 6, Fresno.

Campbell, Elizabeth W. Crozer
1931 An Archaeological Survey of the Twenty-Nine Palms Region. *Southwest Museum Papers* 7:1-93. Los Angeles.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Campbell, Elizabeth W. Crozer and William H. Campbell
1935 The Pinto Basin Site: An Ancient Aboriginal Camping Ground in the California Desert. *Southwest Museum Papers* 9:1-51.

Campbell, Elizabeth W. Crozer, Ernst Antevs, Charles E. Amsden, Joseph A. Barbieri, and Francis D. Bode
1937 The Archaeology of Pleistocene Lake Mohave: *A Symposium Southwest Museum Papers*, 11. Los Angeles.

Clewlow, C. William, Jr., Robert F. Heizer, and Rainer Berger
1970 An Assessment of the Radiocarbon Dates for the Rose Spring Site (CA-Iny-372), Inyo County, California. In Papers on Anthropology in the Great Basin, pp. 19-27. *University of California Archaeological Research Facility Contributions* 7.

Davis, Emma Lou
1978 The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country. *Natural History Museum of Los Angeles County,* Science Series 29. Los Angeles.

Davis, James T.
1996 Trade Routes and Economic Exchange among the Indians of California. *University of California Archaeological Survey Reports* No. 54.

DuBois, Cora G.
1908 The Religion of the Luiseno Indians. *University of California Publications in Archaeology and Ethnology* 8(4).

Drucker, Philip
1937 Culture Element Distributions V: Southern California. *University of California Anthropological Records* 1(1):1-52. Berkeley.

Earle, David D.
1990 New Evidence on the Political Geography of the Antelope Valley and Western Mojave Desert at Spanish Contact. In Archaeology and Ethnohistory of Antelope Valley and Vicinity, edited by Bruce Love and William H. DeWitt, pp. 87-104. *Antelope Valley Archaeological Society Occasional Papers* Number 2.

1997 Final Cultural Resources Overview and Management Plan for Edwards AFB, California. Volume 1: Overview of Prehistoric Cultural Resources. On file at the Southern San Joaquin Valley Archaeological Information Center, California State University, Bakersfield

2004a Native Population and Settlement in the Western Mojave Desert in the Eighteenth and Nineteenth Centuries. In *The Human Journey and Ancient Life in California's Deserts: Proceedings from the 2001 Millennium Conference*, Mark W. Allen and Judyth Reed, eds., pp. 173-186. Maturango Museum Press, Ridgecrest, California.

2004b Ethnohistorical and Ethnographic Overview and Cultural Affiliation Study of the Fort

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Irwin Region and the Central Mojave Desert. Report prepared for TRC Solutions Inc., Salt Lake City, Utah. On file with author.

2005a The Mojave River and the Central Mojave Desert: Native Settlement, Travel, and Exchange in the Eighteenth and Nineteenth Centuries. *Journal of California and Great Basin Anthropology* 25(1):1-38.

2005b Chemehuevi Population Movements and the Numic Frontier in the Western and Central Mojave Desert after European Contact. In Papers in Antelope Valley Archaeology and Anthropology edited by Roger W. Robinson, pp. 135-146. *Antelope Valley Archaeological Society Occasional Papers* Number 4.

Delacorte, Michael G.
1994 Late Prehistoric Resource Intensification in the Numic Heartland. Paper presented at the 24th Annual Great Basin Anthropological Conference, Elko, Nevada.

1995 Desert Side-notched Points as a Numic Population Marker in the West-Central Great Basin. Paper presented at the 29th Annual Meeting of the Society for California Archaeology, Eureka, California.

Delacorte, Michael G. and Kelly R. McGuire
1993 Archaeological Test Evaluation at Twenty-three Sites Located Along a Proposed Fiber-Optic Telephone Cable Route in Owens Valley, California. On file, Contel of California, Inc., and Bureau of Land Management, California Desert District.

Driver, Harold E
1937 Culture Element Distributions, VI: Southern Sierra Nevada. *University of California Anthropological Records* 1(2):53–154. Berkeley.

Drucker, Phillip
1939 Culture Element Distribution, V, Southern California. *University of California Publications in American Archaeology and Ethnology* Volume 1.

Eerkens, Jelmer W.
2004 Privatization, Small-Seed Intensification, and the Origins of Pottery in the Western Great Basin. *American Antiquity* 69:653-670.

Elston, Robert G.
1982 Good Times, Hard Times: Prehistoric Culture Change in the Western Great Basin. In Man and Environment in the Great Basin, edited by David B. Madsen and James F. O'Connell, pp. 186–206. *Society for American Archaeology Papers* No. 2, Washington, D.C.

Farmer, Malcolm F.
1935 The Mojave Trade Route. *The Masterkey* 9(5):154-157.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Fenenga, Gerrit
2013 Clovis Blade Technology at the Witt Site, Tulare Lake, California. Paper presented to the Sacramento Archaeology Society, West Sacramento California.

Fitzgerald, Richard T., Terry L. Jones, and Adella Schroth
2005 Ancient Long-distance Trade in Western North America: New AMS Radiocarbon Dates from Southern California. *Journal of Archaeological Science* 32(3):423–434.

Fowler, Catherine
1972 Some Ecological Clues to Proto-Numic Homelands. In Great Basin Cultural Ecology: A Symposium, Don D. Fowler, editor, pp. 105-122. *Desert Research Institute Publication in the Social Sciences* 8, Reno.

Garfinkel, Alan P.
2006 Paradigm Shifts, Rock Art Theory, and the Coso Sheep Cult of Eastern California. *North American Archaeologist* 27(3):203-244.

2007 Archaeology and Rock Art of the Eastern Sierra and Great Basin Frontier. *Maturango Museum Publication* 22. Maturango Museum, Ridgecrest, California.

Garfinkel, Alan P. and Donald R. Austin
2011 Reproductive Symbolism in Great Basin Rock Art: Bighorn Sheep Hunting, Fertility, and Forager Ideology. *Cambridge Archaeological Journal* 21(3):453-471.

Garfinkel, Alan P., Donald R. Austin, David Earle, and Harold Williams
2009 Myth, Ritual and Rock Art: Coso Decorated Animal-Humans and the Animal Master. *Rock Art Research* 26(2):179-197.

Garfinkel, Alan P., Jerry N. Hopkins, and Craig E. Skinner
2008 Ancient Stones of Black Glass: Tracing and Dating Paleoindian Obsidian Artifacts from China and Tulare Lakes. In *Contributions to Tulare Lake Archaeology IV: Ice-age Stone Tools from the San Joaquin Valley,* edited by Jerry N. Hopkins and Alan P. Garfinkel, pp. 59-97. Coyote Press Publications, Salinas, California.

Garfinkel, Alan P., Geron Marcom, and Robert A. Schiffman
2007 Culture Crisis and Rock Art Intensification: Numic Ghost Dance Paintings and Coso Representational Petroglyphs. *American Indian Rock Art* 33:83-103.

Garfinkel, Alan P., Robert A. Schiffman, and Kelly R. McGuire
1980 Archaeological Investigations in the Southern Sierra Nevada: The Lamont Meadow and Morris Peak Segments of the Pacific Crest Trail. *Cultural Resources Publications, Archaeology*. Department of the Interior, Bureau of Land Management, Bakersfield District, Bakersfield, California.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Garfinkel, Alan P. and Harold Williams
2011 *Handbook of the Kawaiisu: A Sourcebook and Guide to Primary Resources on the Native Peoples of the far southern Sierra Nevada, Tehachapi Mountains, and southwestern Great Basin.* Wa-hi Sina'avi Publications, Bakersfield, California.

2015 *The Handbook of the Kawaiisu: A Sourcebook and Guide to Primary Resources on the Native Peoples of the far southern Sierra Nevada, Tehachapi Mountains, and southwestern Great Basin.* Revised Second Edition. Wa-hi San'avi Publications and the Tehachapi Heritage League, Tehachapi, California.

Gifford, Edward
1918 Clans and Moieties in Southern California. *University of California Publications in American Archaeology and Ethnology* 23(1):1-122.

Moratto, Michael, Garfinkel, Alan P., Robert M. Yohe, II, Alexander K. Rogers, Tim R. Carpenter, Craig Skinner, Jeff Rosenthal, Michael F. Rondeau, and Jon M. Erlandson
2018 Clovis in the Far West: Classification and Chronology of Western Fluted and End-thinned Points from the Rose Valley Sites, Inyo County, California. In press, *Journal of California Archaeology.*

Garfinkel, Alan P., David A. Young, and Robert M. Yohe
2010 Rock Art, Resource Depression, and Ritual Bighorn Hunting in the Coso Range of Eastern California: A Simulation Model. *Journal of Archaeological Science* 37:42-51.

Giambastiani, Mark A.
2008 An Archaeological Survey of 10,121 Acres in the Spangler Hills Open Area and on Adjacent Lands within Searles Valley, Inyo County, California. On file, Bureau of Land Management, Ridgecrest, California.

2011 An Archaeological Inventory of Approximately 2,700 Acres in the Lost Cabin, Water Canyon, and Pyramid Point Areas, North and South Ranges, Naval Air Weapons Station, China Lake, Inyo and San Bernardino Counties, California. Submitted by ASM Affiliates, Inc., Reno, Nevada. On file, Environmental Planning and Management Department, Naval Air Weapons Station, China Lake, California.

Giambastiani, Mark A. and Thomas Bullard
2010 Terminal Pleistocene-Early Holocene Occupations on the Eastern Shoreline of China Lake, California. *Pacific Coast Archaeological Society Quarterly* 43 (1-2):50-70.

Gilreath, Amy J.
2007 Rock Art in the Golden State: Pictographs and Petroglyphs, Portable and Panoramic. In *California Prehistory: Colonization, Culture and Complexity* edited by Terry L. Jones and Kathryn A. Klar, pp. 273-290. Alta Mira Press, New York.

Gilreath, Amy J. and William R. Hildebrandt
1997 Prehistoric Use of the Coso Volcanic Field. *Contributions of the University of California* No. 56. University of California, Berkeley.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2008 Coso Rock Art within its Archaeological Context. *Journal of California and Great Basin Anthropology* 28(1):1–22.

2011 Current Perspectives on the Production and Conveyance of Coso Obsidian. In *Perspectives on Prehistoric Trade and Exchange in California and the Great Basin*, edited by Richard E. Hughes, pp. 171–188. University of Utah Press, Salt Lake City.

Goebel, Ted, Michael R. Waters, and Dennis H. O'Rourke
2008 The Late Pleistocene Dispersal of Modern Humans in the Americas. *Science* 319(5869):1497–1502.

Gold, Alan (Garfinkel)
2005 Linguistic Archaeology: Prehistoric Population Movements and Cultural Identity in the Southwestern Great Basin and far southern Sierra Nevada. Ph.D. dissertation. Department of Prehistoric Forager Ecology. University of California, Davis.

Goldsmith, Paul and Alan P. Garfinkel
2013 *Talking Stone: Rock Art of the Cosos*. E-book, documentary film and photographic archive. Bradshaw Foundation, London.

Grant, Campbell, James. W. Baird, and J. Kenneth. Pringle
1968 Rock Drawings of the Coso Range, Inyo County, California: An Ancient Sheep-hunting Cult Pictured in Desert Rock Carvings. *Maturango Museum Publication* 4. China Lake, California.

Grayson, Donald K.
2011 *The Great Basin: A Natural Prehistory*. Revised and expanded edition. University of California Press, Berkeley.

Harrington, John P.
1986 *John P. Harrington Papers, Volume 3: Southern California / Basin*. Washington: Smithsonian Institution, National Anthropological Archives. [Microfilm edition, Millwood, New York, Kraus, International Publications].

Harrington, Mark R.
1948a An Ancient Site at Borax Lake, California. *Southwest Museum Papers* 16. Southwest Museum, Los Angeles.

1948b A New Pinto Site. *Masterkey* 22(4):116-118.

1949 A New Pinto Site at Little Lake. *Masterkey* 23(5):135-136.

1950a Pinto Man at Little Lake. *Desert Magazine* 13(11):22-24. Los Angeles.

1950b A Storage Cave Near Walker Pass. *Masterkey* 24(3):89-90.

1951 A Colossal Quarry. *Masterkey* 25(1):15-18.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

1952 The Fossil Falls Site. *Masterkey* 26(6):191-195.

1953 A Cave Near Little Lake. *Masterkey* 27(3):77-82.

1957 A Pinto Site at Little Lake, California. *Southwest Museum Papers* No. 17. Southwest Museum, Los Angeles.

Haynes, Gregory M.
2004 An Evaluation of the Chronological Relationship between Great Basin Stemmed and Pinto Series Projectile Points in the Mojave Desert. In *Proceedings of the Millennium Conference*: *The Human Journey and Ancient Life in California's Deserts: Proceedings from the 2001 Millennium Conference*, edited by Mark W. Allen and Judyth Reed, pp. 117–128. Maturango Museum Publication Number 15, Ridgecrest, California.

Hedges, Ken
2001 Traversing the Great Gray Middle Ground: An Examination of Shamanistic Interpretations of Rock Art. *American Indian Rock Art* 27:123–136.

Heizer, Robert F. and Martin A. Baumhoff
1961 The Archaeology of Wagon Jack Shelter. *University of California Anthropological Records* 20(4):119-138. Berkeley.

Heizer, Robert F., Martin A. Baumhoff, and C. William Clewlow, Jr.
1968 Archaeology of South Fork Shelter (NV-EL-11), Elko County, Nevada. *University of California Archaeological Survey Reports* 71:1-58. Berkeley.

Heizer, Robert F., Herbert R. Harvey, and Nora C. Willoughly
1974 *California Indians II*. Garland Publishing, New York.

Heizer, Robert F. and Thomas R. Hester
1978 Great Basin. In *Chronologies in New World Archaeology*, edited by R. Ervin Taylor and Clement W. Meighan, pp. 147-199. Academic Press, New York.

Heizer, Robert F. and M.A. Whipple
1951 *The California Indians*. University of California Press, Berkeley.

Hildebrandt, William R. and Kelly R. McGuire
2002 The Ascendance of Hunting during the California Middle Archaic: An Evolutionary Perspective. *American Antiquity* 67(2):231–256.

Johnson, John R. and Joseph G. Lorenz
2006 Genetics, Linguistics, and Prehistoric Migrations: An Analysis of California Indian Mitochondrial DNA Lineages. *Journal of California and Great Basin Anthropology* 26(1):33-64.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Justice, Noel D.
2002 *Stone Age Spear and Arrow Points of California and the Great Basin.* Indiana University Press, Bloomington, Indiana.

Kelly, Robert L.
1983 Hunter-Gatherer Mobility Strategies. *Journal of Anthropological Research* 39:277–306.

1985 *Hunter-Gatherer Mobility and Sedentism: A Great Basin Study.* Ph.D. dissertation, Department of Anthropology, University of Michigan, Ann Arbor.

1988 Three Sides of a Biface. *American Antiquity* 53:717–734.

King, Chester
2003 Japchibit Ethnohistory. On file at the United States Department of Agriculture, Angeles National Forest.

Kroeber, Alfred. L.
1908 Ethnography of the Cahuilla Indians. *University of California Publications in Archaeology and Ethnology* 8(1).

1925 *Handbook of the Indians of California.* Bureau of American Ethnology Bulletin 78. Washington, D.C.

Kyle, D.E.
1990 *Historic Spots in California.* Palo Alto: Stanford University Press.

Lamb, Sydney
1958 Linguistic Prehistory in the Great Basin. *International Journal of American Linguistics* 24(2):95–100.

Lanning, Edward P.
1963 The Archaeology of the Rose Spring Site (INY-372). *University of California Publications in American Archaeology and Ethnology* 49(3):327–336. Berkeley.

Leakey, Louis S. B., Ruth D. Simpson, and Thomas Clements
1968 Excavations at Nine Prehistoric Sites in in the Calico Mountains, California: Preliminary Report. *Science* 160:1022–1033.

Lengner, Kenneth R.
2013 *A Prehistory and History of the Death Valley Region's Native Americans and the Environments In Which They Lived.* Deep Enough Press, Pahrump, Nevada.

Masiel-Zamora, Myra
2016 *'Ėxva Temeeku: Where We Began.* Great Oak Press, Pechanga, California.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

McGuire, Kelly R. and Alan P. Garfinkel
1976 The Development of Pinyon Exploitation in Central Eastern California. *The Journal of California Anthropology* 3(2):83–85.

1980 Archaeological Investigations in the Southern Sierra Nevada: The Bear Mountain Segment of the Pacific Crest Trail. *Cultural Resources Publication, Archaeology*. Bureau of Land Management, Bakersfield, California. Reprinted by Coyote Press, Salinas, California.

McGuire, Kelly R., Alan P. Garfinkel, and Mark E. Basgall
1982 Archaeological Investigations in the El Paso Mountains of the Western Mojave Desert: The Bickel and Last Chance Sites, CA-Ker-250, -261. On file, Bureau of Land Management, Ridgecrest, California.

McGuire, Kelly R. and William R. Hildebrandt
2005 Re-thinking Great Basin Foragers: Prestige Hunting and Costly Signaling During the Middle Archaic Period. *American Antiquity* 70:695–712.

Mehringer, Peter J., Jr. and J. C. Sheppard
1978 Holocene History of Little Lake, Mojave Desert, California. In *The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country*, edited by Emma Lou Davis, pp. 153-166. *Natural History Museum of Los Angeles County, Science Series* 29.

Meyer, Jack and Jeffrey S. Rosenthal
2010 Filling the Middle Holocene Gap. *California Archaeology* 2(2):279–283.

Moratto, Michael J.
1984 *California Archaeology*. Academic Press, New York.

Moreno Valley, City of
1996-2006 The History of Moreno Valley. Electronic document, http://www.ci.moreno-valley, ca.us/community/about/city-history.html. Accessed July 10, 2006.

O'Connell, J. F.
1967 Elko Eared/Elko Corner-notched Projectile Points as Time Markers in the Great Basin. *University of California Archaeological Survey Reports* 70:129-140. Berkeley.

Robinson, Alfred
1947 *Life in California. A Historical Account of the Origin, Customs, and Traditions of the Indians of Alta-California*. Biobooks, Oakland.

Robinson, Roger
1977 The Prehistory of the Antelope Valley, California. An Overview. *Kern County Archaeological Society Journal* 1:43-48.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Rogers, Malcolm J.
1939 Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas. *San Diego Museum of Man Archaeological Papers* 3. San Diego, California.

1966 How Stones Became Tools and Weapons. In *Ancient Hunters of the Far West*, pp. 139–192. Union-Tribune Publishing Company, San Diego.

Rondeau, Michael, Jim Cassidy, and Terry L. Jones
2007 Colonization Technologies: Fluted Projectile Points and the San Clemente Island Woodworking/ Microblade Complex. In *California Prehistory: Colonization, Culture and Complexity* edited by Terry L. Jones and Kathryn A. Klar, pp. 63-70. Alta Mira Press, Lanham, Maryland.

Sample, L. L.
1950 Trade and Trails in Aboriginal California. *University of California Archaeological Survey Reports* 8. Berkeley.

Schneider, Joan S., H. C. L. Brewer, and Matthew C. Hall
2000 Research, Inventory, and Management Strategies for At-Risk and Other Prehistoric Cultural Resources, Death Valley National Park, California: Program Design Report. On file, Eastern California Information Center, University of California, Riverside, California.

Schroth, Adella B.
1994 *The Pinto Point Controversy in the Western United States*. Ph.D. dissertation, Department of Anthropology, University of California, Riverside, California.

Schuiling, Walter C.
1984 *San Bernardino County: Land of Contrasts*. Windsor Publications, Woodland Hills, California.

Shipek, Florence C.
1977 *A Strategy for Change. The Luiseno of Southern California*. Ph.D. dissertation, University of Hawaii. University Microfilms International, Ann Arbor, Michigan.

Shott, Michael J.
1986 Technological Organization and Settlement Mobility: An Ethnographic Examination. *Journal of Anthropological Research* 42(1):15–51.

1989 On Tool-Class Use Lives and the Formation of Archaeological Assemblages. *American Antiquity* 54(1):9–30.

Smith, Gerald A. and Steven M. Freers
1994 *Fading Images: Indian Pictographs of Western Riverside County*. Riverside Museum Press, Riverside, California.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Sparkman, Philip S.
1908 The Culture of the Luiseno Indians. *University of California Publications in Archaeology and Ethnology* 8(4).

Stewart, Richard, Russell Kaldenberg, and Alexander Rogers
2005 Petroglyphs as Story-Boards: Providing Text for Ritual and Tradition and Recounting the "Power" Experience. In Something Resembling an Archaeologist: Papers in Memory of Paul H. Ezell, edited by Russell Kaldenberg. *San Bernardino County Museum Quarterly* 54(4):209-220. San Bernardino County Museum, Redlands,

Strong, William Duncan
1929 Aboriginal Society in Southern California. *University of California Publications in American Archaeology and Ethnology* 26(1):1-358.

Sutton, Mark Q.
1980 Some Aspects of Kitanemuk Prehistory. *Journal of California and Great Basin Anthropology* 2(2):214-225.

Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen
2007 Advances in Understanding Mojave Desert Prehistory. In *California Prehistory: Colonization, Culture and Complexity* edited by Terry L. Jones and Kathryn A. Klar, pp. 229-246. Alta Mira Press, New York.

Talley, R. Paige
1982 *The Life History of a Luiseno Indian: James (Jim) Martinez*. Unpublished M.A. Thesis, Department of Anthropology, San Diego State University.

Thomas, David H.
1981 How to Classify the Projectile Points from Monitor Valley, Nevada. *Journal of California and Great Basin Anthropology* 3(1):7-43.

1983a The Archaeology of Monitor Valley 1: Epistemology. *Anthropological Papers of the American Museum of Natural History* 58(1). American Museum of Natural History, New York.

1983b The Archaeology of Monitor Valley 2: Gatecliff Shelter. *Anthropological Papers of the American Museum of Natural History* 59(1). American Museum of Natural History, New York.

Ugan, Andrew S. and Jeffrey S Rosenthal
2013a Archaeological Testing and National Register Evaluations of 40 Sites within Airport Lake, Charlie, and George Target Ranges, Naval Air Weapons Station China Lake, Inyo and Kern Counties, California. Submitted by Far Western Anthropological Research Group, Inc., Davis, California. On file, Naval Facilities Engineering Command, Southwest Division, San Diego, California.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Van Tilburg, Jo Anne, Gordon E. Hull, and John C. Bretney (editors)
2012 *Rock Art at Little Lake: An Ancient Crossroads in the California Desert*. Cotsen Institute of Archaeology, University of California, Los Angeles.

Vaughan, Sheila J. and Claude N. Warren
1987 Toward a Definition of Pinto Points. *Journal of California and Great Basin Anthropology* 9:199–213.

Wallace, William J.
1962 Prehistoric Cultural Development in the Southern Californian Deserts. *American Antiquity* 28(2):172–180.

Warren, Claude N.
1967 The San Dieguito Complex: A Review and Hypothesis. *American Antiquity* 32(2):168–185.

1984 The Desert Region. In *California Archaeology*, by Michael J. Moratto, pp. 339–430. Academic Press, Orlando, Florida.

1986 Projectile Points. *In Flood, Sweat, and Spears in the Valley of Death: Site Survey and Evaluation in Tiefort Basin, Fort Irwin, California*, edited by Dennis L. Jenkins, pp. 195–218. Coyote Press, Salinas, California.

2008 The Age of Clovis Points at China Lake, California. In Avocados to Millingstones: Papers in Honor of D. L. True, edited by Georgie Waugh and Mark E. Basgall. *Monographs in California and Great Basin Anthropology* Vol. 5, Archaeological Research Center, Department of Anthropology, California State University, Sacramento.

Warren, Claude N. and Robert H. Crabtree
1986 Prehistory of the Southwestern Area. In *Great Basin*, edited by Warren L. d'Azevedo, pp. 183–193. Handbook of North American Indians, Vol. 11, William C. Sturtevant, general editor. Smithsonian Institution, Washington, DC.

Warren, Claude N. and Joan S. Schneider
2003 Pleistocene Lake Mojave Stratigraphy and Associated Cultural Material. *Proceedings of the Society for California Archaeology* 16:61–74.

Warren, Claude N., Delbert Leroy True and A. A. Eudey
1961 Early Gathering Complexes of Western San Diego County: Results and Interpretations of an Archaeological Survey. *University of California, Los Angeles, Archaeological Survey Annual Report* 1960-1961:1-106.

Waters, Michael R. and Thomas W. Stafford
2007 Redefining the Age of Clovis: Implications for the Peopling of the Americas. *Science* 315:1122–1126.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Waters, Michael R., Thomas W. Stafford, H. G. McDonald, C. Gustafson, M. Rasmussen, E. Cappellini, J. V. Olsen, D. Szklarczyk, L. J. Jensen, M. Thomas P. Gilbert, and E. Willerslev
2011 Pre-Clovis Mastodon Hunting 13,800 Years Ago at the Manis Site, Washington. *Science* 334:351–353.

White, Raymond C.
1963 Luiseño Social Organization. *University of California Publications in American Archaeology and Ethnology* 48(2):91-194.

Whitley, David S.
1987 Comment on the Signs of All Times by J. D. Lewis-Williams and Thomas A. Dowson. *Current Anthropology* 29(2):238.

1998 History and Prehistory of the Coso Range: The Native American Past on the Western Edge of the Great Basin. In *Coso Rock Art: A New Perspective*, edited by Eva Younkin, pp. 29-68. Ridgecrest: Maturango Press.

2003 What is Hedges Arguing About? *American Indian Rock Art* 29:83-104.

Whitley, David S. and Ronald I. Dorn
1987 Rock Art Chronology in Eastern California. *World Archaeology* 19:150-164.

2010 The Coso Petroglyph Chronology. *Pacific Coast Archaeological Society Quarterly* 43: 135-157.

Wigand, Peter E. and Rhode, David
2002 Great Basin Vegetation history and aquatic systems: The Last 150,000 years. In *Great Basin Aquatic Systems History*, edited by R. Hershler, David R. Madsen, and D. R. Currey, Smithsonian Contributions to the Earth Sciences 33:309.

Willig, Judith A. and C. Melvin Aikens
1988 The Clovis-Archaic Interface in Far Western North America. In Early Human Occupation in Western North America: The Clovis-Archaic Interface, edited by Judith A. Willig, C. Melvin Aikens and John L. Fagan, pp. 1–40. *Nevada State Museum Anthropological Papers.* Vol. 21. Carson City, Nevada.

Yohe, Robert, II
1992 *A Re-evaluation of Western Great Basin Cultural Chronology and Evidence for the Timing of the Introduction of the Bow and Arrow to Eastern California Based on New Excavations at the Rose Spring Site (CA-INY-372).* Ph.D. dissertation, Department of Anthropology, University of California, Riverside.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX A
FIGURES

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

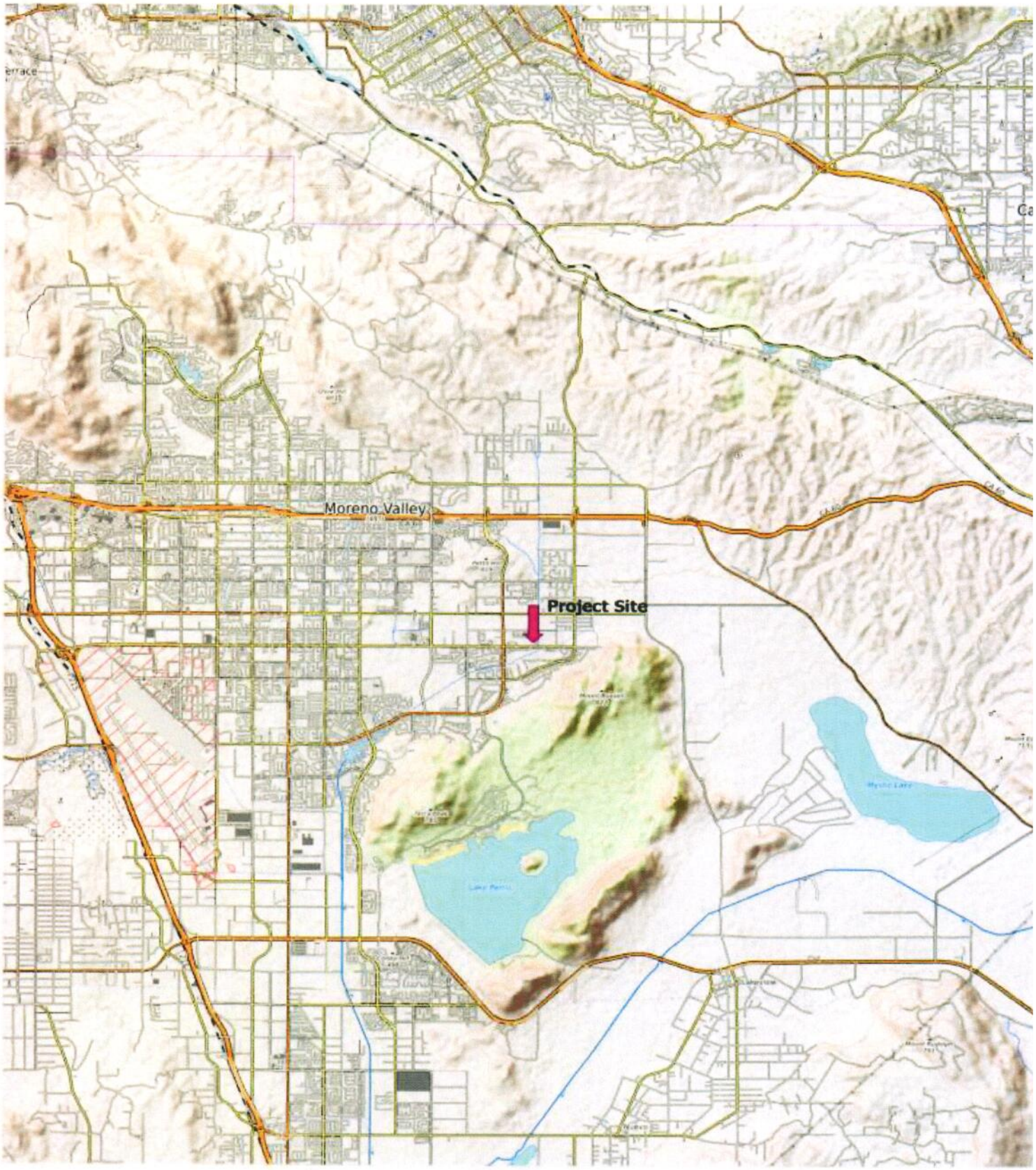
Figure 1

Regional Vicinity Map

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Figure 2

Local Topographic Map



Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

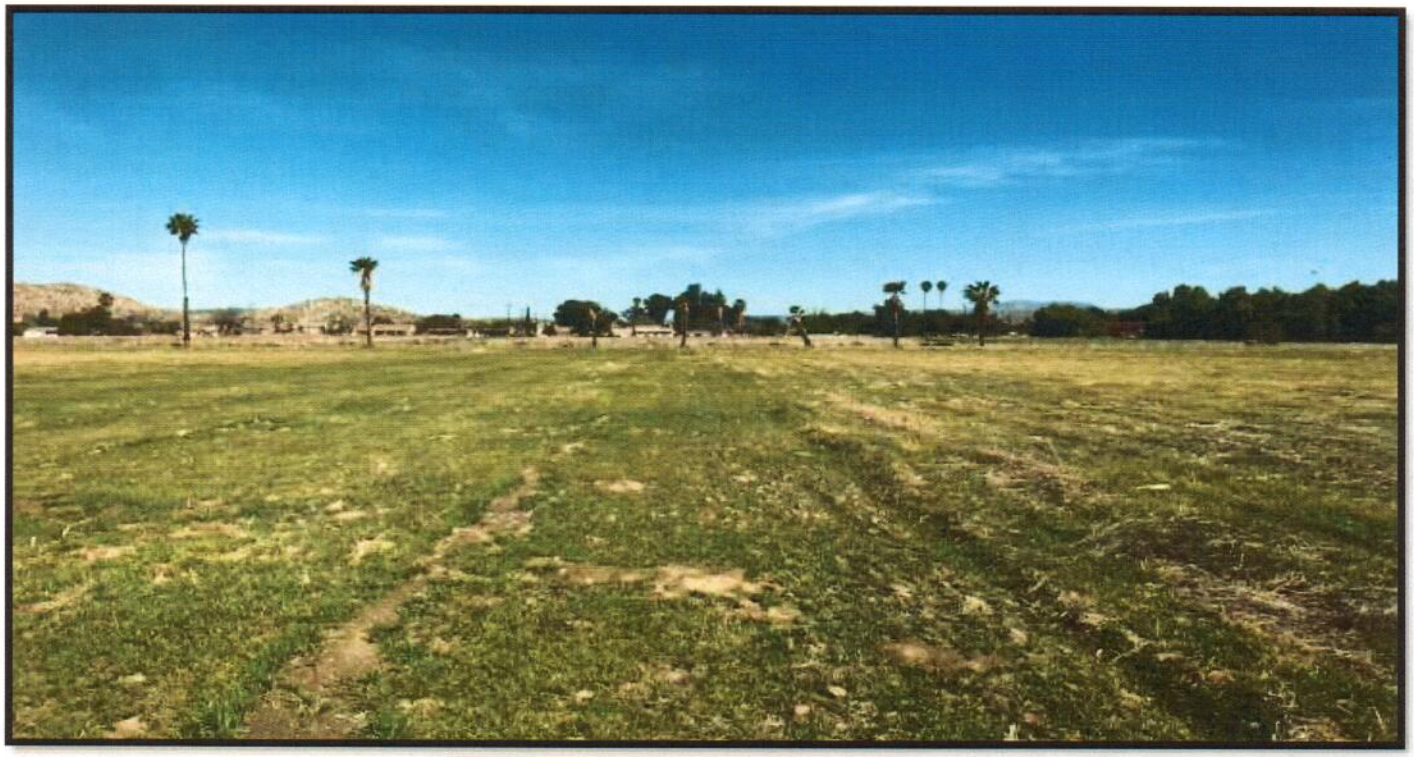
Figure 3

Local Vicinity Map

RCA ASSOCIATES, INC

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Site Photographs



SITE LOOKING NORTH

SITE LOOKING EAST

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Site Photographs Cont.

SITE LOOKING SOUTH

SITE LOOKING WEST

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX B
NATIVE AMERICAN CONSULTATION

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project Single-family homes

County: Riverside

USGS Quadrangle Name: Sunnymead, California

Township: 3 S **Range:** 3 W **Section(s):** 14

Company/Firm/Agency: RCA Associates/ Frontier Communities/ City of Moreno Valley

Street Address: north of Brodiaea Ave. and west of Quincy Street.

City: Moreno Valley **Zip:** 92551-557

Phone: 760-596-0017

Fax: 760-956-9212

Email: alinalanda@ymail.com

Project Description: Single-family home development.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Native American Heritage Commission
Native American Contact List
Riverside County
3/22/2018

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264 — Luiseno
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264 — Luiseno
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Campo Band of Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Kumeyaay
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Tribal Office
Robert Pinto, Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
wmicklin@leaningrock.net

Ewiiaapaayp Tribal Office
Michael Garcia, Vice Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Kumeyaay
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817
mohusky@jiv-nsn.gov

La Jolla Band of Luiseno Indians
Thomas Rodriguez, Chairperson
22000 Highway 76 — Luiseno
Pauma Valley, CA, 92061
Phone: (760) 742 - 3771

La Posta Band of Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Quincy Street Homes (2018-21) Project, Riverside County.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Los Coyotes Band of Mission Indians
John Perada, Environmental Director
P. O. Box 189
Warner Springs, CA, 92086
Phone: (760) 782 - 0712
Fax: (760) 782-2730
Cahuilla

Los Coyotes Band of Mission Indians
Shane Chapparosa, Chairperson
P.O. Box 189
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712
Chapparosa@msn.com
Cahuilla

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957
Kumeyaay

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad
Banning, CA, 92220
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov
Cahuilla
Serrano

Morongo Band of Mission Indians

Denisa Torres, Cultural Resources Manager

12700 Pumarra Rroad
Banning, CA, 92220
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov
Cahuilla Serrano

Pala Band of Mission Indians
Shasta Gaughen, Tribal Historic Preservation Officer
PMB 50, 35008 Pala Temecula Rd.
Pala, CA, 92059
Phone: (760) 891 - 3515
Fax: (760) 742-3189
sgaughen@palatribe.com
Cupeno
Luiseno

Pauma Band of Luiseno Indians - Pauma & Yuima Reservation
Temet Aguilar, Chairperson
P.O. Box 369
Pauma Valley, CA, 92061
Phone: (760) 742 - 1289
Fax: (760) 742-3422
bennaecalac@aol.com
Luiseno

Pechanga Band of Mission Indians
Mark Macarro, Chairperson
P.O. Box 1477
Temecula, CA, 92593
Phone: (951) 770 - 6000
Fax: (951) 695-1778
epreston@pechanga-nsn.gov
Luiseno

Pechanga Band of Mission Indians
Paul Macarro, Cultural Resources Coordinator
P.O. Box 1477
Temecula, CA, 92593
Phone: (951) 770 - 6306
Fax: (951) 506-9491
pmacarro@pechanga-nsn.gov
Luiseno

Ramona Band of Cahuilla

Mission Indians
John Gomez, Environmental

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Ramona Band of Cahuilla Mission Indians
Joseph Hamilton, Chairperson
P.O. Box 391670
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramonatribe.com
Cahuilla

Rincon Band of Mission Indians Jim McPherson, Tribal Historic Preservation Officer
1 West Tribal Road
Valley Center, CA,
92082 Phone: (760) 749 - 1051
Fax: (760) 749-5144
vwhipple@rincontribe.org
Luiseno

Rincon Band of Mission Indians
Bo Mazzetti,
Chairperson 1 West
Tribal Road Valley
Center, CA, 92082
Phone: (760) 749 - 1051
Fax: (760) 749-5144
bomazzetti@aol.com
Luiseno

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838
Newhall, CA, 91322
Phone: (503) 539 - 0933 Fax: (503) 574-3308
ddyocum@comcast.net
Kitanemuk Serrano Tataviam

San Manuel Band of Mission Indians
Lee Clauss, Director of Cultural Resources
26569 Community Center Drive Highland, CA, 92346
Phone: (909) 864 - 8933
Fax: (909) 864-3370
lclauss@sanmanuel-nsn.gov
Serrano

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
P.O. Box 365
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org
Kumeyaay

San Pasqual Band of Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
johnf@sanpasqualtribe.org
Kumeyaay

Santa Rosa Band of Mission Indians
Steven Estrada, Chairperson
P.O. Box 391820
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
mflaxbeard@santarosacahuilla-nsn.gov
Cahuilla

Serrano Nation of Mission Indians
Goldie Walker, Chairperson
P.O. Box 343
Patton, CA, 92369
Phone: (909) 528 - 9027
Serrano

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson
P. O. Box 487
San Jacinto, CA, 92583
Phone: (951) 654 - 2765
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov
Cahuilla Luiseno

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Soboba Band of Luiseno Indians
Carrie Garcia, Cultural Resources Manager
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92583 — Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198
carrieg@soboba-nsn.gov

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Sycuan Band of the Kumeyaay Nation
Cody J. Martinez, Chairperson
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

Sycuan Band of the Kumeyaay Nation
Lisa Haws, Cultural Resources Manager
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 312 - 1935
lhaws@sycuan-nsn.gov

Torres-Martinez Desert Cahuilla Indians
Michael Mirelez, Cultural Resource Coordinator
P.O. Box 1160 — Cahuilla
Thermal, CA, 92274
Phone: (760) 399 - 0022
Fax: (760) 397-8146
mmirelez@tmdci.org

Viejas Band of Kumeyaay Indians
Robert Welch, Chairperson
1 Viejas Grade Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov

Viejas Band of Kumeyaay Indians
Julie Hagen,
1 Viejas Grade Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

PECHANGA CULTURAL RESOURCES
Temecula Band of Luiseño Mission Indians

Post Office. Box 2183 • Temecula, CA 92593
Telephone (951) 770-6300 • Fax (951) 506-9491

Chairperson:
Neal Ibanez

Vice Chairperson:
Bridgett Barcello

Committee Members:
Andrew Masiel, Sr.
Darlene Miranda
Evie Gerber
Richard B. Scearce, III
Robert Villalobos

Director:
Gary DuBois

Coordinator:
Paul Macarro

Planning Specialist:
Tuba Ebru Ozdil

August 10, 2018

VIA E-MAIL and USPS

Seda Yaghoubian, Planning Consultant
City of Moreno Valley
Community Development Department, Planning Division
14177 Frederick Street
P.O. Box 88005
Moreno Valley CA 92552-0805

Re: Pechanga Tribe Comments on the Phase I Cultural Resources Assessment for the PEN 18-0092/0053/0054 Frontier Project in the City of Moreno Valley.

Dear Ms. Yaghoubian,

This comment letter is written on behalf of the Pechanga Band of Luiseño Indians (hereinafter, "the Tribe"), a federally recognized Indian tribe and sovereign government. The Tribe submits these comments for the official record concerning the Phase I Cultural Resources Assessment Report for the PAMA Business Park Project prepared by RCA Associates, Inc., dated April 26, 2018, and received by the Tribe June 2018.

The Tribe extends its thanks to the City for providing the Cultural Resource Assessment so the Tribe can review and provide comments on the content based upon tribal knowledge so we may continue to preserve and protect Luiseño cultural resources in the City of Moreno Valley.

In the "*Late Holocene: Haiwaee, Rose Spring, Saratoga Springs Period*" section, found on page 5, the report makes remarks that during this period, "Cultural changes may reflect a Numic (Great basin Paiute-Shoshone) in migration." The report goes on to say in the "Luiseño" sub-section, page 17, that "the Luiseño spoke a language considered to be a member of the Takic subgroup of the Shoshonean language family which is an element of the larger and wide-ranging Utoaztecan linguistic stock." Though the report does correctly state that the Luiseño are a Takic-speaking population, the Luiseño language and the Shoshonean language are separate groups within the Uto-Aztecan Language Family. The Luiseño languages are within the Californian Uto-Aztecan branch while the Shoshonean languages are of the Northern Uto-Aztecan branch therefore

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

making them two distinct language sub-groups within in the Uto-Aztecan Language Family. For further clarification, the Glottolog organization[1] has language classification charts.

The Luiseño recognize that the world was created in the area now known as Temecula[2], and the Luiseño People have been in this area since the beginning of time.The Pechanga Tribe asserts that the Project area is part of 'Atáaxum (Luiseño), and therefore has, since time immoral, been within the Tribe's aboriginal territory. The Pechanga Tribe's knowledge of our ancestral boundaries is based on information passed down from our elders through songs and stories; published academic works in the areas of anthropology, history and ethno-history; and through unpublished ethnographic and linguistic field notes. Many anthropologists and historians who have proposed boundaries of the Luiseño traditional territory have included the project area in their descriptions (Kroeber 1925[3]; Drucker 1939[4]; Heizer and Whipple 1951[5]; Smith and Freers 1994[6]). The Tribe requests our comments and tribal perspective to be included in the report and suggest the addition of a Luiseño sub-section of the Ethnography.

Additionally, it is archaeological standard that a mile radius records search be conducted for all projects. The Tribe requests that a mile radius search be conducted for all future Cultural Resource Assessments.

Lastly, the Tribe recommends the addition of Archaeological and Native American mitigation measures be included for this project. The Project is located between a historic trail and the Russell Mountains. Though no cultural resources have been observed on the surface within the Project's APE, the Tribe believes the possibility of uncovering sub-surface resources is high. The Historic wagon road was used for thousands of years by Native Americans prior to it becoming a wagon road and the Russell Mountains have a plethora of sites, which is often an indication that there is a high possibility of finding subsurface resources in the surrounding areas. The Project has previously been used for agriculture for several decades, unfortunately the Tribe has learned over the last 30 years that Native American resources were often collected from the fields as they were brought to the surface. Therefore, given that the Project is on agricultural land and situated between a well-traveled trail and known cultural resources the Tribe requests archaeological and Native American monitors be present for all ground-disturbing activities.

The Tribe would like our comments to be forwarded to RCA Associates, Inc. so they may review and make the necessary updates/changes to their report and for the City to include this letter

---

[1] http://glottolog.org/resource/languoid/id/luis1253
[2] Masiel-Zamora, Myra, 2016, *'Éxva Teméeku: Where We Began.* Great Oak Press, Pechanga, California.
[3] Alfred. L. Kroeber 1925. *Handbook of the Indians of California.* Bulletin 78, Bureau of American Ethnology, Government Printing Office, Washington D.C.
[4] Phillip Drucker 1939. Culture Element Distribution, V, Southern California. *University of California Publications in American Archaeology and Ethnology,* Vol. 1.
[5] Robert F. Heizer and M.A. Whipple 1951. *The California Indians.* University of California Press, Berkeley.
[6] Gerald A. Smith and Steven M. Freers 1994. *Fading Images: Indian Pictographs of Western Riverside County.* Riverside Museum Press, Riverside, Ca.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

in the confidential appendix of the final report. The Tribe welcomes the opportunity to meet with the City of Moreno Valley to further explain our comments. The Tribe reserves the right to fully participate in the environmental review process, as well as to provide further comment on the Project's impacts to cultural resources and potential mitigation for such impacts.

The Pechanga Tribe looks forward to working together with the City of Moreno Valley in protecting the invaluable and non-renewable Luiseño cultural resources found in the Project area. Please contact me at 951-770-6314 or at crs@pechanga-nsn.gov if there are any questions or concerns regarding our cultural report comments. Otherwise, please contact our Cultural Analyst, Ebru Ozdil at 951-770-6313 or at eozdil@pechanga-nsn.gov regarding all other project related questions or concerns. Thank you.

Sincerely,

Molly Earp-Escobar

Cultural Resource Specialist

Cc Pechanga Office of the General Counsel

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

May 1, 2018

Attn: Alina Landa, Cultural Resource Specialist
RCA Associates, LLC
15555 Main Street, #D4-235
Hesperia, CA 92345

RE: Single-Family Home Development on a 3.7 acre parcel – north of Brodiaea Avenue and West of Quincy Street – City of Moreno Valley, Riverside County, CA

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation in your project. The information provided to us on said project has been assessed through our Cultural Resource Department, where it was concluded that although it is outside the existing reservation, the project area does fall within the bounds of our Tribal Traditional Use Areas. This project location is in proximity to known sites, is a shared use area that was used in ongoing trade between the tribes, and is considered to be culturally sensitive by the people of Soboba.

Soboba Band of Luiseño Indians is requesting the following:

1. To initiate a consultation with the project proponents and lead agency.
2. The transfer of information to the Soboba Band of Luiseno Indians regarding the progress of this project should be done as soon as new developments occur.
3. Soboba Band of Luiseño Indians continues to act as a consulting tribal entity for this project.
4. Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests that Native American Monitor(s) from the Soboba Band of Luiseño Indians Cultural Resource Department to be present during any ground disturbing proceedings. Including surveys and archaeological testing.
5. Request that proper procedures be taken and requests of the tribe be honored (Please see the attachment)

Multiple areas of potential impact were identified during an in-house database search. Specifics to be discussed in consultation with the lead agency.

Sincerely,

Joseph Ontiveros, Tribal Historic Preservation Officer
Soboba Band of Luiseño Indians
P.O. Box 487
San Jacinto, CA 92581
Phone (951) 654-5544 ext. 4137
Cell (951) 663-5279
jontiveros@soboba-nsn.gov

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Cultural Items (Artifacts). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer should agree to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

The Developer should waive any and all claims to ownership of Native American ceremonial and cultural artifacts that may be found on the Project site. Upon completion of authorized and mandatory archeological analysis, the Developer should return said artifacts to the Soboba Band within a reasonable time period agreed to by the Parties and not to exceed (30) days from the initial recovery of the items.

Treatment and Disposition of Remains.

A. The Soboba Band shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity.

B. The Soboba Band, as MLD, shall complete its inspection within twenty-four (24) hours of receiving notification from either the Developer or the NAHC, as required by California Public Resources Code § 5097.98 (a). The Parties agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes.

C. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The Soboba Band, as the MLD in consultation with the Developer, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains.

D. All parties are aware that the Soboba Band may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near, the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The Developer should accommodate on-site reburial in a location mutually agreed upon by the Parties.

E. The term "human remains" encompasses more than human bones because the Soboba Band's traditions periodically necessitated the ceremonial burning of human remains. Grave goods are those artifacts associated with any human remains. These items, and other funerary remnants and their ashes are to be treated in the same manner as human bone fragments or bones that remain intact

Coordination with County Coroner's Office. The Lead Agencies and the Developer should immediately contact both the Coroner and the Soboba Band in the event that any human remains are discovered during implementation of the Project. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c).

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Non-Disclosure of Location Reburials. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer agrees to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

SOBOBA BAND OF LUISEÑO INDIANS

Confidentiality: The entirety of the contents of this letter shall remain confidential between Soboba and RCA Associates, LLC. No part of the contents of this letter may be shared, copied, or utilized in any way with any other individual, entity, municipality, or tribe, whatsoever, without the expressed written permission of the Soboba Band of Luiseño Indians.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

RCA ASSOCIATES INC

15555 Main Street, #D4-235
Hesperia, California 92345
(760) 956-9212 fax (760) 244-0791
rca123@aol.com
www.rcaassociatesllc.com

April 5, 2018

Angela Elliott Santos, Chairperson
Manzanita Band of Kumeyaay Nation
P.O. Box 1302
Boulevard, CA 91905

Dear Ms. Elliot Santos,

I am writing you to bring to your attention a proposed project in compliance with CEQA and the City of Moreno Valley. The proposed project is a single-family home development located on a 3.7 acre parcel (Township 3 south, Range 3 west, Section 14) Sunnymead, California Quadrangle. The project is located north of Brodiaea Ave and west of Quincy street. The property is surrounded by mostly vacant land, except single family homes south of Brodiaea Ave.

As part of the cultural resources study for the project, I am requesting your insight on potential Native American cultural properties and resources in or near the area of potential effect. Please respond at your earliest convenience if you have any information to consider for this study. Thank you.

Respectfully,

Alina Landa
Cultural Resource Specialist
RCA Associates, LLC
Email: alinalanda@ymail.com

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX C
RESUMES

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Dr. Alan Philip Garfinkel Gold, R.P.A.
avram1952@yahoo.com
805.312.2261

Positions:

Principal Archaeologist
RCA Associates, LLC
Hesperia, California

Founder and Director
California Rock Art Foundation
http://www.carockart.org

Senior Cultural Resource Specialist
AECOM (http://www.aecom.com)
Camarillo, California (Total time 3 years)

Freelance Cultural Resource Management Consultant
(Total time 20 years)

Environmental Planner, Cultural Resources
California Department of Transportation
(Total time 18 years)

Education:

Bachelor of Arts, Department of Anthropology, California State University, Northridge, (*magna cum laude*), 1974
Master of Arts, Department of Anthropology, University of California, Davis, 1977
Doctor of Philosophy, Prehistoric Forager Ecology, University of California, Davis, 2005

Representative Cultural Resource Management Projects

Cultural Resource Management Director for North Sky Wind Energy Project. Identified 76 cultural resource sites. Collected, excavated and documented sites including intensive data recovery effort resulting in a collection of 5,000 artifacts. Managed up to 25 Native American Monitors concurrently for the 102 wind turbine 15,000 acre study area. Resulted in project approval through NEPA and CEQA compliance and approved federal tax credit. Senior author for the resulting 2,769 page report.

Identification and evaluation of potential effects for the Red Rock Canyon Bridge Replacement Project. Identified and evaluated historic properties within the project area, developed historic background for the Red Rock Railroad historic resource. Completed Historic Property Survey Report including the documentation of identification (Prehistoric Archaeological and Historic Archaeological Survey) and evaluation efforts (Geoarchaeological Study). Consultation completed with local museums, Red Rock Canyon State Park, Native American Heritage Commission (NAHC) and Native American groups identified. Area had been listed as a Sacred Site by NAHC. Result: no historic properties within area of potential effects (APE).

Black Creek Site (CA-CAL-789) eligibility evaluation, testing, data recovery, and public interpretation. Contracted with Far Western and Sonoma State for data recovery and construction phase of systematic late discovery identification. Coordinated and consulted with Advisory Council, State Historic Preservation Office, the Army Corps of Engineers, and the Calaveras Band of Mi-Wuk. Significant and eligible site fully mitigated from adverse effects of road realignment through data recovery and public interpretation projects that included website, interpretive booklet, public presentations at conferences and public schools.
Project received California Governor's Award for Historic Preservation in 2008.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

The Applegate Site (CA-AMA-56) eligibility, data recovery, negotiation of reburial arrangement with the Ione Band of the Miwok, presentation of history and character of cultural resource studies in public program sponsored by Far Western Anthropological Research Group, State Historic Preservation Office, California Department of Transportation, and the Ione Band of the Miwok. Worked out program for dealing with eligible site that had received impacts from Caltrans over the course of 50 years of impacts. Dealt with major issues with human remains and associated mortuary offerings.

East Sonora Bypass archaeological studies. Developed program to mitigate adverse effects of numerous eligible historic and prehistoric archaeological sites. Consultation with Mi-Wuk on one of the most controversial Caltrans projects in the history of their cultural resource program due to the pattern of late discoveries and lack of thorough consultation with Native Americans. Coordination with State Historic Preservation Office concerning Memorandum of Agreement, Data Recovery Program, Programmatic Agreement, and Treatment Plan, Supplemental Historic Property Survey Report.

Development of a management plan and National Register nomination for the Fossil Falls/Little Lake Archaeological District for the Bureau of Land Management. Resulted in protective actions, road closures, interpretation, and identification of resources for inclusion in the National Register nomination and the resulting report was published by the Bakersfield District Office of the Bureau of Land Management.

Project Archaeologist with the Desert Planning Staff, Bureau of Land Management, Riverside, California.

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Alina Landa
alinalanda@ymail.com
(909) 543-9442

Experience

RCA Associates, Inc., Victorville, California **January 2017-Present**
Cultural Resources Specialist

Survey properties in the California high desert region. Correspond with Native American Tribes. Contact Native American Heritage Commission and California Historical Resources Information Center. Prepare CEQA Phase I cultural reports under a certified archaeologist.

Education

Cal Poly Pomona, Pomona, California **June 2016**
Bachelor of Science, General Anthropology
Cultural Resource Management, Applied Anthropology

Chaffey College, Rancho Cucamonga, California **June 2013**
Associate of Arts: Social Sciences

Relevant Coursework

Archaeology Field Class, Lake Arrowhead, California **Spring 2015**
Conducted excavations in a small group overseen by Dr. Mark W. Allen.
Documented unit elevations and used basic excavations skills such as troweling and dry screening.

Cultural Resources Management Class **Winter 2015**
Studied the basic laws regarding the protection of historic properties.
Involved in a group effort to nominate the Santa Anita Racetrack to be on the National Register of Historic Properties.

California Archaeology Class **Winter 2015**
Presented research paper on human behavioral ecology during the Medieval Climatic Anomaly.
Studied prehistoric California culture ways to understand subsistence patterns and inter-tribal communications.

Leadership

San Bernardino County Library Page, Fontana, California **June 2017- Present**
Lewis Library and Technology Center
San Bernardino County Museum Volunteer **February 2016- June 2016**

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Cultural Report Final 9-6-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GEOTECHNICAL EVALUATION AND INFILTRATION STUDY

FOR

PROPOSED RESIDENTIAL DEVELOPMENT

APN 478-080-013

CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

PREPARED FOR

FRONTIER ENTERPRISES
8300 UTICA AVENUE, SUITE 300
RANCHO CUCAMONGA, CALIFORNIA 91730

PREPARED BY

GEOTEK, INC.
710 EAST PARKRIDGE AVENUE, SUITE 105
CORONA, CALIFORNIA 92879

PROJECT NO. 1132-CR3 **FEBRUARY 12, 2014**

GEOTEK

GeoTek, Inc.
710 E. Parkridge Avenue, Suite 105, Corona, California 92879-1097
(951) 710-1160 Office (951) 710-1167 Fax www.geotekusa.com

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

February 12, 2014
Project No. 1132-CR3

Frontier Enterprises
8300 Utica Avenue, Suite 300
Rancho Cucamonga, California 91730

Attention: Mr. Lonnie Ellisor

Subject: Geotechnical Evaluation and Infiltration Study
Proposed Residential Development
APN 478-080-013
City of Moreno Valley, Riverside County, California

Dear Mr. Ellisor:

We are pleased to provide herein the results of our Geotechnical Evaluation and Infiltration Study for the subject project located in the City of Moreno Valley, Riverside County, California. This report presents the results of our evaluation and discussion of our findings. In our opinion, site development appears feasible from a geotechnical viewpoint. Site development and grading plans should be reviewed by this firm as they become available, as it will be necessary to provide appropriate recommendations for intended specific site development as those plans become refined.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to call our office.

Respectfully submitted,
GeoTek, Inc.

REGISTERED GEOLOGIST
EDWARD H. LaMONT
No. 1892
Exp.
Certified Engineering Geologist
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
EDMOND VARDEH
No. 56992,
Exp.
CIVIL
STATE OF CALIFORNIA

Edward H. LaMont
CEG 1824, Exp. 07/31/14
Principal Geologist

Edmond Vardeh
RCE 56992, Exp. 06/30/15
Project Engineer

Distribution: (1) Addressee via email
G:\Projects\1101 to 1150\1132CR3 Frontier Enterprises Moreno Valley\Geo\1132CR3 Geotechnical Evaluation and Infiltration Study APN 478-080-013.doc

TABLE OF CONTENTS

1. PURPOSE AND SCOPE OF SERVICES 1

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT 1

2.1 SITE DESCRIPTION 1
2.2 PROPOSED DEVELOPMENT 1

3. FIELD EXPLORATION AND LABORATORY TESTING 2

3.1 FIELD EXPLORATION 2
3.2 LABORATORY TESTING 2

4. GEOLOGIC AND SOILS CONDITIONS 2

4.1 REGIONAL SETTING 2
4.2 GENERAL SOIL CONDITIONS 3
4.2.1 Alluvial Deposits 3
4.3 SURFACE WATER AND GROUNDWATER 3
4.3.1 Surface Water 3
4.3.2 Groundwater 3
4.4 FAULTING AND SEISMICITY 4
4.4.1 Seismic Design Parameters 4
4.5 LIQUEFACTION/SEISMIC SETTLEMENT 4
4.6 OTHER SEISMIC HAZARDS 5

5. CONCLUSIONS AND RECOMMENDATIONS 5

5.1 GENERAL 5
5.2 EARTHWORK CONSIDERATIONS 5
5.2.1 General 5
5.2.2 Site Clearing and Preparation 6
5.2.3 Remedial Grading 6
5.2.4 Engineered Fill 7
5.2.5 Excavatability and Oversized Materials 7
5.2.6 Shrinkage and Bulking 7
5.2.7 Trench Excavations and Backfill 8
5.3 DESIGN RECOMMENDATIONS 8
5.3.1 Foundation Design Criteria 8
5.3.2 Miscellaneous Foundation Recommendations 11
5.3.3 Foundation Set Backs 11
5.3.4 Soil Corrosivity 12
5.3.5 Soil Sulfate Content 12
5.4 RETAINING WALL DESIGN AND CONSTRUCTION 12
5.4.1 General Design Criteria 12
5.4.2 Wall Backfill and Drainage 13
5.4.3 Restrained Retaining Walls 14
5.5 CONCRETE CONSTRUCTION 14
5.5.1 General 14
5.5.2 Concrete Mix Design 14
5.5.3 Concrete Flatwork 14

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS

5.5.4 Concrete Performance *15*
5.6 INFILTRATION STUDY 15
5.7 POST CONSTRUCTION CONSIDERATIONS 16
5.7.1 Landscape Maintenance and Planting *16*
5.7.2 Drainage *16*
5.8 PLAN REVIEW AND CONSTRUCTION OBSERVATIONS 17

6. LIMITATIONS 17

7. SELECTED REFERENCES 18

ENCLOSURES

Figure 1 – Site Location Map
Figure 2 – General Site Topography Map
Figure 3 – Boring Location Map

Appendix A – Logs of Exploratory Borings
Appendix B – Results of Laboratory Testing
Appendix C – Infiltration Test Results
Appendix D – General Earthwork Grading Guidelines

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

1. PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to evaluate the general geotechnical conditions on the site. Services provided for this study included the following:

- Research and review of available geologic and geotechnical data, and general information pertinent to the site,
- Site exploration consisting of the excavation, logging and sampling of four (4) exploratory borings by a geologist from our firm,
- Laboratory testing of soil samples collected during the field investigation,
- Evaluation of near-surface water infiltration potential at the project site,
- Review and evaluation of site seismicity, and
- Compilation of this geotechnical report which presents our findings and a general summary of pertinent site geotechnical conditions relevant for site development.

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

2.1 SITE DESCRIPTION

The subject project site is located northwest of the intersection of Quincy Street and Brodiaea Avenue in the City of Moreno Valley, Riverside County, California (see Figure 1). The square-shaped property is comprised of roughly 9 acres of vacant land. The property is bounded by Brodiaea Avenue followed by an existing residential development to the south, vacant land to the north and west, and Quincy Street followed by vacant land to the east.

The site is relatively flat with total relief across the site on the order of roughly fifteen feet, with surface drainage generally directed toward the south. Topographically, the property ranges from approximately 1,580 to approximately 1,595 feet above mean sea level (msl). Figure 2, to the rear of the text of this report, shows historic topographic contours of the site and site area.

2.2 PROPOSED DEVELOPMENT

It is our understanding that proposed development will consist of single-family residential structures and associated streets. For this evaluation it was assumed that the structures will be one (1)- to two (2)-story, wood-framed residences situated atop slab-on-ground

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

foundations. As site development planning progresses and plans become available, the plans should be provided to GeoTek for review and comment.

3. FIELD EXPLORATION AND LABORATORY TESTING

3.1 FIELD EXPLORATION

Field exploration was conducted on January 22, 2014 and consisted of excavating four (4) exploratory borings, one (1) to a maximum depth of approximately 51.5 feet. Approximate locations of the exploratory borings are shown on the Boring Location Map (see Figure 3). A geologist from our firm logged the excavations and collected samples for use in the laboratory testing. The logs of the exploratory borings are included in Appendix A.

3.2 LABORATORY TESTING

Laboratory testing was performed on selected soil samples collected during the field exploration. The purpose of the laboratory testing was to help confirm the field classification of the soil materials encountered and to evaluate their physical and chemical properties for use in the engineering design and analysis. Results of the laboratory testing program, along with a brief description and relevant information regarding testing procedures, are included in Appendix B.

4. GEOLOGIC AND SOILS CONDITIONS

4.1 REGIONAL SETTING

The subject property is situated in the Peninsular Ranges geomorphic province. The Peninsular Ranges province is one of the largest geomorphic units in western North America. Basically, it extends roughly 975 miles from the north and northeasterly adjacent the Transverse Ranges geomorphic province to the tip of Baja California. This province varies in width from about 30 to 100 miles. It is bounded on the west by the Pacific Ocean, on the south by the Gulf of California and on the east by the Colorado Desert Province.

The Peninsular Ranges are essentially a series of northwest-southeast oriented fault blocks. Several major fault zones are found in this province. The Elsinore Fault zone and the San Jacinto Fault zones trend northwest-southeast and are found in the near the middle of the province. The San Andreas Fault zone borders the northeasterly margin of the province.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

More specific to the subject property, the site is located in an area geologically mapped to be underlain by Quaternary age alluvial fan deposits (Dibblee, 2003). No faults are shown in the immediate site vicinity on the maps reviewed for the area.

4.2 GENERAL SOIL CONDITIONS

A brief description of the earth materials encountered during our subsurface exploration is presented in the following section. Based on our site reconnaissance, field observations, our exploratory excavations and review of published geologic maps the subject site area is locally underlain by alluvial deposits. Although not encountered during our subsurface exploration, localized accumulations of undocumented artificial fill materials may exist onsite.

4.2.1 Alluvial Deposits

Alluvial deposits were observed to underlie the project site at the explored locations. The alluvial deposits encountered generally consist of sandy silt, silty sand and clayey sand, which is mostly gray brown to red brown, dry to slightly moist, and medium dense to dense (see logs in Appendix A).

Based on the results of the laboratory testing performed on a sample of the near surface onsite materials, these near surface alluvial materials indicated a "very low" expansion potential ($0 \leq EI \leq 20$) when tested and classified in accordance with ASTM D 4829. It is likely that most of the onsite materials encountered during grading and construction will have a "very low" expansion potential. Test results are shown in Appendix B.

4.3 SURFACE WATER AND GROUNDWATER

4.3.1 Surface Water

Surface water was not observed during our site visit. If encountered during earthwork construction, surface water on this site is the result of precipitation or possibly some minor surface run-off from immediately surrounding properties. Overall site area drainage is generally in a southerly direction, as directed by site topography. Provisions for surface drainage will need to be accounted for by the project civil engineer.

4.3.2 Groundwater

Groundwater was not encountered in any of our exploratory borings excavated for the herein evaluation. Perched groundwater or localized seepage can occur due to variations in rainfall, irrigation practices, and other factors not evident at the time of this investigation.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

4.4 FAULTING AND SEISMICITY

The geologic structure of the entire southern California area is dominated mainly by northwest-trending faults associated with the San Andreas system. The site is in a seismically active region. No active or potentially active fault is known to exist at this site nor is the site situated within an *"Alquist-Priolo"* Earthquake Fault Zone or a Special Studies Zone (CGS, 1974; Bryant and Hart, 2007). No faults are identified on geologic maps readily available and reviewed by this firm for the immediate study area. The County of Riverside has designated the site as having a "moderate" potential for liquefaction, as being "susceptible" to subsidence and not within a Riverside county designated fault zone.

4.4.1 Seismic Design Parameters

The site is located at approximately 33.9148 Latitude and -117.1665 Longitude. Site spectral accelerations (Ss and S_1), for 0.2 and 1.0 second periods for a Class "D" site, were determined from the USGS Website, Earthquake Hazards Program, U.S. Seismic Design Maps for Risk-Targeted Maximum Considered Earthquake (MCE_R) Ground Motion Response Accelerations for the Conterminous 48 States by Latitude/Longitude. The results are presented in the following table:

SITE SEISMIC PARAMETERS	
Mapped 0.2 sec Period Spectral Acceleration, S_S	1.992g
Mapped 1.0 sec Period Spectral Acceleration, S_1	0.891g
Site Coefficient for Site Class "D", F_a	1.0
Site Coefficient for Site Class "D", F_v	1.5
Maximum Considered Earthquake Spectral Response Acceleration for 0.2 Second, S_{MS}	1.992g
Maximum Considered Earthquake Spectral Response Acceleration for 1.0 Second, S_{M1}	1.336g
5% Damped Design Spectral Response Acceleration Parameter at 0.2 Second, S_{DS}	1.328g
5% Damped Design Spectral Response Acceleration Parameter at 1 second, S_{D1}	0.891g

4.5 LIQUEFACTION/SEISMIC SETTLEMENT

Liquefaction describes a phenomenon in which cyclic stresses, produced by earthquake-induced ground motion, create excess pore pressures in relatively cohesionless soils. These soils may thereby acquire a high degree of mobility, which can lead to lateral movement, sliding, consolidation and settlement of loose sediments, sand boils and other damaging deformations. This phenomenon occurs only below the water table, but, after liquefaction has

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

developed, the effects can propagate upward into overlying non-saturated soil as excess pore water dissipates.

The factors known to influence liquefaction potential include soil type and grain size, relative density, groundwater level, confining pressures, and both intensity and duration of ground shaking. In general, materials that are susceptible to liquefaction are loose, saturated granular soils having low fines content under low confining pressures.

The liquefaction potential on this site is considered to be low due to the lack of a shallow groundwater table.

4.6 OTHER SEISMIC HAZARDS

Evidence of ancient landslides or slope instabilities at this site was not observed during our investigation as the topography of the site is relatively flat. Thus, the potential for landslides is considered negligible.

The potential for secondary seismic hazards such as seiche and tsunami are considered to be remote due to site elevation and distance from an open body of water.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 GENERAL

Development of the site appears feasible from a geotechnical viewpoint. Specific recommendations for site development provided herein will need to be further evaluated when development plans are provided for our review.

5.2 EARTHWORK CONSIDERATIONS

5.2.1 General

Earthwork and grading should be performed in accordance with the applicable grading ordinances of City of Moreno Valley, the 2013 California Building Code (CBC), and recommendations contained in this report. The Grading Guidelines included in Appendix D outline general procedures and do not anticipate all site specific situations. In the event of conflict, the recommendations presented in the text of this report should supersede those contained in Appendix D.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.2.2 Site Clearing and Preparation

Site preparation should start with demolition/razing of any existing improvements and removal of deleterious materials and vegetation. These materials should be properly disposed of offsite. Any existing underground improvements, utilities and trench backfill should also be removed or be further evaluated as part of site development operations.

5.2.3 Remedial Grading

Prior to placement of fill materials, the upper loose and compressible materials should be removed for structural site areas. Additionally, all undocumented artificial fill materials should be removed for structural site areas (if encountered). The lateral extent of removals beyond the outside edge of all settlement sensitive structures/foundations should minimally be equivalent to that vertically removed. Depending on actual field conditions encountered during grading, locally deeper and/or shallower areas of removal may be necessary.

Removal depths a minimum of five (5) feet across the site are recommended. At a minimum, removal bottoms in alluvial areas should extend down to relatively uniform material which is not visibly porous. Removal bottoms should also be tested to have a minimum in-place relative compaction of at least 85%, at optimum moisture content or above.

At a minimum, any proposed cut lots and the cut portion(s) of any transition building pad areas should be overexcavated a minimum of three (3) feet below existing grades or a minimum of one (1) foot below the bottom of the deepest proposed footing, whichever is deeper, if not already mitigated by the removal recommendations provided above. Overexcavations should extend a minimum of five (5) feet outside the proposed building envelope(s). The intent of the recommended overexcavation is to support the improvements on engineered fill with relatively uniform engineering characteristics and decrease the potential for future differential settlement.

The bottom of all removals should be scarified to a minimum depth of eight (8) inches, brought to at or above optimum moisture content, and then compacted to minimum project standards prior to fill placement. The remedial excavation bottoms of should be observed by a GeoTek representative prior to scarification. The resultant voids from remedial grading/overexcavation should be filled with materials placed in accordance with Section 5.2.4 Engineered Fill of this report.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.2.4 Engineered Fill

Onsite materials are generally considered suitable for reuse as engineered fill provided they are free from vegetation, roots, and rock/concrete or hard lumps greater than six (6) inches in maximum dimension. The earthwork contractor should have the proposed excavated and stockpiled materials to be used as engineered fill at this project approved by the soils engineer prior to placement.

Engineered fill materials should be moisture conditioned to above optimum moisture content and compacted in horizontal lifts not exceeding eight (8) inches in loose thickness to a minimum relative compaction of 90% as determined in accordance with laboratory test procedure ASTM D 1557.

If fill is being placed on slopes steeper than 5:1 (h:v), the fill should be properly benched into the existing slopes and a sufficient size keyway shall be constructed in accordance with the recommendations of the soils engineer.

5.2.5 Excavatability and Oversized Materials

The alluvial materials should excavate easily using conventional heavy equipment in good working condition and modern earthmoving methods. Oversized materials (larger than six (6) inches in dimension) were not encountered during this investigation and are not anticipated to be encountered during rough grading. If encountered, placement of such materials may require special handing. No oversized rocks should be placed within the building footprint or street areas. Oversized materials may be placed in open space, landscape areas, if acceptable to the local agency. Alternatively, the rocks should be reduced in size, removed from the site, or handled as discussed in Appendix D.

Additional recommendations may be necessary based on exposed conditions during earthwork construction. General grading guidelines are included in Appendix D at the back of this report.

5.2.6 Shrinkage and Bulking

Several factors will impact earthwork balancing on the site, including shrinkage, subsidence, trench spoil from utilities and footing excavations, as well as the accuracy of topography.

Shrinkage and subsidence are primarily dependent upon the degree of compactive effort achieved during construction, depth of fill and underlying site conditions. For planning purposes, a shrinkage factor of up to 5 to 15 percent may be considered for the

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

materials requiring removal and recompaction. Subsidence on the order of approximately 0.2 foot may occur. Site balance areas should be available in order to adjust project grades, depending on actual field conditions at the conclusion of site earthwork construction.

5.2.7 Trench Excavations and Backfill

Temporary excavations within the onsite materials should be stable at 1:1 inclinations for short durations during construction, and where cuts do not exceed 10 feet in height. Temporary cuts to a maximum height of 4 feet can be excavated vertically.

Trench excavations should conform to Cal-OSHA regulations. The contractor should have a competent person, per OSHA requirements, on site during construction to observe conditions and to make the appropriate recommendations.

Utility trench backfill should be compacted to at least 90% relative compaction (as determined per ASTM D 1557). Under-slab trenches should also be compacted to project specifications. Where applicable, based on jurisdictional requirements, the top 12 inches of backfill below subgrade for road pavements should be compacted to at least 95 percent relative compaction. Onsite materials may not be suitable for use as bedding material, but should be suitable as backfill provided particles larger than 6± inches are removed.

Compaction should be achieved with a mechanical compaction device. Ponding or jetting of trench backfill is not recommended. If backfill soils have dried out, they should be thoroughly moisture conditioned prior to placement in trenches.

5.3 DESIGN RECOMMENDATIONS

5.3.1 Foundation Design Criteria

Preliminary foundation design criteria, in general conformance with the 2013 CBC, are presented herein. These are typical design criteria and are not intended to supersede the design by the structural engineer.

Based on the results of our recent testing, the anticipated onsite soils near subgrade may be preliminary classified as having an expansion potential "very low" ($0 \leq EI \leq 20$) in accordance with ASTM D 4829. Presented below are foundation design parameters for the proposed single-family residences.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Foundations should be designed in accordance with the *2013 California Building Code* (CBC).

Additional testing of the soils should be performed during construction to evaluate the as-graded conditions. Final foundation recommendations will be based on the as-graded soils conditions.

MINIMUM DESIGN REQUIREMENTS

DESIGN PARAMETER	0≤EI≤20
Foundation Depth or Minimum Perimeter Beam Depth (inches below lowest adjacent grade)	One-Story Exterior Footing – 12" One-Story Interior Footing – 12" Two-Story Exterior Footing – 18" Two-Story Interior Footing – 18"
Minimum Foundation Width	One-Story - 12" Two-Story – 15"
Minimum Slab Thickness (actual)	4"
Minimum Slab Reinforcing	No. 3 rebar 24" on-center, placed in the middle 1/3 of the slab
Minimum Footing Reinforcement	Two (2) No. 4 Reinforcing Bars- one (1) top and one (1) bottom
Presaturation of Subgrade Soil (Percent of Optimum/Depth in Inches)	100% to a depth of 12 inches

It should be noted that the above recommendations are based on soil support characteristics only. The structural engineer should design the slab and beam reinforcement based on actual loading conditions. If it is desired to utilize post-tensioned foundations, then those recommendations can be provided at the appropriate time.

5.3.1.1 An allowable bearing capacity of 1500 pounds per square foot (psf) may be used for design of continuous and perimeter footings 12 inches deep and 12 inches wide, and pad footings 24 inches square and 12 inches deep. This value may be increased by 200 pounds per square foot for each additional 12 inches in depth and 100 pounds per square foot for each additional 12 inches in width to a maximum value of 2000 psf. Additionally, an increase of one-third may be applied when considering short-term live loads (e.g. seismic and wind loads).

5.3.1.2 Based on our experience in the area, foundations may experience a total settlement of approximately one (1) inch as a result of structural loading. Differential settlement of up to one-half of the total settlement over a horizontal distance of 40 feet could result from structural loading. The foundation engineer should incorporate these settlement estimates from the structural loads into the design of the slab, as appropriate.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.3.1.3 The passive earth pressure may be computed as an equivalent fluid having a density of 150 psf per foot of depth, to a maximum earth pressure of 2,000 psf for footings founded on engineered fill. A coefficient of friction between soil and concrete of 0.30 may be used with dead load forces. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third.

5.3.1.4 A grade beam, a minimum of 12 inches wide and 12 inches deep, should be utilized across large entrances. The base of the grade beam should be at the same elevation as the bottom of the adjoining footings.

5.3.1.5 A moisture and vapor retarding system should be placed below slabs-on-grade where moisture migration through the slab is undesirable. Guidelines for these are provided in the 2013 California Green Building Standards Code (CALGreen) Section 4.505.2 and the 2013 CBC Section 1907.1 It should be realized that the effectiveness of the vapor retarding membrane can be adversely impacted as a result of construction related punctures (e.g. stake penetrations, tears, punctures from walking on the aggregate layer, etc.). These occurrences should be limited as much as possible during construction.

Thicker membranes are generally more resistant to accidental puncture that thinner ones. Products specifically designed for use as moisture/vapor retarders may also be more puncture resistant. Although the CBC specifies a 6 mil vapor retarder membrane, it is GeoTek's opinion that a minimum 10 mil membrane with joints properly overlapped and sealed should be considered, unless otherwise specified by the slab design professional.

Moisture and vapor retarding systems are intended to provide a certain level of resistance to vapor and moisture transmission through the concrete, but do not eliminate it. The acceptable level of moisture transmission through the slab is to a large extent based on the type of flooring used and environmental conditions. Ultimately, the vapor retarding system should be comprised of suitable elements to limit migration of water and reduce transmission of water vapor through the slab to acceptable levels. The selected elements should have suitable properties (i.e. thickness, composition, strength and permeance) to achieve the desired performance level. Consideration should be given to consulting with an individual possessing specific expertise in this area for additional evaluation.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.3.1.6 We recommend that control joints be placed in two directions spaced approximately 24 to 36 times the thickness of the slab in inches. These joints are a widely accepted means to control cracks and should be reviewed by the project structural engineer.

5.3.2 Miscellaneous Foundation Recommendations

5.3.2.1 To minimize moisture penetration beneath the slab on grade areas, utility trenches should be backfilled with engineered fill, lean concrete or concrete slurry where they intercept the perimeter footing or thickened slab edge.

5.3.2.2 Isolated exterior footings should be tied back to the main foundation system in two orthogonal directions.

5.3.2.3 Soils from the footing excavations should not be placed in the slab-on-grade areas unless properly compacted and tested. The excavations should be free of loose/sloughed materials and be neatly trimmed at the time of concrete placement.

5.3.2.4 Unsuitable soil removals along the property lines will likely be restricted due to adjacent improvements. Special considerations will be required for foundation elements in these areas. Such considerations may include deepening of foundations, reduced bearing capacity, or other measures. This issue should be further evaluated once site plans become available.

5.3.3 Foundation Set Backs

Where applicable, the following setbacks should apply to all foundations. Any improvements not conforming to these setbacks may be subject to lateral movements and/or differential settlements:

- The outside bottom edge of all footings should be set back a minimum of H/3 (where H is the slope height) from the face of any descending slope. The setback should be at least 7 feet and need not exceed 40 feet.
- The bottom of all footings for structures near retaining walls should be deepened so as to extend below a 1:1 projection upward from the bottom inside edge of the wall stem. This applies to the existing retaining walls along the perimeter, if they are to remain.
- The bottom of any existing foundations for structures should be deepened so as to extend below a 1:1 projection upward from the bottom of the nearest excavation.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.3.4 Soil Corrosivity

The soil resistivity at this site was tested in the laboratory on a sample collected during the field investigation. The results of the testing indicate that the onsite soils are considered "moderately corrosive" to buried metal in accordance with current standards used by corrosion engineers. These characteristics are considered typical of soils commonly found in southern California. We recommend that a corrosion engineer be consulted to provide recommendations for protection of buried metal at this site.

5.3.5 Soil Sulfate Content

The sulfate content was determined in the laboratory for onsite soil sample. The results indicate that the water soluble sulfate range is less than 0.1 percent by weight, which is considered "not applicable" (negligible) as per Table 4.2.1 of ACI 318.

5.4 RETAINING WALL DESIGN AND CONSTRUCTION

5.4.1 General Design Criteria

Recommendations presented herein may apply to typical masonry or concrete vertical retaining walls to a maximum height of 10 feet. Additional review and recommendations should be requested for higher walls.

Retaining wall foundations embedded a minimum of 18 inches into engineered fill or dense formational materials should be designed using an allowable bearing capacity of 1500 psf. An increase of one-third may be applied when considering short-term live loads (e.g. seismic and wind loads). The passive earth pressure may be computed as an equivalent fluid having a density of 200 psf per foot of depth, to a maximum earth pressure of 2,000 psf. A coefficient of friction between soil and concrete of 0.25 may be used with dead load forces. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third.

An equivalent fluid pressure approach may be used to compute the horizontal active pressure against the wall. The appropriate fluid unit weights are given in the table below for specific slope gradients of retained materials.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Surface Slope of Retained Materials (H:V)	Equivalent Fluid Pressure (PCF) Select Backfill*
Level	35
2:1	55

*Select backfill should consist of imported sand other approved materials with an SE>30 and an EI≤20.

The above equivalent fluid weights do not include other superimposed loading conditions such as expansive soil, vehicular traffic, structures, seismic conditions or adverse geologic conditions.

Additional lateral forces can be induced on retaining walls during an earthquake. For level backfill and a Site Class "D", the minimum earthquake-induced force (F_{eq}) should be $10H^2$ (lbs/linear foot of wall) for cantilever walls. This force can be assumed to act at a distance of 0.6H above the base of the wall, where "H" is the height of the retaining wall measured from the base of the footing (in feet).

5.4.2 Wall Backfill and Drainage

Wall backfill should include a minimum one (1) foot wide section of ¾ to 1-inch clean crushed rock (or approved equivalent). The rock should be placed immediately adjacent to the back of wall and extend up from the backdrain to within approximately 12 inches of finish grade. The upper 12 inches should consist of compacted onsite materials. If the walls are designed using the "select" backfill design parameters, then the "select" materials shall be placed within the active zone as defined by a 1:1 (H:V) projection from the back of the retaining wall footing up to the retained surface behind the wall. Presence of other materials might necessitate revision to the parameters provided and modification of wall designs.

The backfill materials should be placed in lifts no greater than eight (8) inches in thickness and compacted at 90% relative compaction in accordance with ASTM Test Method D 1557. Proper surface drainage needs to be provided and maintained. Water should not be allowed to pond behind retaining walls. Waterproofing of site walls should be performed where moisture migration through the wall is undesirable.

Retaining walls should be provided with an adequate pipe and gravel back drain system to reduce the potential for hydrostatic pressures to develop. A 4-inch diameter perforated collector pipe (Schedule 40 PVC, or approved equivalent) in a minimum of one cubic foot per lineal foot of 3/8 to one inch clean crushed rock or equivalent, wrapped in filter fabric should be placed near the bottom of the backfill and be directed (via a solid outlet pipe) to an

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

appropriate disposal area. Maximum horizontal spacing between drain outlets should be 100 feet.

Walls from two (2) to four (4) feet in height may be drained using localized gravel packs behind weep holes at 10 feet maximum spacing (e.g. approximately 1.5 cubic feet of gravel in a woven plastic bag). Weep holes should be provided or the head joints omitted in the first course of block extended above the ground surface. However, nuisance water may still collect in front of the wall.

Drain outlets should be maintained over the life of the project and should not be obstructed or plugged by adjacent improvements.

5.4.3 Restrained Retaining Walls

Any retaining wall that will be restrained prior to placing backfill or walls that have male or reentrant corners should be designed for at-rest soil conditions using an equivalent fluid pressure of 60 pcf (select backfill), plus any applicable surcharge loading. For areas having male or reentrant corners, the restrained wall design should extend a minimum distance equal to twice the height of the wall laterally from the corner, or as otherwise determined by the structural engineer.

5.5 CONCRETE CONSTRUCTION

5.5.1 General

Concrete construction should follow the 2013 CBC and ACI guidelines regarding design, mix placement and curing of the concrete. If desired, we could provide quality control testing of the concrete during construction.

5.5.2 Concrete Mix Design

As indicated in Section 5.3.5, no special concrete mix design is required by Code to resist sulfate attack based on the existing test results. However, additional testing should be performed during grading so that specific recommendations can be formulated based on the as-graded conditions.

5.5.3 Concrete Flatwork

Exterior concrete flatwork (patios, walkways, driveways, etc.) is often some of the most visible aspects of site development. They are typically given the least level of quality control, being considered "non-structural" components. Cracking of these features is fairly common due to

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

various factors. While cracking is not usually detrimental, it is unsightly. We suggest that the same standards of care be applied to these features as to the structure itself.

Flatwork may consist of 4 inch thick concrete and the use of reinforcement is suggested. The project structural engineer should provide final design recommendations.

5.5.4 Concrete Performance

Concrete cracks should be expected. These cracks can vary from sizes that are essentially unnoticeable to more than 1/8 inch in width. Most cracks in concrete while unsightly do not significantly impact long-term performance. While it is possible to take measures (proper concrete mix, placement, curing, control joints, etc.) to reduce the extent and size of cracks that occur, some cracking will occur despite the best efforts to minimize it. Concrete undergoes chemical processes that are dependent on a wide range of variables, which are difficult, at best, to control. Concrete, while seemingly a stable material, also is subject to internal expansion and contraction due to external changes over time.

One of the simplest means to control cracking is to provide weakened control joints for cracking to occur along. These do not prevent cracks from developing; they simply provide a relief point for the stresses that develop. These joints are a widely accepted means to control cracks but are not always effective. Control joints are more effective the more closely spaced they are. GeoTek suggests that control joints be placed in two directions and located a distance apart roughly equal to 24 to 36 times the slab thickness.

5.6 INFILTRATION STUDY

Percolation testing was performed in a test hole located in the southeastern portion of the site The infiltration testing was completed in general conformance with ASTM D 3385 using a double ring infiltrometer device in the excavation. A representative from our firm conducted the actual infiltration testing.

The slowest/most conservative infiltration rate of four (4) inches per hour was measured for the test hole, after the infiltration rate had generally stabilized. A copy of the infiltration test field data is included in Appendix C.

Over the lifetime of the disposal area, the infiltration rates may be affected by silt build up and biological activities, as well as local variations in near surface soil conditions. Additionally, both remedial and design cut and/or fill grading will be required to construct the proposed improvements. Consideration should be given to re-evaluating the site infiltration rates at the completion of grading.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.7 POST CONSTRUCTION CONSIDERATIONS

5.7.1 Landscape Maintenance and Planting

Water has been shown to weaken the inherent strength of soil, and slope stability is significantly reduced by overly wet conditions. Positive surface drainage away from graded slopes should be maintained and only the amount of irrigation necessary to sustain plant life should be provided for planted slopes. Controlling surface drainage and runoff, and maintaining a suitable vegetation cover can minimize erosion. Plants selected for landscaping should be lightweight, deep-rooted types that require little water and are capable of surviving the prevailing climate.

Overwatering should be avoided. The soils should be maintained in a solid to semi-solid state as defined by the materials Atterberg Limits. Care should be taken when adding soil amendments to avoid excessive watering. Leaching as a method of soil preparation prior to planting is not recommended. An abatement program to control ground-burrowing rodents should be implemented and maintained. This is critical as burrowing rodents can decreased the long-term performance of slopes.

It is common for planting to be placed adjacent to structures in planter or lawn areas. This will result in the introduction of water into the ground adjacent to the foundation. This type of landscaping should be avoided. If used, then extreme care should be exercised with regard to the irrigation and drainage in these areas. Waterproofing of the foundation and/or subdrains may be warranted and advisable. We could discuss these issues, if desired, when plans are made available.

5.7.2 Drainage

The need to maintain proper surface drainage and subsurface systems cannot be overly emphasized. Positive site drainage should be maintained at all times. Drainage should not flow uncontrolled down any descending slope. Water should be directed away from foundations and not allowed to pond or seep into the ground. Pad drainage should be directed toward approved area(s) and not be blocked by other improvements.

It is the owner's responsibility to maintain and clean drainage devices on or contiguous to their lot. In order to be effective, maintenance should be conducted on a regular and routine schedule and necessary corrections made prior to each rainy season.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.8 PLAN REVIEW AND CONSTRUCTION OBSERVATIONS

We recommend that site grading, specifications, retaining wall plans and foundation plans be reviewed by this office prior to construction to check for conformance with the recommendations of this report. Additional recommendations may be necessary based on these reviews. We also recommend that GeoTek representatives be present during site grading and foundation construction to check for proper implementation of the geotechnical recommendations. The owner/developer should have GeoTek's representative perform at least the following duties:

- Observe site clearing and grubbing operations for proper removal of unsuitable materials.
- Observe and test bottom of removals prior to fill placement.
- Evaluate the suitability of on-site and import materials for fill placement, and collect soil samples for laboratory testing when necessary.
- Observe the fill for uniformity during placement including utility trenches.
- Test the fill for field density and relative compaction.
- Observe and probe foundation excavations to confirm suitability of bearing materials.

If requested, a construction observation and compaction report can be provided by GeoTek, which can comply with the requirements of the governmental agencies having jurisdiction over the project. We recommend that these agencies be notified prior to commencement of construction so that necessary grading permits can be obtained.

6. LIMITATIONS

It is the intent of this report to aid in the design and construction of the proposed development. Implementation of the advice presented in Section 5 of this report is intended to reduce risk associated with construction projects. The professional opinions and geotechnical advice contained in this report are not intended to imply total performance of the project or guarantee that unusual or variable conditions will not be discovered during or after construction.

The scope of our evaluation is limited to the area explored that is shown on the Boring Location Map (Figure 2). This evaluation does not and should in no way be construed to encompass any areas beyond the specific area of proposed construction as indicated to us by the client. Further, no evaluation of any existing site improvements is included. The scope is

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

based on our understanding of the project and the client's needs, our proposal (Proposal No. P3-1201213) dated December 5, 2013 and geotechnical engineering standards normally used on similar projects in this region.

The materials observed on the project site appear to be representative of the area; however, soil and bedrock materials vary in character between excavations and natural outcrops or conditions exposed during site construction. Site conditions may vary due to seasonal changes or other factors. GeoTek, Inc. assumes no responsibility or liability for work, testing or recommendations performed or provided by others.

Since our recommendations are based on the site conditions observed and encountered, and laboratory testing, our conclusions and recommendations are professional opinions that are limited to the extent of the available data. Observations during construction are important to allow for any change in recommendations found to be warranted. These opinions have been derived in accordance with current standards of practice and no warranty is expressed or implied. Standards of practice are subject to change with time.

7. SELECTED REFERENCES

Bryant, W.A., and Hart, E.W., 2007, Fault Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps, California Geological Survey: Special Publication 42.

California Code of Regulations, Title 24, 2013 "California Building Code," 3 volumes.

California Geological Survey (CGS, formerly referred to as the California Division of Mines and Geology), 1974, "State of California Special Studies Zones, Sunnymead Quadrangle."

_____, 1977, "Geologic Map of California."

_____, 1998, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada: International Conference of Building Officials.

_____, 2008, "Guidelines for Evaluating and Mitigating Seismic Hazards in California," Special Publication 117A.

Dibblee, Jr., T.W., 2003, "Geologic Map of the Sunnymead/South ½ of Redlands Quadrangles, San Bernardino and Riverside Counties, California," Dibblee Geology Center Map #DF-110, map scale 1:24000.

GeoTek, Inc., In-house proprietary information.

Seismic Design Values for Buildings (http://geohazards.usgs.gov/designmaps/us/application.php).

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Frontier Enterprises
APN 478-080-013
City of Moreno Valley
Riverside County, California

GeoTek Project No. 1132-CR3

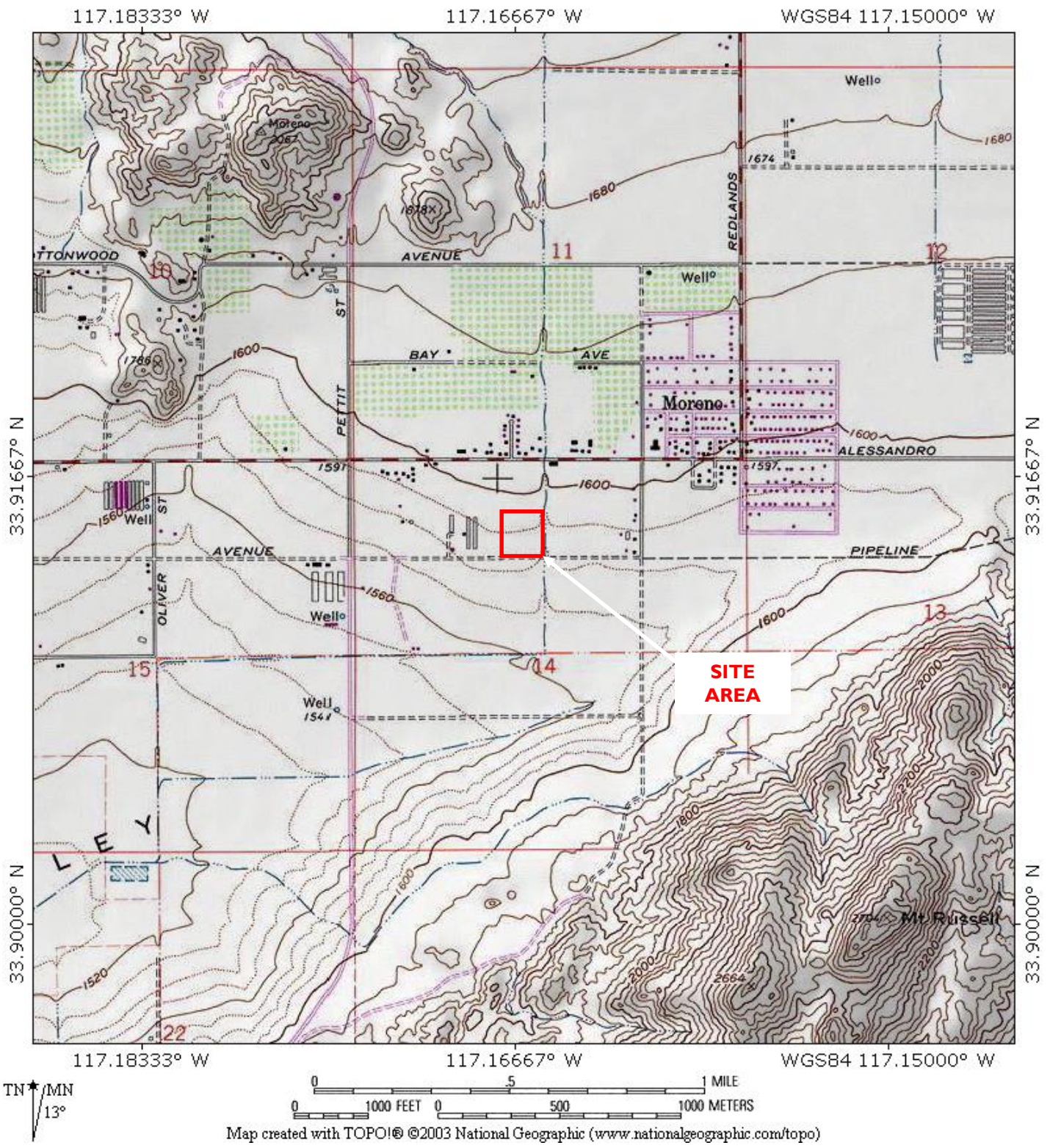
N

Figure 1

Site Location Map

GEOTEK

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)



Frontier Enterprises
APN 478-080-013
City of Moreno Valley
Riverside County, California

GeoTek Project No. 1132-CR3

Figure 2

General Site Topography Map

GEOTEK

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Frontier Enterprises
APN 478-080-013
City of Moreno Valley
County of Riverside, California

GeoTek Project No. 1132-CR3

N

Figure 3

Boring Location Map

GEOTEK

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX A

LOGS OF EXPLORATORY BORINGS

APN 478-080-013
City of Moreno Valley, California
Project No. 1132-CR3

GEOTEK

A - FIELD TESTING AND SAMPLING PROCEDURES

The Modified Split-Barrel Sampler (Ring)

The Ring sampler is driven into the ground in accordance with ASTM Test Method D 3550. The sampler, with an external diameter of 3.0 inches, is lined with 1-inch long, thin brass rings with inside diameters of approximately 2.4 inches. The sampler is typically driven into the ground 12 or 18 inches with a 140-pound hammer free falling from a height of 30 inches. Blow counts are recorded for every 6 inches of penetration as indicated on the log of boring. The samples are removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

Bulk Samples (Large)

These samples are normally large bags of representative earth materials over 20 pounds in weight collected from the field by means of hand digging or exploratory cuttings.

B - BORING LOG LEGEND

The following abbreviations and symbols often appear in the classification and description of soil and rock on the logs of borings:

SOILS

USCS	Unified Soil Classification System
f-c	Fine to coarse
f-m	Fine to medium

GEOLOGIC

B: Attitudes	Bedding: strike/dip
J: Attitudes	Joint: strike/dip
C:	Contact line
……..	Dashed line denotes USCS material change
_____	Solid Line denotes unit / formational change
_____	Thick solid line denotes end of boring

(Additional denotations and symbols are provided on the log of boring)

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	AMS
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jeff
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	1/22/2014

BORING NO.: B-1

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			SH, MD, EI, SR
		2 8 8	B1-1	ML	2': Fine sandy SILT, light gray brown, dry, soft, porous	5.7	88.2	
5		4 7 9	B1-2		5': SAME	7.6	85.5	
10		5 9 12	B1-3		10': SAME, firm to stiff, no visible porosity	7.5	87.6	HC
15		24 50	B1-4	SC	15': Clayey silty f-c SAND, red brown, slightly moist, dense			
20		18 32 50-5"	B1-5	SM	20': Silty fine SAND, light gray brown, slightly moist, dense			
25								
30		11 14 21	B1-6		30': SAME			

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	AMS
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jeff
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	1/22/2014

BORING NO.: B-1 (continued)

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium (continued)			
40		18 23 36	B1-7	SM	40': Silty fine SAND, light gray brown, slightly moist, dense			
50		20 30 50	B1-8	SM	50': Silty fine SAND, red brown, slightly moist, dense			
					BORING TERMINATED AT 51.5 FEET No groundwater encountered Boring backfilled with cuttings			

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	AMS
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jeff
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	1/22/2014

BORING NO.: B-2

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			
	■	6 7 9	B2-1	ML	2': Fine sandy SILT, light gray brown, dry, soft	5.1	101.1	
5	■	7 7 9	B2-2		5': SAME, slightly moist, firm	7.4	108.6	
10	■	5 7 8	B2-3	SM	10': Silty fine SAND, light gray brown, slightly moist, medium dense	7.1	101.2	
15	■	9 12 21	B2-4	SC	15': Silty clayey SAND, red brown, slightly moist, dense			
20	■	23 50	B2-5		20': SAME			
25					**BORING TERMINATED AT 21 FEET** No groundwater encountered Boring backfilled with cuttings			
30								

LEGEND

Sample type: ■ ---Ring ■ ---SPT ▨ ---Small Bulk ▩ ---Large Bulk □ ---No Recovery ▽ ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	AMS
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jeff
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	1/22/2014

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	BORING NO.: B-3 / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			
	Ring	6 5 7	B3-1	ML	2': Fine sandy SILT, light gray brown, dry, soft	7.4	102.2	
5	Ring	4 6 6	B3-2	SM	5': Silty fine SAND, light gray brown, slightly moist to moist, medium dense	12.4	105.9	
10	Ring	3 6 7	B3-3	SM	10': SAME	9.7	106.2	
15	Ring	8 18 27	B3-4	SC	15': Silty clayey SAND, red brown, slightly moist, dense			
20	Ring	17 25 28	B3-5	SM	20': Silty f-c SAND, light red brown to light brown, slightly moist, dense			
25					**BORING TERMINATED AT 21.5 FEET** No groundwater encountered Boring backfilled with cuttings			
30								

LEGEND

Sample type: Ring; SPT; Small Bulk; Large Bulk; No Recovery; Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	AMS
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jeff
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	1/22/2014

BORING NO.: B-4

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			
	■	5 8 10	B4-1	SM	2': Silty fine SAND, light gray brown, slightly moist, medium dense	6.7	101.5	
5	■	6 7 8	B4-2		5': SAME	5.2	106.7	HC
10	■	6 8 10	B4-3		10': SAME	8.7	108.0	
15	■	7 15 26	B4-4	SC	15': Silty clayey SAND, red brown, slightly moist, dense			
20	■	12 20 38	B4-5	SM	20': Silty f-c SAND, light yellow brown, slightly moist, dense			
25					**BORING TERMINATED AT 21.5 FEET** No groundwater encountered Boring backfilled with cuttings			
30								

LEGEND

Sample type: ■ ---Ring ▮ ---SPT ▨ ---Small Bulk ▩ ---Large Bulk □ ---No Recovery ▽ ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX B

RESULTS OF LABORATORY TESTING

APN 478-080-013
City of Moreno Valley, California
Project No. 1132-CR3

GEOTEK

SUMMARY OF LABORATORY TESTING

Classification

Soils were classified visually in general accordance to the Unified Soil Classification System (ASTM Test Method D 2487). The soil classifications are shown on the logs of exploratory test borings in Appendix A.

Moisture-Density Relations

Laboratory testing was performed on a selected sample collected during the recent subsurface exploration. The laboratory maximum dry density and optimum moisture content for the sample tested was determined in general accordance with test method ASTM Test Method D 1557. The results are included herein.

Expansion Index

Expansion Index testing was performed in general accordance with ASTM Test Method D 4829. The test results are included herein.

Consolidation

Consolidation testing was performed on selected samples of the site soils according to ASTM Test Method D 2435. The results of this testing is presented herein.

Direct Shear Test

Shear testing was performed on a remolded sample of the site soil materials in general accordance with ASTM Test Method D 3080. The test results are included herein.

Sulfate Content, Resistivity and Chloride Content

Testing to determine the water-soluble sulfate content was performed by others in general accordance with California Test No. 417. Resistivity testing was completed by others in general accordance with California Test 643. Testing to determine the chloride content was performed by others in general accordance with California Test No. 422. The results of the testing are included herein.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GEOTEK

MOISTURE/DENSITY RELATIONSHIP

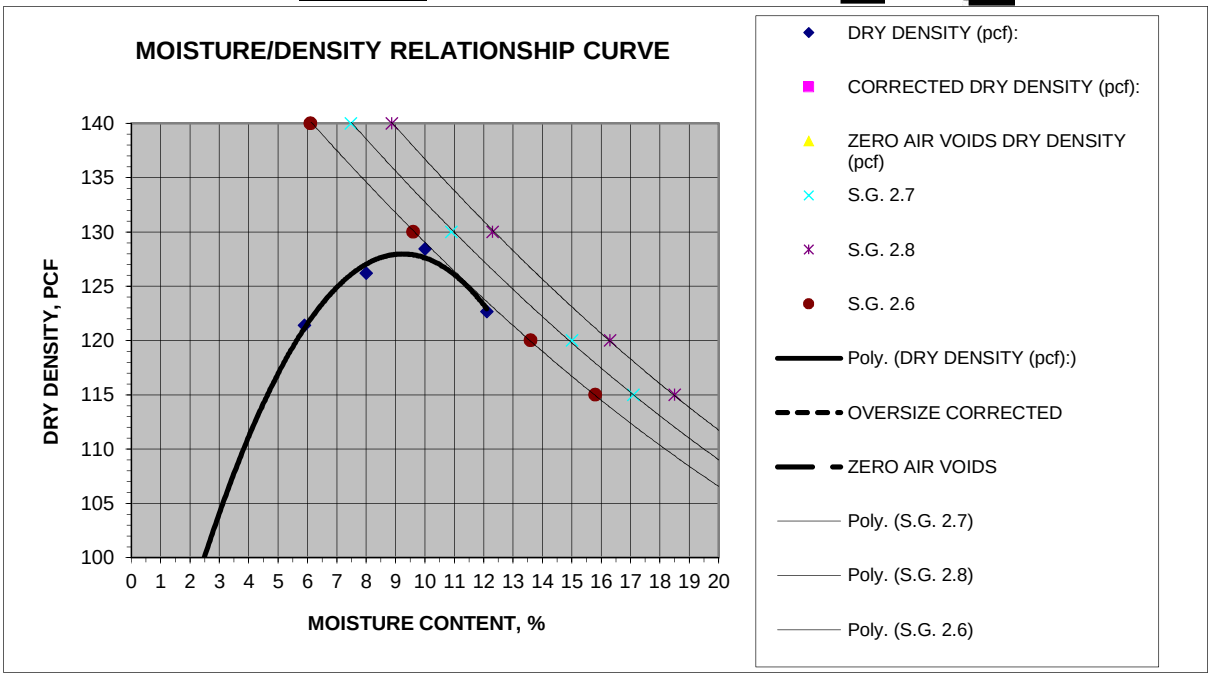
Client: Frontier Enterprises
Project: Quincy/Brodiaea
Location: Moreno Valley
Material Type: Brown Sandy Silt
Material Supplier:
Material Source:
Sample Location: B-1 @ 0-5'

Job No.: 1132-CR3
Lab No.: Corona

Sampled By: AMS
Received By: DI
Tested By: DI
Reviewed By: AMS

Date Sampled: 22-Jan-14
Date Received: 22-Jan-14
Date Tested: 30-Jan-14
Date Reviewed: 11-Feb-14

Test Procedure: ASTM 1557 **Method:** A
Oversized Material (%): 3.2 **Correction Required:** [ ] yes [x] no



MOISTURE DENSITY RELATIONSHIP VALUES

Maximum Dry Density, pcf	127.5	**@ Optimum Moisture, %**	9.5
Corrected Maximum Dry Density, pcf		**@ Optimum Moisture, %**	

MATERIAL DESCRIPTION

Grain Size Distribution:

	% Gravel (retained on No. 4)
	% Sand (Passing No. 4, Retained on No. 200)
	% Silt and Clay (Passing No. 200)

Atterberg Limits:

	Liquid Limit, %
	Plastic Limit, %
	Plasticity Index, %

Classification:
Unified Soils Classification:
AASHTO Soils Classification:

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GEOTEK

EXPANSION INDEX TEST

(ASTM D4829)

Client:	1132-CR3	***Tested/ Checked By:***	DI Lab No Corona
Project Number:	Frontier Enterprises	***Date Tested:***	2/4/2014
Project Location:	Moreno Valley	***Sample Source:***	B-1 @ 0-5'
		Sample Description:	Brown Silty Sand

Ring #:_____ Ring Dia. : 4.01" Ring Ht.1"

Loading weight: 5516. grams

DENSITY DETERMINATION

A	Weight of compacted sample & ring (gm)	767.1
B	Weight of ring (gm)	363.8
C	Net weight of sample (gm)	403.3
D	Wet Density, lb / ft3 (C*0.3016)	121.6
E	Dry Density, lb / ft3 (D/1.F)	**112.1**

SATURATION DETERMINATION

F	Moisture Content, %	8.5
G	Specific Gravity, assumed	2.6
H	Unit Wt. of Water @ 20°C, (pcf)	62.3
I	% Saturation	**50**

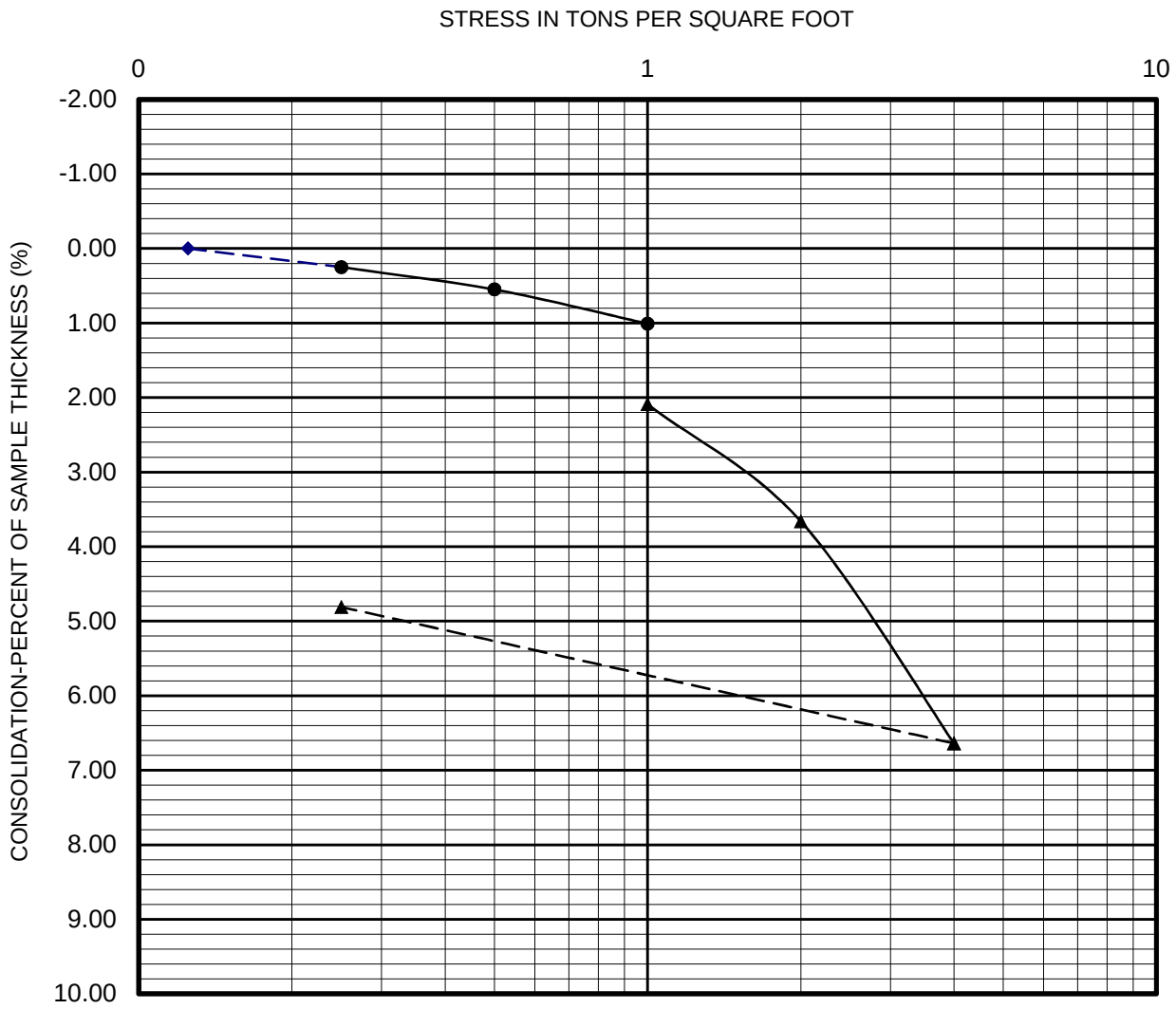
READINGS

DATE	TIME	READING	
2/4/2014	11:00	0.1790	Initial
	11:10	0.1790	10 min/Dry
	11:11	0.1790	1 min/Wet
	11:16	0.1820	5 min/Wet
2/5/2014	4:07	0.1860	Random
	5:12	0.1860	Final

FINAL MOISTURE

Weight of wet sample & tare	Weight of dry sample & tare	Tare	% Moisture
402.0	344.8		**16.6%**

EXPANSION INDEX = 7



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

GEOTEK

CHECKED BY: AMS	Lab: DI
PROJECT NO.: 1132-CR3	02/14

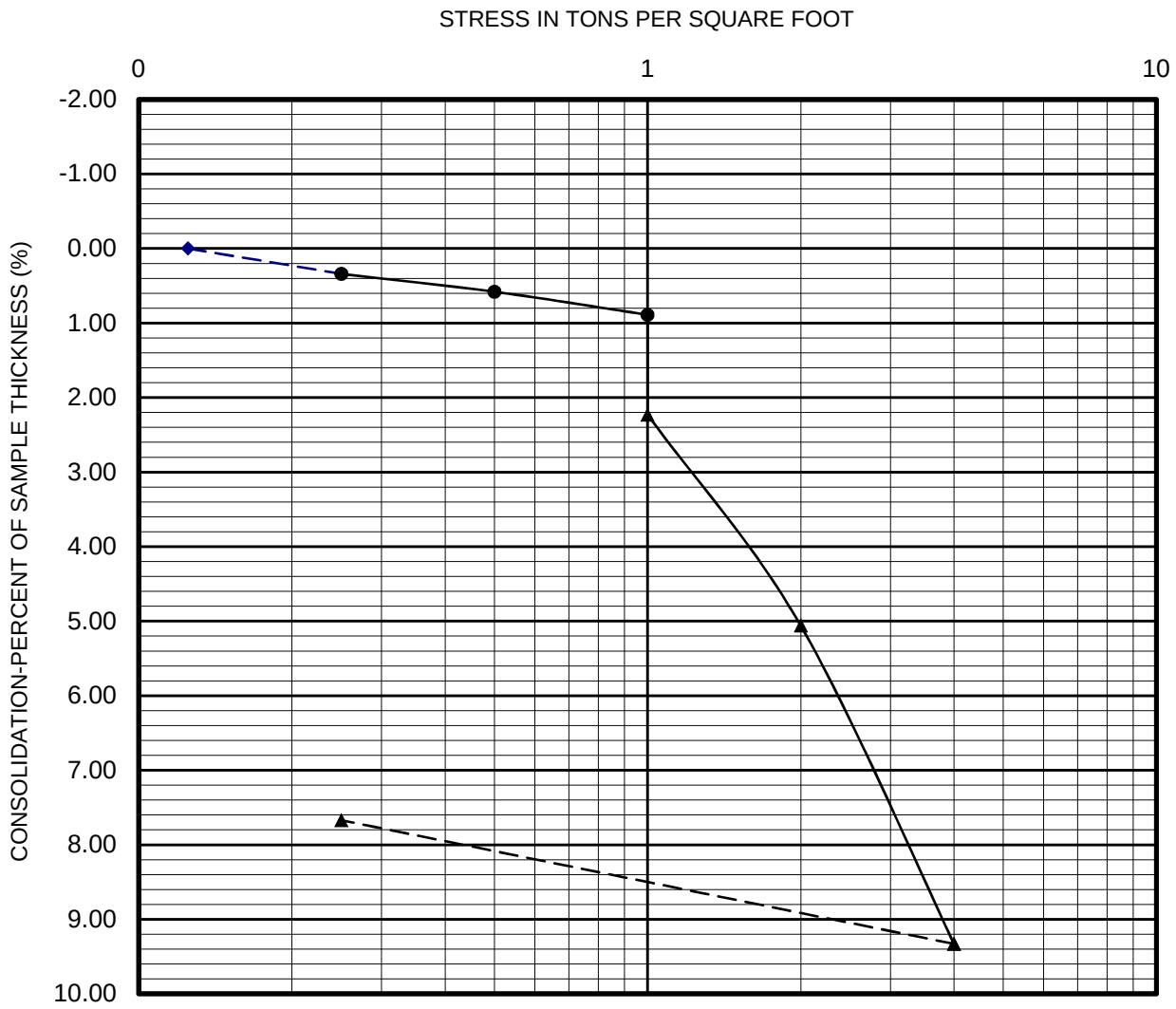
CONSOLIDATION REPORT

Sample: B-1 @ 10'

Quincy Street/Brodiaea Avenue
Moreno Valley, California

Plate C-1

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

GEOTEK

CHECKED BY: AMS	Lab: DI
PROJECT NO.: 1132-CR3	02/14

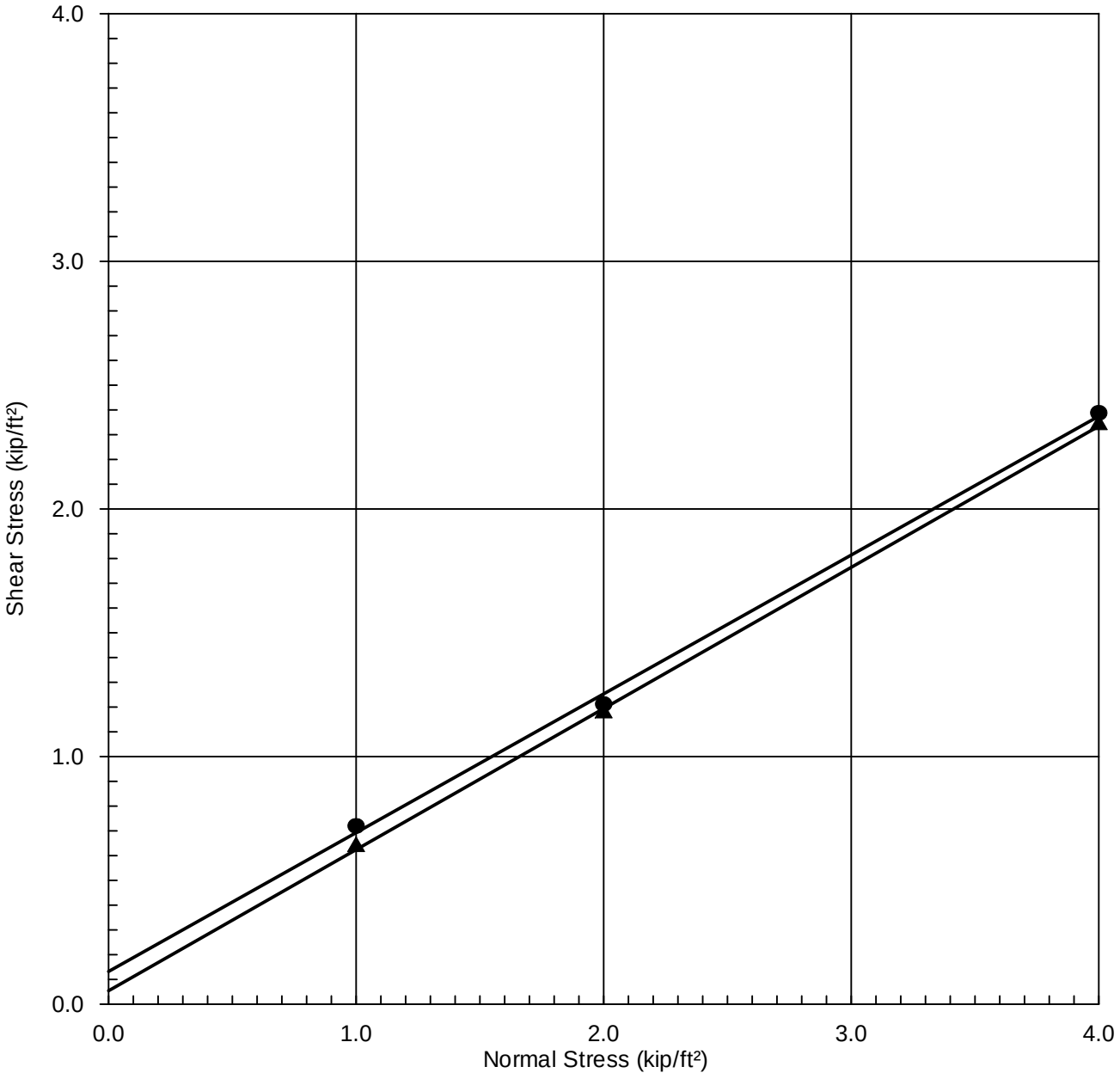
CONSOLIDATION REPORT

Sample: B-4 @ 5'

Quincy Street/Brodiaea Avenue
Moreno Valley, California

Plate C-2

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)



Boring No. : B-1
Depth (ft.) : 0 - 5
Sample : Remolded
Moisture : Saturated

ULTIMATE STRENGTH PARAMETERS

Cohesion(C) = 50 psf
Friction (ϕ) = 29.5°

PEAK STRENGTH PARAMETERS

Cohesion(C) = 130 psf
Friction (ϕ) = 29°

Project Name: Geotek (1132-CR3)	Project No.: 10-2700

TGR
Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

TGR GEOTECHNICAL
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
WWW.TGRGEOTECH.COM

DIRECT SHEAR TEST RESULTS
(ASTM D 3080)

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Cal Land Engineering, Inc.
dba Quartech Consultants
Geotechnical, Environmental, and Civil Engineering

GeoTek, Inc.
710 East Parkridge Avenue, Suite 105
Corona, California 92879

Client: Frontier
W.O.: 1132-CR3
Project: Moreno Valley

Date: January 31, 2014
QCI Project No.: 14-167-01N
Summarized by: KA

Corrosivity Test Results

Sample ID	Depth (Feet)	pH CT-532 (643)	Chloride CT-422 (ppm)	Sulfate CT-417 (% By Weight)	Resistivity CT-532 (643) (ohm-cm)
B-1	0-5’	8.44	106	0.0025	2,950

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX C

INFILTRATION TEST DATA

APN 478-080-013
City of Moreno Valley, California
Project No. 1132-CR3

GEOTEK

SE CORNER BRODIAEA AVENUE AT QUINCY STREET

1132-CR3 FRONTIER

DOUBLE RING INFILTROMETER TEST DATA

Project Name and Test Location:		Liquid Used:	TAP WATER
Trench No.:	4	Ground Temperature:	
Tested by:	DVG	Liquid Level Mainted by Using:	
Date of Testing:	2/6/14	Penetration of Rings Into Soil (in.):	4 6
Water Table Depth:		USCS Classification:	

				FLOW READINGS					INFILTRATION RATE		
TRIAL NO.	START/END	TIME	ELAPSED TIME (Min.)	INNER RING (in.)	RING FLOW (water added in ml)	ANNULAR READING (in.)	SPACE FLOW (water added in ml)	LIQUID TEMP. (F)	INNER (in./hr.)	ANNULAR (in./hr.)	REMARKS
1	S	5:17	0:00	10.0		12.0		72			
	E	5:27	10:00	9.0	1853	11.0	5560		6.0	6.0	
2	S	5:29	0:00	10.0		12.0					
	E	5:39	10:15	9.0	1853	11.0	5560		5.9	5.9	
3	S	5:41	0:00	10.0		12.0					
	E	5:52	10:30	9.0	1853	11.0	5560		5.7	5.7	
4	S	5:54	0:00	10.0		12.0					
	E	6:05	10:45	9.0	1853	11.0	5560		5.6	5.6	
5	S	6:07	0:00	10.0		12.0					
	E	6:18	11:00	9.0	1853	11.0	5560		5.5	5.5	
6	S	6:20	0:00	10.0		12.0					
	E	6:31	11:15	9.0	1853	11.0	5560		5.3	5.3	
7	S	6:33	0:00	10.0		12.0					
	E	6:45	11:30	9.0	1853	11.0	5560		5.2	5.2	
8	S	6:47	0:00	10.0		12.0					
	E	6:59	11:45	9.0	1853		5560		5.1	5.1	
9	S	7:01	0:00	10.0		12.0					
	E	7:13	12.00	9.0	1853	11.0	5560		5.0	5.0	
10	S	7:15	0:00	10.0		12.0					
	E	7:45	30:00	7.5	4633	9 1/2	13900		5.0	5.0	
11	S	7:50	0:00	10.0		12.0					
	E	8:20	30:00	7.5	4633	9 1/2	13900		5.0	5.0	
12	S	8:25	0:00	10.0		12.0					
	E	8:55	30:00	7.5	4633	9 1/2	13900		5.0	5.0	
13	S	9:00	0:00	10.0		12.0					
	E	9:30	30:00	7 5/8	4111	9 1/2	13900		4.75	5.0	
14	S	9:35	0:00	10.0		12.0					
	E	10:05	30:00	7 3/4	4170	9 5/8	13205		4.5	5.0	
15	S	10:10	0:00	10.0		12.0					
	E	10:40	30:00	7 7/8	3938	9 3/4	12510		4.25	4.5	
16	S	10:45	0:00	10.0		12.0					
	E	11:15	30:00	7 7/8	3938	9 3/4	12510		4.25	4.5	
17	S	11:20	0:00	10.0		12.0					
	E	11:50	30:00	8.0	3707	9 3/4	12510		4.0	4.5	
18	S	11:55	0:00	10.0		12.0					
	E	12:25	30:00	8.0	3707	9 3/4	12510		4.0	4.5	
19	S	12:30	0:00	10.0		12.0					
	E	1:00	30:00	8.0	3707	9 3/4	12510	72	4.0	4.5	

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX D

GENERAL EARTHWORK GRADING GUIDELINES

APN 478-080-013
City of Moreno Valley, California
Project No. 1132-CR3

GEOTEK

GENERAL GRADING GUIDELINES

Guidelines presented herein are intended to address general construction procedures for earthwork construction. Specific situations and conditions often arise which cannot reasonably be discussed in general guidelines, when anticipated these are discussed in the text of the report. Often unanticipated conditions are encountered which may necessitate modification or changes to these guidelines. It is our hope that these will assist the contractor to more efficiently complete the project by providing a reasonable understanding of the procedures that would be expected during earthwork and the testing and observation used to evaluate those procedures.

General

Grading should be performed to at least the minimum requirements of governing agencies, Chapters 18 and 33 of the Uniform Building Code, CBC (2013) and the guidelines presented below.

Preconstruction Meeting

A preconstruction meeting should be held prior to site earthwork. Any questions the contractor has regarding our recommendations, general site conditions, apparent discrepancies between reported and actual conditions and/or differences in procedures the contractor intends to use should be brought up at that meeting. The contractor (including the main onsite representative) should review our report and these guidelines in advance of the meeting. Any comments the contractor may have regarding these guidelines should be brought up at that meeting.

Grading Observation and Testing

1. Observation of the fill placement should be provided by our representative during grading. Verbal communication during the course of each day will be used to inform the contractor of test results. The contractor should receive a copy of the "Daily Field Report" indicating results of field density tests that day. If our representative does not provide the contractor with these reports, our office should be notified.
2. Testing and observation procedures are, by their nature, specific to the work or area observed and location of the tests taken, variability may occur in other locations. The contractor is responsible for the uniformity of the grading operations; our observations and test results are intended to evaluate the contractor's overall level of efforts during grading. The contractor's personnel are the only individuals participating in all aspect of site work. Compaction testing and observation should not be considered as relieving the contractor's responsibility to properly compact the fill.
3. Cleanouts, processed ground to receive fill, key excavations, and subdrains should be observed by our representative prior to placing any fill. It will be the contractor's responsibility to notify our representative or office when such areas are ready for observation.
4. Density tests may be made on the surface material to receive fill, as considered warranted by this firm.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5. In general, density tests would be made at maximum intervals of two feet of fill height or every 1,000 cubic yards of fill placed. Criteria will vary depending on soil conditions and size of the fill. More frequent testing may be performed. In any case, an adequate number of field density tests should be made to evaluate the required compaction and moisture content is generally being obtained.
6. Laboratory testing to support field test procedures will be performed, as considered warranted, based on conditions encountered (e.g. change of material sources, types, etc.) Every effort will be made to process samples in the laboratory as quickly as possible and in progress construction projects are our first priority. However, laboratory workloads may cause in delays and some soils may require a **minimum of 48 to 72 hours to complete test procedures**. Whenever possible, our representative(s) should be informed in advance of operational changes that might result in different source areas for materials.
7. Procedures for testing of fill slopes are as follows:
   a) Density tests should be taken periodically during grading on the flat surface of the fill, three to five feet horizontally from the face of the slope.
   b) If a method other than over building and cutting back to the compacted core is to be employed, slope compaction testing during construction should include testing the outer six inches to three feet in the slope face to determine if the required compaction is being achieved.
8. Finish grade testing of slopes and pad surfaces should be performed after construction is complete.

Site Clearing

1. All vegetation, and other deleterious materials, should be removed from the site. If material is not immediately removed from the site it should be stockpiled in a designated area(s) well outside of all current work areas and delineated with flagging or other means. Site clearing should be performed in advance of any grading in a specific area.
2. Efforts should be made by the contractor to remove all organic or other deleterious material from the fill, as even the most diligent efforts may result in the incorporation of some materials. This is especially important when grading is occurring near the natural grade. All equipment operators should be aware of these efforts. Laborers may be required as root pickers.
3. Nonorganic debris or concrete may be placed in deeper fill areas provided the procedures used are observed and found acceptable by our representative.

Treatment of Existing Ground

1. Following site clearing, all surficial deposits of alluvium and colluvium as well as weathered or creep effected bedrock, should be removed unless otherwise specifically indicated in the text of this report.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2. In some cases, removal may be recommended to a specified depth (e.g. flat sites where partial alluvial removals may be sufficient). The contractor should not exceed these depths unless directed otherwise by our representative.
3. Groundwater existing in alluvial areas may make excavation difficult. Deeper removals than indicated in the text of the report may be necessary due to saturation during winter months.
4. Subsequent to removals, the natural ground should be processed to a depth of six inches, moistened to near optimum moisture conditions and compacted to fill standards.
5. Exploratory back hoe or dozer trenches still remaining after site removal should be excavated and filled with compacted fill if they can be located.

Fill Placement

1. Unless otherwise indicated, all site soil and bedrock may be reused for compacted fill; however, some special processing or handling may be required (see text of report).
2. Material used in the compacting process should be evenly spread, moisture conditioned, processed, and compacted in thin lifts six (6) to eight (8) inches in compacted thickness to obtain a uniformly dense layer. The fill should be placed and compacted on a nearly horizontal plane, unless otherwise found acceptable by our representative.
3. If the moisture content or relative density varies from that recommended by this firm, the contractor should rework the fill until it is in accordance with the following:
   a) Moisture content of the fill should be at or above optimum moisture. Moisture should be evenly distributed without wet and dry pockets. Pre-watering of cut or removal areas should be considered in addition to watering during fill placement, particularly in clay or dry surficial soils. The ability of the contractor to obtain the proper moisture content will control production rates.
   b) Each six-inch layer should be compacted to at least 90 percent of the maximum dry density in compliance with the testing method specified by the controlling governmental agency. In most cases, the testing method is ASTM Test Designation D 1557.
4. Rock fragments less than eight inches in diameter may be utilized in the fill, provided:
   a) They are not placed in concentrated pockets;
   b) There is a sufficient percentage of fine-grained material to surround the rocks;
   c) The distribution of the rocks is observed by, and acceptable to, our representative.
5. Rocks exceeding eight (8) inches in diameter should be taken off site, broken into smaller fragments, or placed in accordance with recommendations of this firm in areas designated suitable for rock disposal. On projects where significant large quantities of oversized materials are anticipated, alternate guidelines for placement may be included. If significant oversize materials are encountered during construction, these guidelines should be requested.
6. In clay soil, dry or large chunks or blocks are common. If in excess of eight (8) inches minimum dimension, then they are considered as oversized. Sheepsfoot compactors or other suitable

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

methods should be used to break up blocks. When dry, they should be moisture conditioned to provide a uniform condition with the surrounding fill.

Slope Construction

1. The contractor should obtain a minimum relative compaction of 90 percent out to the finished slope face of fill slopes. This may be achieved by either overbuilding the slope and cutting back to the compacted core, or by direct compaction of the slope face with suitable equipment.
2. Slopes trimmed to the compacted core should be overbuilt by at least three (3) feet with compaction efforts out to the edge of the false slope. Failure to properly compact the outer edge results in trimming not exposing the compacted core and additional compaction after trimming may be necessary.
3. If fill slopes are built "at grade" using direct compaction methods, then the slope construction should be performed so that a constant gradient is maintained throughout construction. Soil should not be "spilled" over the slope face nor should slopes be "pushed out" to obtain grades. Compaction equipment should compact each lift along the immediate top of slope. Slopes should be back rolled or otherwise compacted at approximately every 4 feet vertically as the slope is built.
4. Corners and bends in slopes should have special attention during construction as these are the most difficult areas to obtain proper compaction.
5. Cut slopes should be cut to the finished surface. Excessive undercutting and smoothing of the face with fill may necessitate stabilization.

UTILITY TRENCH CONSTRUCTION AND BACKFILL

Utility trench excavation and backfill is the contractors responsibility. The geotechnical consultant typically provides periodic observation and testing of these operations. While efforts are made to make sufficient observations and tests to verify that the contractors' methods and procedures are adequate to achieve proper compaction, it is typically impractical to observe all backfill procedures. As such, it is critical that the contractor use consistent backfill procedures.

Compaction methods vary for trench compaction and experience indicates many methods can be successful. However, procedures that "worked" on previous projects may or may not prove effective on a given site. The contractor(s) should outline the procedures proposed, so that we may discuss them **prior** to construction. We will offer comments based on our knowledge of site conditions and experience.

1. Utility trench backfill in slopes, structural areas, in streets and beneath flat work or hardscape should be brought to at least optimum moisture and compacted to at least 90 percent of the laboratory standard. Soil should be moisture conditioned prior to placing in the trench.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2. Flooding and jetting are not typically recommended or acceptable for native soils. Flooding or jetting may be used with select sand having a Sand Equivalent (SE) of 30 or higher. This is typically limited to the following uses:

   a) shallow (12 + inches) under slab interior trenches and,

   b) as bedding in pipe zone.

   The water should be allowed to dissipate prior to pouring slabs or completing trench compaction.

3. Care should be taken not to place soils at high moisture content within the upper three feet of the trench backfill in street areas, as overly wet soils may impact subgrade preparation. Moisture may be reduced to 2% below optimum moisture in areas to be paved within the upper three feet below sub grade.

4. Sand backfill should not be allowed in exterior trenches adjacent to and within an area extending below a 1:1 projection from the outside bottom edge of a footing, unless it is similar to the surrounding soil.

5. Trench compaction testing is generally at the discretion of the geotechnical consultant. Testing frequency will be based on trench depth and the contractors procedures. A probing rod would be used to assess the consistency of compaction between tested areas and untested areas. If zones are found that are considered less compact than other areas, this would be brought to the contractors attention.

JOB SAFETY

General

Personnel safety is a primary concern on all job sites. The following summaries are safety considerations for use by all our employees on multi-employer construction sites. On ground personnel are at highest risk of injury and possible fatality on grading construction projects. The company recognizes that construction activities will vary on each site and that job site safety is the contractor's responsibility. However, it is, imperative that all personnel be safety conscious to avoid accidents and potential injury.

In an effort to minimize risks associated with geotechnical testing and observation, the following precautions are to be implemented for the safety of our field personnel on grading and construction projects.

1. Safety Meetings: Our field personnel are directed to attend the contractor's regularly scheduled safety meetings.

2. Safety Vests: Safety vests are provided for and are to be worn by our personnel while on the job site.

3. Safety Flags: Safety flags are provided to our field technicians; one is to be affixed to the vehicle when on site, the other is to be placed atop the spoil pile on all test pits.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

In the event that the contractor's representative observes any of our personnel not following the above, we request that it be brought to the attention of our office.

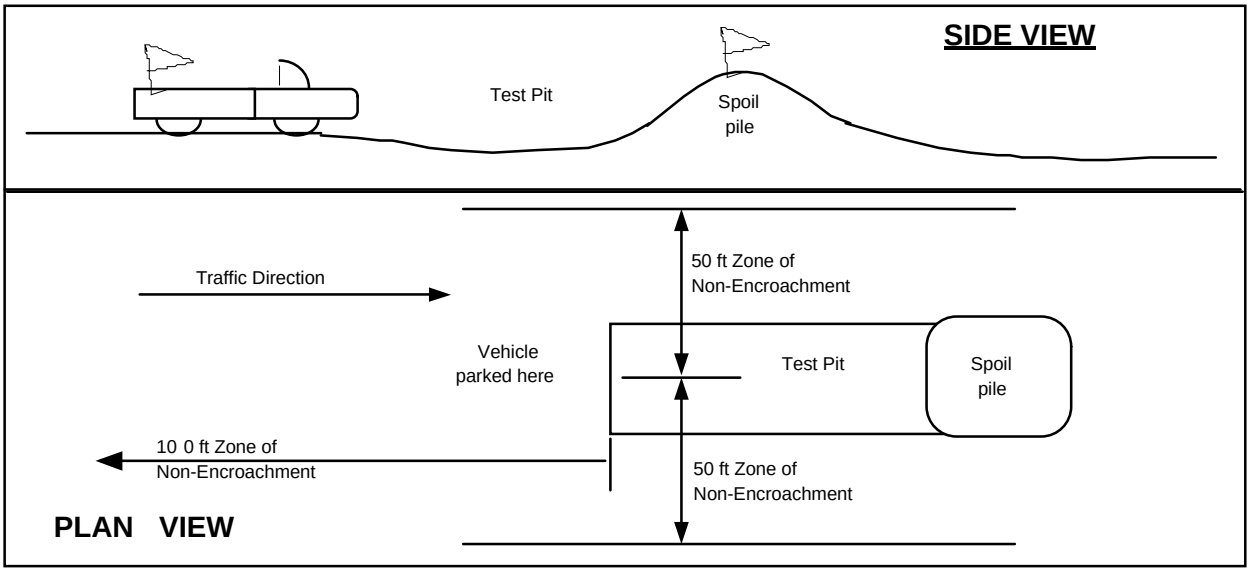
Test Pits Location, Orientation and Clearance

The technician is responsible for selecting test pit locations. The primary concern is the technician's safety. However, it is necessary to take sufficient tests at various locations to obtain a representative sampling of the fill. As such, efforts will be made to coordinate locations with the grading contractors authorized representatives (e.g. dump man, operator, supervisor, grade checker, etc.), and to select locations following or behind the established traffic pattern, preferably outside of current traffic. The contractors authorized representative should direct excavation of the pit and safety during the test period. Again, safety is the paramount concern.

Test pits should be excavated so that the spoil pile is placed away from oncoming traffic. The technician's vehicle is to be placed next to the test pit, opposite the spoil pile. This necessitates that the fill be maintained in a drivable condition. Alternatively, the contractor may opt to park a piece of equipment in front of test pits, particularly in small fill areas or those with limited access.

A zone of non-encroachment should be established for all test pits (see diagram below). No grading equipment should enter this zone during the test procedure. The zone should extend outward to the sides approximately 50 feet from the center of the test pit and 100 feet in the direction of traffic flow. This zone is established both for safety and to avoid excessive ground vibration, which typically decreases test results.

TEST PIT SAFETY PLAN



Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Slope Tests

When taking slope tests, the technician should park their vehicle directly above or below the test location on the slope. The contractor's representative should effectively keep all equipment at a safe operation distance (e.g. 50 feet) away from the slope during testing.

The technician is directed to withdraw from the active portion of the fill as soon as possible following testing. The technician's vehicle should be parked at the perimeter of the fill in a highly visible location.

Trench Safety

It is the contractor's responsibility to provide safe access into trenches where compaction testing is needed. Trenches for all utilities should be excavated in accordance with CAL-OSHA and any other applicable safety standards. Safe conditions will be required to enable compaction testing of the trench backfill.

All utility trench excavations in excess of 5 feet deep, which a person enters, are to be shored or laid back. Trench access should be provided in accordance with OSHA standards. Our personnel are directed not to enter any trench by being lowered or "riding down" on the equipment.

Our personnel are directed not to enter any excavation which;

1. is 5 feet or deeper unless shored or laid back,
2. exit points or ladders are not provided,
3. displays any evidence of instability, has any loose rock or other debris which could fall into the trench, or
4. displays any other evidence of any unsafe conditions regardless of depth.

If the contractor fails to provide safe access to trenches for compaction testing, our company policy requires that the soil technician withdraws and notifies their supervisor. The contractors representative will then be contacted in an effort to effect a solution. All backfill not tested due to safety concerns or other reasons is subject to reprocessing and/or removal.

Procedures

In the event that the technician's safety is jeopardized or compromised as a result of the contractor's failure to comply with any of the above, the technician is directed to inform both the developer's and contractor's representatives. If the condition is not rectified, the technician is required, by company policy, to immediately withdraw and notify their supervisor. The contractor's representative will then be contacted in an effort to effect a solution. No further testing will be performed until the situation is rectified. Any fill placed in the interim can be considered unacceptable and subject to reprocessing, recompaction or removal.

In the event that the soil technician does not comply with the above or other established safety guidelines, we request that the contractor bring this to technicians attention and notify our project

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

manager or office. Effective communication and coordination between the contractors' representative and the field technician(s) is strongly encouraged in order to implement the above safety program and safety in general.

The safety procedures outlined above should be discussed at the contractor's safety meetings. This will serve to inform and remind equipment operators of these safety procedures particularly the zone of non-encroachment.

The safety procedures outlined above should be discussed at the contractor's safety meetings. This will serve to inform and remind equipment operators of these safety procedures particularly the zone of non-encroachment.

Attachment: Geotech + Soils Report Geotek 2-12-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

PHASE I ENVIRONMENTAL SITE ASSESSMENT
APN 478-080-013
MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA 92555

March 3, 2014

Project No. 1132-CR3

Prepared For:

Frontier Enterprises
8300 Utica Avenue, Suite 300
Rancho Cucamonga, California 91730

GEOTEK

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.
710 E. Parkridge Avenue, Suite 105, Corona, California 92879-1097
(951) 710-1160 Office (951) 710-1167 Fax www.geotekusa.com

March 3, 2014
Project No. 1132-CR3

Frontier Enterprises
8300 Utica Avenue, Suite 300
Rancho Cucamonga, California 91730

Attention: Mr. Lonnie Ellisor

Subject: Phase I Environmental Site Assessment
APN 478-080-013
Moreno Valley, Riverside County, California 92555

Dear Mr. Ellisor:

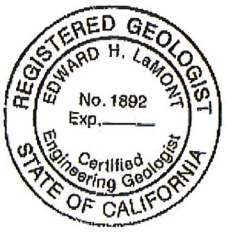
GEOTEK, INC. (GEOTEK) is pleased to present this Phase I Environmental Site Assessment for the above-referenced subject Site. Services were conducted in substantial conformance with the scope and limitations of the American Society of Testing and Materials E 1527-13, "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process,*" which is approved to meet the requirements of the federal All Appropriate Inquiries (AAI) standards as set forth in the Code of Federal Regulations, Title 40, Section 312 (40 CFR 312), and GEOTEK'S Proposal No. P3-0105714, dated January 29, 2014.

This Phase I Environmental Site Assessment has not revealed evidence of a recognized environmental condition or concern in connection with the subject Site.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

We appreciate this opportunity to be of service. If you have any questions, or if we can be of further service, please contact us at (951) 710-1160.

Sincerely,
GEOTEK, INC.



Edward H. LaMont
Engineering Geologist, CEG 1892

Anna M. Scott
Project Geologist

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 1
2.0 INTRODUCTION 3
2.1 PURPOSE 3
2.2 SCOPE OF WORK 3
2.3 SIGNIFICANT ASSUMPTIONS 4
2.4 LIMITATIONS AND EXCEPTIONS 4
2.5 SPECIAL TERMS AND CONDITIONS 5
2.6 RELIANCE 5
3.0 DESCRIPTION OF SITE AND SURROUNDING AREA 6
3.1 SITE LOCATION AND LEGAL DESCRIPTION 6
3.2 SITE AND VICINITY GENERAL CHARACTERISTICS 6
3.3 CURRENT PROPERTY USE 6
3.4 SITE IMPROVEMENTS 6
3.4.1 HAZARDOUS SUBSTANCES 6
3.4.2 STORAGE TANKS 7
3.4.3 POLY-CHLORINATED BIPHENYLS (PCBS) 7
3.4.4 CONTROLLED SUBSTANCES 7
3.4.5 INDICATIONS OF SOLID WASTE DISPOSAL 7
3.4.6 UTILITY SUPPLY 7
3.4.7 DRAINAGE 7
3.4.8 OTHER CONDITIONS OF CONCERN 8
3.4.9 INTERVIEWS 8
3.5 CURRENT ADJOINING PROPERTY USE 8
4.0 CLIENT PROVIDED INFORMATION 9
4.1 ENVIRONMENTAL CLEAN UP LIENS 9
4.2 ACTIVITY AND USE LIMITATIONS 9
4.3 SPECIALIZED KNOWLEDGE 9
4.4 PURCHASE PRICE 9
4.5 COMMONLY KNOWN INFORMATION 9
4.6 OBVIOUS INDICATORS OF CONTAMINATION 9
4.7 OWNER, PROPERTY MANAGER AND OCCUPANT INFORMATION 10
4.8 REASON FOR PERFORMING PHASE I ESA 10
4.9 OTHER USER PROVIDER INFORMATION 10
5.0 PROPERTY PHYSICAL SETTING 11
5.1 REGIONAL GEOLOGY 11
5.2 LOCAL GEOLOGIC SETTING AND TOPOGRAPHY 11

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS

5.3 VICINITY SURFACE DRAINAGE 11
5.4 HYDROGEOLOGY 12
6.0 ENVIRONMENTAL REGULATORY RECORDS REVIEW 13
6.1 ENVIRONMENTAL DATABASE RECORDS SEARCH 13
6.2 DISCUSSION OF REGULATORY RECORDS 14
6.2.1 NATIONAL PRIORITY LIST 14
6.2.2 COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY INFORMATION SYSTEM LIST 15
6.2.3 RESOURCE CONSERVATION AND RECOVERY ACT 15
6.2.4 EMERGENCY RESPONSE NOTIFICATION SYSTEM 16
6.2.5 FEDERAL INSTITUTIONAL CONTROL/ENGINEERING CONTROL REGISTRIES 16
6.2.6 STATE RESPONSE SITES 16
6.2.7 ENVIROSTOR DATABASE 16
6.2.8 CALIFORNIA HAZARDOUS MATERIAL INCIDENT REPORT SYSTEM 17
6.2.9 SOLID WASTE FACILITIES LIST 17
6.2.10 LEAKING UNDERGROUND STORAGE TANKS LIST 17
6.2.11 UNDERGROUND STORAGE TANKS LIST 17
6.2.12 SPILLS, LEAKS, INVESTIGATION AND CLEANUP COST RECOVERY LISTING (SLIC) 18
6.2.13 STATE INSTITUTIONAL CONTROL/ENGINEERING CONTROL REGISTRIES 18
6.2.14 TRIBAL DATABASES 18
6.2.15 DRY CLEANERS 18
6.2.16 VAPOR ENCROACHMENT SCREEN 19
6.3 LOCAL REGULATORY AGENCY RECORDS 19
7.0 SITE AND SURROUNDING AREA HISTORY 20
7.1 HISTORICAL SITE USAGE 20
7.1.1 AERIAL PHOTOGRAPH REVIEW 20
7.1.2 TOPOGRAPHIC MAP REVIEW 20
7.1.3 BUILDING DEPARTMENT RECORDS 20
7.1.4 CITY DIRECTORY REVIEW 21
7.1.5 SANBORN MAP REVIEW 21
7.1.6 CHAIN OF TITLE 21
7.2 HISTORICAL IMMEDIATELY SURROUNDING PROPERTY USAGE 21
7.2.1 AERIAL PHOTOGRAPH REVIEW 21
7.2.2 TOPOGRAPHIC MAP REVIEW 22
7.2.3 CITY DIRECTORIES 22
7.2.4 SANBORN MAP REVIEW 22

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS

7.3 HISTORICAL USE SUMMARY 22
8.0 SIGNIFICANT DATA GAPS 24
9.0 CONCLUSIONS AND RECOMMENDATIONS 25
10.0 CERTIFICATIONS 26
11.0 REFERENCES 27

LIST OF APPENDICES

Appendix A: Figures
Appendix B: Supporting Documents
Appendix C: Photographs
Appendix D: Environmental Database Report
Appendix E: Project Team Qualifications

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

1.0 EXECUTIVE SUMMARY

GEOTEK, INC. (GEOTEK) has performed a Phase I Environmental Site Assessment (ESA) for the subject property: APN 478-080-013 (the "Site"), located northwest of the intersection of Brodiaea Avenue and Quincy Street in the City of Moreno Valley, Riverside County, California. Our services were conducted in substantial conformance with the scope and limitations of the American Society of Testing and Materials (ASTM) E 1527-13, "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*", which is approved to meet the requirements of the federal All Appropriate Inquiries (AAI) standards as set forth in the Code of Federal Regulations, Title 40, Section 312 (40 CFR 312), and GEOTEK Proposal No. P3-0105714, dated January 29, 2014. Any additions or deletions from our scope of services are discussed in the appropriate sections of this assessment.

A representative of GEOTEK conducted a Site reconnaissance on February 23, 2014. The weather was generally warm and the sky was clear. The square shaped Site consists of one (1) parcel of land [Assessor Parcel Number (APN) 478-080-013] and encompasses a total of approximately nine (9) acres. The Site can generally be accessed from Brodiaea Avenue. The Site is predominantly vacant and undeveloped land.

The Site is in an area largely characterized by vacant land and/or residential development. Brodiaea Avenue followed by residential development and vacant land bounds the Site to the south. Vacant land bounds the Site to the north, west and east. Visual evidence of hazardous substances or wastes was not generally observed. No pungent or acrid odors were observed emanating from the Site.

Based on readily available historic information, the site appears to be utilized for agriculture in the in the 1938 aerial photograph. The site is vacant land from at least 1953 to present. The surrounding properties appear to have been vacant land, utilized for agriculture or residential from at least 1938 to present.

The Site does not appear on the environmental database report obtained for this assessment. No adjacent properties appear on the database report. There is one (1) facility listed on the database report within the various search distances specified by ASTM E 1527-13. This facility is not considered to represent a recognized environmental condition to the Site due to the facility status.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

This Phase I Environmental Site Assessment has not revealed evidence of a recognized environmental condition or concern in connection with the subject Site.

This executive summary does not contain all the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided and to aid in any decisions made or actions taken based on this information.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2.0 INTRODUCTION

GEOTEK, INC. (GEOTEK) has performed a Phase I Environmental Site Assessment (ESA) for APN 478-080-013 (the "Site"), located in the City of Moreno Valley, Riverside County, California.

2.1 PURPOSE

The purpose of this Phase I ESA was to identify and evaluate actual and potential environmental conditions involving the subject Site. It was not the purpose of this assessment to determine the degree or extent of contamination, if any, but rather the potential for contamination.

2.2 SCOPE OF WORK

The Phase I ESA is a general characterization of environmental concerns based on reasonably ascertainable information and observations. GEOTEK performed the Phase I ESA in substantial accordance with ASTM E 1527-13. The following services were provided for the assessment:

- A reconnaissance of the Site and surrounding properties was conducted to visually assess current utilization and indications of potential surface contamination. This was accomplished by driving the Site boundaries, and then traversing the Site until the entire Site had been surveyed.

- A reconnaissance of the surrounding area for approximately one-half mile was conducted, without entering the properties, making observations concerning property uses, conditions, and housekeeping.

- A review of the geologic and hydrogeologic settings was conducted using reasonably ascertainable public records and documents.

- An environmental database report was obtained from a data service provider. This database report compiles and locates documented "hazardous waste" facilities within specific minimum search distances as defined by ASTM E 1527-13. If necessary, additional information on identified facilities was gathered by a file review at the appropriate federal, state, local, and/or tribal regulatory agency.

- A review of reasonably ascertainable historical records (including aerial photographs, topographic maps, building records, and city directories) was conducted to assess the

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

historical land utilization and indications of potential contamination or sources of contamination for the Site.

- This report was prepared, which relates the findings of this study and presents our conclusions and recommendations.

Specific items not included in this Scope of Services are soil analysis, water analysis, asbestos containing materials analysis, radon analysis, lead-based paint analysis, lead in drinking water, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, vapor intrusion, high voltage power lines, and other items not within the scope of ASTM E 1527-13.

2.3 SIGNIFICANT ASSUMPTIONS

Specific assumptions by GEOTEK for this assessment include:

- GEOTEK had permission to access the Site area vicinity;
- The client has provided GEOTEK with available geotechnical or environmental reports for the Site;
- The client has provided GEOTEK with known current or historic uses of hazardous materials at the Site, or with other specialized knowledge of the environmental history of the Site and surrounding area.

2.4 LIMITATIONS AND EXCEPTIONS

GEOTEK conducted a Phase I Environmental Site Assessment in substantial accordance with ASTM E 1527-13 and as authorized by Frontier Enterprises. This study does not include sampling of soil, groundwater and/or the debris on-site for environmental testing. This report is intended for the use of Frontier Enterprises. The contents should not be relied upon by any party other than the aforementioned without the express written consent of GEOTEK.

The findings, conclusions, and recommendations made in this report are based on the information that was made available to GEOTEK, in most instances from public records. The information is relevant to the date of our site work and should not be relied on to represent conditions at any later date. The opinions and conclusions expressed herein are based on information obtained during our assessment and on our experience and current standards of technical practice. GEOTEK makes no other warranties, either express or implied, concerning the completeness of the data furnished to us. GEOTEK cannot be responsible for conditions or

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time our assessment was undertaken. GEOTEK is not responsible, nor liable for work, testing or recommendations performed or provided by others. This Phase I Environmental Site Assessment is not and should not be construed as a warranty or guarantee about the presence or absence of environmental hazards or contaminants, which may affect the subject site. Facts, conditions, and acceptable risk factors change with time; accordingly, this report should be viewed within this context.

Specific limitations to the scope of ASTM E 1527-13 due to contract limitations, availability of resources, and/or encountered Site conditions are discussed in the appropriate section(s) of this report.

2.5 SPECIAL TERMS AND CONDITIONS

This assessment report is presented as fulfilling the standard requirements of most financial institutions, governmental regulatory agencies, ASTM, and generally accepted industry standards and practices. Please refer to GEOTEK Proposal No. P3-0105714 for complete terms and conditions for this assessment.

2.6 RELIANCE

This assessment has been prepared for the exclusive use, and may be relied upon by, Frontier Enterprises and its successors and assignees. Third party reliance letters may be issued upon request and upon the payment of the, then current, fee for such letters. All third parties relying on this report, by such reliance, agree to be bound by the General Conditions and Limitations agreed to Frontier Enterprises. No reliance by any party is permitted without such agreement, regardless of the content of the reliance letter itself.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3.0 DESCRIPTION OF SITE AND SURROUNDING AREA

The objective of describing the Site and surrounding area is to document current conditions as observed and to obtain information which would indicate the likelihood of a recognized environmental condition in connection with the Site. A representative of GEOTEK conducted a Site reconnaissance on February 23, 2014. The weather was generally warm with clear skies. The Site can generally be accessed from Brodiaea Avenue.

3.1 SITE LOCATION AND LEGAL DESCRIPTION

The Site is located northwest of the intersection of Brodiaea Avenue and Quincy Street in the City of Moreno Valley, Riverside County, California. According to the U.S. Geological Survey (USGS) Sunnymead Quadrangle topographic map (7.5-minute series), the Site is located in Section 14, Township 3 South, Range 3 West, San Bernardino Baseline and Meridian (see Figure 1 in Appendix A). The Riverside County Assessor Parcel Number (APN) is 478-080-013. Additional legal descriptions for the Site are included in Appendix B, as obtained from the Riverside County Land Information System website (RCLIS) (http://www3.tlma.co.riverside.ca.us/pa/rclis/index.html).

3.2 SITE AND VICINITY GENERAL CHARACTERISTICS

The Site is in an area largely characterized by vacant land and/or residential development.

3.3 CURRENT PROPERTY USE

The Site is predominantly vacant and undeveloped land.

3.4 SITE IMPROVEMENTS

The Site is predominantly vacant and undeveloped land. A gas line is located within Brodiaea Avenue adjacent the Site.

3.4.1 HAZARDOUS SUBSTANCES

GEOTEK did not observe any obvious hazardous substances or wastes on the subject property. No significant stains or discolored soil were observed. No pungent or acrid odors were observed emanating from the Site.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3.4.2 Storage Tanks

GeoTek did not observe evidence of underground or above-ground storage tanks (such as vent pipes, fill pipes, regular-shaped depressions, etc.) on the Site.

3.4.3 Poly-Chlorinated Biphenyls (PCBs)

GeoTek did not observe any suspect equipment (transformers, elevators, trash compactors, etc.), which may contain PCBs on the Site.

3.4.4 Controlled Substances

GeoTek consulted the U.S. Drug Enforcement Agency (DEA) website to cross-check the Site address against published facilities subject to DEA enforcement. The Site did not appear on the list of published facilities. A copy of the DEA printout is included in Appendix B.

GeoTek did not observe evidence of illegal or controlled substances being used or manufactured at the Site.

3.4.5 Indications of Solid Waste Disposal

Waste disposal for the Site area is provided by Waste Management.

3.4.6 Utility Supply

Electricity services for the Site area are provided by Southern California Edison. Water and sewer services for the Site area are provided by the Eastern Municipal Water District. Natural gas is provided for the Site area by Southern California Gas.

3.4.7 Drainage

Natural drainage at the Site is generally interpreted to be toward the south, conforming to the natural topography in the area. Standing water was not observed on the Site on the date of our reconnaissance.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3.4.8 Other Conditions of Concern

No visual indication of other conditions of concern that would indicate a recognized environmental condition was observed during the Site reconnaissance.

3.4.9 Interviews

GeoTek interviewed the following individual while performing this assessment, in the form of completing a *User Questionnaire*:

- Mr. Lonnie Ellisor (a representative of Frontier Enterprises) completed the User Questionnaire.

Information from this interview is incorporated into the appropriate sections of this report.

3.5 CURRENT ADJOINING PROPERTY USE

The Site is in an area largely characterized by vacant land and/or residential development. Brodiaea Avenue followed by residential development and vacant land bounds the Site to the south. Vacant land bounds the Site to the north, west and east.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

4.0 CLIENT PROVIDED INFORMATION

As a form of interview, a representative of future Site ownership completed a "User Questionnaire" for the Site in accordance with ASTM E 1527-13. A copy of the completed questionnaire is included in Appendix B.

4.1 ENVIRONMENTAL CLEAN UP LIENS

Mr. Lonnie Ellisor is not aware of any environmental clean-up liens at the Site.

4.2 ACTIVITY AND USE LIMITATIONS

Mr. Lonnie Ellisor is not aware of an activity use limitations at the Site.

4.3 SPECIALIZED KNOWLEDGE

Mr. Lonnie Ellisor states that he has no specialized knowledge regarding the Site or adjacent properties.

4.4 PURCHASE PRICE

Mr. Lonnie Ellisor has indicated that the purchase price being paid for the Site reasonably reflects the fair market value of the Site.

4.5 COMMONLY KNOWN INFORMATION

Mr. Lonnie Ellisor is not aware of commonly known or reasonably ascertainable information regarding the Site.

4.6 OBVIOUS INDICATORS OF CONTAMINATION

Mr. Lonnie Ellisor is not aware of obvious indicators of a likely environmental impact at the Site.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

4.7 Owner, Property Manager and Occupant Information

It is our understanding that Canterbury Lots – 68, LLC is the current owner and property manager of the Site. No occupant information is available as the Site is unoccupied/vacant.

4.8 Reason for Performing Phase I ESA

This Phase I ESA was performed at the request of Frontier Enterprises.

4.9 Other User Provider Information

GeoTek was not provided with any other information for the Site by Frontier Enterprises.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.0 PROPERTY PHYSICAL SETTING

Surface and subsurface environments are of interest because they control the movement of water-born contaminants, which could be transported to and from the subject Site. GEOTEK reviewed information regarding the physical setting of the subject Site and immediately surrounding area.

5.1 REGIONAL GEOLOGY

The subject property is situated in the Peninsular Ranges geomorphic province. The Peninsular Ranges province is one of the largest geomorphic units in western North America. Basically, it extends roughly 975 miles from the north and northeasterly adjacent the Transverse Ranges geomorphic province to the tip of Baja California. This province varies in width from about 30 to 100 miles. It is bounded on the west by the Pacific Ocean, on the south by the Gulf of California and on the east by the Colorado Desert Province.

The Peninsular Ranges are essentially a series of northwest-southeast oriented fault blocks. Three major fault zones are found in this province. The Elsinore Fault zone and the San Jacinto Fault zones trend northwest-southeast and are found in the near the middle of the province. The San Andreas Fault zone borders the northeasterly margin of the province.

5.2 LOCAL GEOLOGIC SETTING AND TOPOGRAPHY

The Site and Site area are underlain by and older alluvial deposits. Additional data regarding soil survey information for the Site and Site area is also included in Appendix B. The Site area can be considered as having relatively flat terrain.

Based on the USGS topographic map for the area and documents reviewed for this assessment, the elevation of the subject Site ranges from approximately 1,592 to 1,600 feet above mean sea level (see Figure 1, Appendix A).

5.3 VICINITY SURFACE DRAINAGE

Natural drainage at the Site is interpreted to be dominantly directed toward the south, conforming to the natural topography in the area. Storm water runoff from the adjacent properties to the north may drain toward the Site due to the lack of improvements. Storm water runoff from the remaining adjacent properties do not appear to drain toward the Site.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

According to the Federal Emergency Management Agency (FEMA), the Site is located within a 100- and a 500-year flood plain (see Appendix D).

5.4 HYDROGEOLOGY

According to a review of historical groundwater data (California Department of Water Resources and California State Water Resources Control Board groundwater well data [http://wdl.water.ca.gov and http://geotracker.waterboards.ca.gov]) and in-house information, depth to groundwater is greater than 50 feet below ground surface in the general Site area with a flow direction to the south.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

6.0 ENVIRONMENTAL REGULATORY RECORDS REVIEW

The records review is conducted to help identify known recognized environmental conditions at the Site and/or on adjacent or nearby properties which may have impacted the subject Site.

6.1 ENVIRONMENTAL DATABASE RECORDS SEARCH

GEOTEK obtained and reviewed an environmental database report of the federal and state environmental records specified by ASTM E 1527-13. The database report was provided by Environmental Data Resources, Inc. (EDR) of Milford, Connecticut. Additionally, orphan or un-mappable sites listed by EDR were reviewed for the approximate minimum search distances noted and included in our discussion, if applicable. Refer to Appendix D for a copy of the database report.

ENVIRONMENTAL DATABASE	MINIMUM SEARCH DISTANCE	SITE	ADJACENT	TOTAL LISTED
U.S. Environmental Protection Agency (USEPA) - National Priorities List (NPL), including delisted NPL	1.0 Mile	No	0	0
USEPA - Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), including NFRAP[i] sites	0.5 Mile	No	0	0
USEPA – Resource Conservation and Recovery Act (RCRA), Corrective Action Facilities (CORRACTS)	1.0 Mile	No	0	0
USEPA – RCRA, Transportation, Storage, and Disposal facilities (TSD)	0.5 Mile	No	0	0
USEPA - RCRA Generators	Site and Adjacent	No	0	0
USEPA – Emergency Response Notification System (ERNS)	Site	No	N/A	0
Federal institutional control/engineering control registries	0.5 Mile	No	0	0
California Environmental Protection Agency (CEPA) – State Response Sites (SRS, formerly Annual Work Plan and Bond Expenditure Plan)	1.0 Mile	No	0	0

[i] NFRAP = "No Further Remedial Action Planned"

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ENVIRONMENTAL DATABASE	MINIMUM SEARCH DISTANCE	SITE	ADJACENT	TOTAL LISTED
CEPA – EnviroStor Database (formerly CALSITES)	0.5 Mile	No	0	1
CEPA – CHMIRS - California Hazardous Materials Information Reporting System	Site	No	No	0
CEPA - Solid Waste Fill/Landfill (SWF/LF), Solid Waste Assessment Test (SWAT)/Waste Management Unit Database System (WMUDS)	0.5 Mile	No	0	0
CEPA – Leaking Underground Storage Tanks (LUST)	0.5 Mile	No	0	0
CEPA – Underground Storage Tanks (UST), including historic USTs	Site and Adjacent	No	0	0
CEPA – Spills, Leaks, Investigations & Cleanup Cost Recovery Listing (SLIC)	0.5 Mile	No	0	0
State institutional control/engineering control registries	Site	No	N/A	0
Local and/or Tribal databases	Up To 1.0 Mile	No	0	0

N/A – Not Applicable

6.2 Discussion of Regulatory Records

6.2.1 National Priority List

The National Priority List (NPL) is the EPA's list of confirmed or proposed Superfund sites. Our review of this data includes sites which have been delisted from the NPL. The NPL is searched for a 1.0 mile distance.

The Site does not appear on the NPL. There no facilities on the NPL within 1.0 mile of the Site.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

6.2.2 Comprehensive Environmental Response, Compensation, and Liability Information System List

The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) is a compilation of sites that the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances. Our review of CERCLIS sites includes No Further Remedial Action Planed (NFRAP) facilities. The CERCLIS list is searched for a 0.5 mile distance.

The Site does not appear on the CERCLIS list. There are no facilities on the CERCLIS list within 0.5 mile of the Site.

6.2.3 Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act compile selective information on facilities which generate, transport, store, treat and or dispose of hazardous waste. RCRA facilities can be listed on one of three databases:

- *Corrective Action Facilities (CORRACTS)* are facilities undergoing corrective action. A corrective action order is issued pursuant to RCRA Section 3008(h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. The CORRACTS list is searched for a 1.0 mile distance.

  The Site does not appear on the CORRACTS list. There are no facilities on the CORRACTS list within 1.0 mile of the Site.

- *Transportation, Storage, and Disposal Facilities (TSD)* includes facilities that transport, store or dispose of hazardous waste and are not listed on the RCRA Generators list. The TSD is searched for a 0.5 mile distance.

  The Site does not appear on the RCRA TSD list. There are no facilities on the RCRA TSD list within 0.5 mile of the Site.

- *Generators List* identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Generators database is a compilation by the EPA of reporting facilities that generate hazardous waste. The RCRA generators list is searched for the Site and adjacent properties.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

The Site is not listed on the RCRA Generators list. There are no adjacent facilities listed as a RCRA Generator.

6.2.4 Emergency Response Notification System

The Emergency Response Notification System (ERNS) is a national database used to collect information on reported releases of oil or hazardous substances. The ERNS list is searched for the Site. The Site does not appear on the ERNS list.

6.2.5 Federal Institutional Control/Engineering Control Registries

The USEPA maintains two databases which list sites that have institutional and/or engineering controls in place as part of their operations. These databases are searched for the Site. The Site does not appear on either of these databases.

6.2.6 State Response Sites

The State Response Sites (SRS) records are the state equivalent to the federal National Priorities List (NPL) database. The SRS is searched for a 1.0-mile distance.

The Site does not appear on the on the SRS. There were no SRS facilities listed within a 1.0-mile distance of the Site.

6.2.7 EnviroStor Database

The EnviroStor Database (EnviroStor, formerly CALSITES) records are the state equivalent to the federal CERCLIS database. EnviroStor is searched for a 1.0 mile distance.

The Site does not appear on the EnviroStor database.

There us one (1) EnviroStor facility listed within a 1.0 mile distance of the Site. The facility is listed as Proposed Bay Avenue – Wilmot Street School Site, located at SW Corner Bay Avenue and Wilmot Street. The facility is listed as being located 0.25 to 0.5 (0.369) mile northeast of the Site. The facility status is listed as "no further action". Due to the facility status, this facility does not represent an environmental concern to the Site.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

6.2.8 California Hazardous Material Incident Report System

The California Hazardous Material Incident Report Systems (CHMIRS) is a state database used to collect information on reported hazardous materials incidents (accidental leaks and spills). The CHMIRS list is searched for a 0.25-mile distance.

The Site does not appear on the CHMIRS list. There are no CHMIRS facilities located within 0.25 mile of the Site.

6.2.9 Solid Waste Facilities List

The Solid Waste Fill/Landfill (SWF/LF), Solid Waste Assessment Test (SWAT) and Waste Management Unit Database System (WMUDS) databases includes information pertaining to closed and open solid waste facilities operating in the state of California. The SWF/LF, SWAT and WMUDS databases are searched for a 0.5-mile distance.

The Site does not appear on the SWF/LF, SWAT or WMUDS lists. There are no facilities on the SWF/LF, SWAT or WMUDS lists within 0.5-mile of the subject Site.

6.2.10 Leaking Underground Storage Tanks List

The California Leaking Underground Storage Tanks (LUST) list is a compilation of petroleum storage tank sites that have reported a release. The LUST list is searched for a 0.5 mile distance.

The Site did not appear on the LUST list. There are no nearby facilities listed as being on the LUST list within 0.5 mile of the Site.

6.2.11 Underground Storage Tanks List

The California Underground Storage Tank (UST) list is a compilation of petroleum storage tank sites that are registered with the state of California. The UST list is searched for the Site and adjacent properties.

The Site did not appear on the UST list. There are no facilities listed on the UST or HIST UST list within 0.25 mile of the Site.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

6.2.12 Spills, Leaks, Investigation and Cleanup Cost Recovery Listing (SLIC)

The SLIC database is compiled by the CEPA California Regional Water Quality Control Board, San Diego Region. It is designed to protect and restore water quality from spills, leaks, and similar discharges. The SLIC is searched for a 0.5 mile distance.

The Site does not appear on the SLIC. There are no SLIC facilities listed within a 0.5-mile distance of the Site.

6.2.13 State Institutional Control/Engineering Control Registries

The State of California maintains institutional and engineering control databases or registries. This lists sites with engineering or institutional controls in place. Institutional controls include administrative measures intended to prevent exposure to contaminants remaining on site. Engineering controls include various forms of caps, building foundations, liners, and treatment methods. The State Institutional Control/Engineering Control Registries is searched for the Site.

The subject Site does not appear on the State Institutional Control/Engineering Control Registries.

6.2.14 Tribal Databases

Tribal governments are under the jurisdiction of the USEPA for environmental concerns. Currently, the USEPA Region 9 publishes LUST and UST information for tribes in Arizona, California, Hawaii, Nevada, and the Pacific Territories. The LUST database is searched for 0.5 mile, and the UST database is searched for 0.25 mile.

The Site does not appear on the Tribal LUST or UST databases. No facilities were identified on the Tribal LUST or UST databases within 0.5 mile of the Site.

6.2.15 Dry Cleaners

The DRYCLEANERS list is compiled and provided by EDR. The DRYCLEANER database is searched for a 0.25 mile distance.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

The Site does not appear on the DRYCLEANER list. There are no DRYCLEANER facilities listed within 0.25 mile of the Site.

6.2.16 Vapor Encroachment Screen

The purpose of a Vapor Encroachment Screen (VES) is to identify, to the extent feasible, if a vapor encroachment condition exists at the Site.

A Vapor Encroachment Screen Report was generated for the Site and Site area utilizing EDR's Vapor Encroachment Worksheet (see Appendix B). It was determined that there are no historical dry cleaners or gas stations located within 600 feet and/or up gradient from the Site.

6.3 Local Regulatory Agency Records

GeoTek contacted the City of Moreno Valley Fire Department and the City of Moreno Valley Police Department regarding underground or above ground storage tanks, hazardous materials permits or business plans, emergency responses, spills, inspections, or other information of an environmental or hazardous nature.

No information was available from either department as the Site has no associated address.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

7.0 SITE AND SURROUNDING AREA HISTORY

In order to construct the history of the Site and the surrounding area, GEOTEK reviewed reasonably ascertainable public documents, including aerial photographs, topographic maps, building records, city directories, fire insurance maps, and county assessor history records.

7.1 HISTORICAL SITE USAGE

7.1.1 AERIAL PHOTOGRAPH REVIEW

GEOTEK reviewed aerial photographs dated 1938, 1953, 1967, 1970, 1989, 1994, 2002, 2005, 2006, 2009, 2010 and 2012 (see Appendix B).

In the 1938 aerial photograph, the Site appears to be utilized for agricultural purposes.

In the 1953, 1967, 1970, 1989, 1994, 2002, 2005, 2006, 2009, 2010 and 2012 aerial photographs, the Site is vacant land.

7.1.2 TOPOGRAPHIC MAP REVIEW

GEOTEK reviewed the Elsinore Quadrangle (30-minute series), dated 1901; the Southern California Sheet 1 Quadrangle (60-minute series), dated 1901; the Perris Quadrangle (15-minute series), dated 1943; the Sunnymead Quadrangle (7.5-minute series), dated 1953; the Sunnymead Quadrangle (7.5-minute series), dated 1967; the Sunnymead Quadrangle (7.5-minute series), dated 1973; and the Sunnymead Quadrangle (7.5-minute series), dated 1980 (see Appendix B).

The Site appears to be vacant land on all of the topographic map sheets reviewed.

7.1.3 BUILDING DEPARTMENT RECORDS

Building department records were not reviewed as part of this assessment as the Site currently has no associated address and the Site is currently vacant.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

7.1.4 City Directory Review

City directories were not reviewed as part of this assessment as the Site has no associated address, the Site is currently vacant and the surrounding properties are generally vacant land or residential development.

7.1.5 Sanborn Map Review

Sanborn Fire Insurance Maps for the parcel were requested from EDR-Sanborn, which owns and maintains the largest and most complete collection of the maps. No coverage for the Site was available. The Sanborn Map Report is included in Appendix B.

7.1.6 Chain of Title

GeoTek obtained a Preliminary Chain-of-Title report from Frontier Enterprises.

No environmental liens or activity use limitations were discovered for this assessment.

A copy of the Preliminary Chain-of-Title report is included in Appendix B.

7.2 Historical Immediately Surrounding Property Usage

7.2.1 Aerial Photograph Review

GeoTek reviewed aerial photographs dated 1938, 1953, 1967, 1970, 1989, 1994, 2002, 2005, 2006, 2009, 2010 and 2012 (see Appendix B).

In the 1938 aerial photograph, the properties to the west, east and south are vacant land. The property to the north is utilized for agriculture.

In the 1953 aerial photograph, the surrounding properties are vacant land.

In the 1967, 1970, 1989, 1994 and 2002 aerial photographs, structures can be observed on the property to the west. The properties to the north, east and south remain vacant land.

In the 2005 aerial photograph, a residential development can be observed to the south of the Site. The properties to the north and east remain vacant land.

Attachment: Phase 1 ESA Geotek 3-3-14 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

PHASE I ENVIRONMENTAL SITE ASSESSMENT
APN 478-080-013
MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA 92555

March 3, 2014

Project No. 1132-CR3

Prepared For:

Frontier Enterprises
8300 Utica Avenue, Suite 300
Rancho Cucamonga, California 91730

GEOTEK

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.
710 E. Parkridge Avenue, Suite 105, Corona, California 92879-1097
(951) 710-1160 Office (951) 710-1167 Fax www.geotekusa.com

March 3, 2014
Project No. 1132-CR3

Frontier Enterprises
8300 Utica Avenue, Suite 300
Rancho Cucamonga, California 91730

Attention: Mr. Lonnie Ellisor

Subject: Phase I Environmental Site Assessment
APN 478-080-013
Moreno Valley, Riverside County, California 92555

Dear Mr. Ellisor:

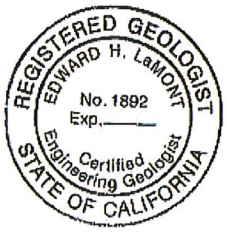
GEOTEK, INC. (GEOTEK) is pleased to present this Phase I Environmental Site Assessment for the above-referenced subject Site. Services were conducted in substantial conformance with the scope and limitations of the American Society of Testing and Materials E 1527-13, "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process,*" which is approved to meet the requirements of the federal All Appropriate Inquiries (AAI) standards as set forth in the Code of Federal Regulations, Title 40, Section 312 (40 CFR 312), and GEOTEK'S Proposal No. P3-0105714, dated January 29, 2014.

This Phase I Environmental Site Assessment has not revealed evidence of a recognized environmental condition or concern in connection with the subject Site.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

We appreciate this opportunity to be of service. If you have any questions, or if we can be of further service, please contact us at (951) 710-1160.

Sincerely,
GEOTEK, INC.



Edward H. LaMont
Engineering Geologist, CEG 1892

Anna M. Scott
Project Geologist

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 1
2.0 INTRODUCTION 3
2.1 PURPOSE 3
2.2 SCOPE OF WORK 3
2.3 SIGNIFICANT ASSUMPTIONS 4
2.4 LIMITATIONS AND EXCEPTIONS 4
2.5 SPECIAL TERMS AND CONDITIONS 5
2.6 RELIANCE 5
3.0 DESCRIPTION OF SITE AND SURROUNDING AREA 6
3.1 SITE LOCATION AND LEGAL DESCRIPTION 6
3.2 SITE AND VICINITY GENERAL CHARACTERISTICS 6
3.3 CURRENT PROPERTY USE 6
3.4 SITE IMPROVEMENTS 6
3.4.1 HAZARDOUS SUBSTANCES 6
3.4.2 STORAGE TANKS 7
3.4.3 POLY-CHLORINATED BIPHENYLS (PCBS) 7
3.4.4 CONTROLLED SUBSTANCES 7
3.4.5 INDICATIONS OF SOLID WASTE DISPOSAL 7
3.4.6 UTILITY SUPPLY 7
3.4.7 DRAINAGE 7
3.4.8 OTHER CONDITIONS OF CONCERN 8
3.4.9 INTERVIEWS 8
3.5 CURRENT ADJOINING PROPERTY USE 8
4.0 CLIENT PROVIDED INFORMATION 9
4.1 ENVIRONMENTAL CLEAN UP LIENS 9
4.2 ACTIVITY AND USE LIMITATIONS 9
4.3 SPECIALIZED KNOWLEDGE 9
4.4 PURCHASE PRICE 9
4.5 COMMONLY KNOWN INFORMATION 9
4.6 OBVIOUS INDICATORS OF CONTAMINATION 9
4.7 OWNER, PROPERTY MANAGER AND OCCUPANT INFORMATION 10
4.8 REASON FOR PERFORMING PHASE I ESA 10
4.9 OTHER USER PROVIDER INFORMATION 10
5.0 PROPERTY PHYSICAL SETTING 11
5.1 REGIONAL GEOLOGY 11
5.2 LOCAL GEOLOGIC SETTING AND TOPOGRAPHY 11

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS

5.3 VICINITY SURFACE DRAINAGE 11
5.4 HYDROGEOLOGY 12
6.0 ENVIRONMENTAL REGULATORY RECORDS REVIEW 13
6.1 ENVIRONMENTAL DATABASE RECORDS SEARCH 13
6.2 DISCUSSION OF REGULATORY RECORDS 14
6.2.1 NATIONAL PRIORITY LIST 14
6.2.2 COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY INFORMATION SYSTEM LIST 15
6.2.3 RESOURCE CONSERVATION AND RECOVERY ACT 15
6.2.4 EMERGENCY RESPONSE NOTIFICATION SYSTEM 16
6.2.5 FEDERAL INSTITUTIONAL CONTROL/ENGINEERING CONTROL REGISTRIES 16
6.2.6 STATE RESPONSE SITES 16
6.2.7 ENVIROSTOR DATABASE 16
6.2.8 CALIFORNIA HAZARDOUS MATERIAL INCIDENT REPORT SYSTEM 17
6.2.9 SOLID WASTE FACILITIES LIST 17
6.2.10 LEAKING UNDERGROUND STORAGE TANKS LIST 17
6.2.11 UNDERGROUND STORAGE TANKS LIST 17
6.2.12 SPILLS, LEAKS, INVESTIGATION AND CLEANUP COST RECOVERY LISTING (SLIC) 18
6.2.13 STATE INSTITUTIONAL CONTROL/ENGINEERING CONTROL REGISTRIES 18
6.2.14 TRIBAL DATABASES 18
6.2.15 DRY CLEANERS 18
6.2.16 VAPOR ENCROACHMENT SCREEN 19
6.3 LOCAL REGULATORY AGENCY RECORDS 19
7.0 SITE AND SURROUNDING AREA HISTORY 20
7.1 HISTORICAL SITE USAGE 20
7.1.1 AERIAL PHOTOGRAPH REVIEW 20
7.1.2 TOPOGRAPHIC MAP REVIEW 20
7.1.3 BUILDING DEPARTMENT RECORDS 20
7.1.4 CITY DIRECTORY REVIEW 21
7.1.5 SANBORN MAP REVIEW 21
7.1.6 CHAIN OF TITLE 21
7.2 HISTORICAL IMMEDIATELY SURROUNDING PROPERTY USAGE 21
7.2.1 AERIAL PHOTOGRAPH REVIEW 21
7.2.2 TOPOGRAPHIC MAP REVIEW 22
7.2.3 CITY DIRECTORIES 22
7.2.4 SANBORN MAP REVIEW 22

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS

7.3 HISTORICAL USE SUMMARY 22
8.0 SIGNIFICANT DATA GAPS 24
9.0 CONCLUSIONS AND RECOMMENDATIONS 25
10.0 CERTIFICATIONS 26
11.0 REFERENCES 27

LIST OF APPENDICES

Appendix A: Figures
Appendix B: Supporting Documents
Appendix C: Photographs
Appendix D: Environmental Database Report
Appendix E: Project Team Qualifications

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

1.0 EXECUTIVE SUMMARY

GEOTEK, INC. (GEOTEK) has performed a Phase I Environmental Site Assessment (ESA) for the subject property: APN 478-080-013 (the "Site"), located northwest of the intersection of Brodiaea Avenue and Quincy Street in the City of Moreno Valley, Riverside County, California. Our services were conducted in substantial conformance with the scope and limitations of the American Society of Testing and Materials (ASTM) E 1527-13, "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*", which is approved to meet the requirements of the federal All Appropriate Inquiries (AAI) standards as set forth in the Code of Federal Regulations, Title 40, Section 312 (40 CFR 312), and GEOTEK Proposal No. P3-0105714, dated January 29, 2014. Any additions or deletions from our scope of services are discussed in the appropriate sections of this assessment.

A representative of GEOTEK conducted a Site reconnaissance on February 23, 2014. The weather was generally warm and the sky was clear. The square shaped Site consists of one (1) parcel of land [Assessor Parcel Number (APN) 478-080-013] and encompasses a total of approximately nine (9) acres. The Site can generally be accessed from Brodiaea Avenue. The Site is predominantly vacant and undeveloped land.

The Site is in an area largely characterized by vacant land and/or residential development. Brodiaea Avenue followed by residential development and vacant land bounds the Site to the south. Vacant land bounds the Site to the north, west and east. Visual evidence of hazardous substances or wastes was not generally observed. No pungent or acrid odors were observed emanating from the Site.

Based on readily available historic information, the site appears to be utilized for agriculture in the in the 1938 aerial photograph. The site is vacant land from at least 1953 to present. The surrounding properties appear to have been vacant land, utilized for agriculture or residential from at least 1938 to present.

The Site does not appear on the environmental database report obtained for this assessment. No adjacent properties appear on the database report. There is one (1) facility listed on the database report within the various search distances specified by ASTM E 1527-13. This facility is not considered to represent a recognized environmental condition to the Site due to the facility status.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

This Phase I Environmental Site Assessment has not revealed evidence of a recognized environmental condition or concern in connection with the subject Site.

This executive summary does not contain all the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided and to aid in any decisions made or actions taken based on this information.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2.0 INTRODUCTION

GEOTEK, INC. (GEOTEK) has performed a Phase I Environmental Site Assessment (ESA) for APN 478-080-013 (the "Site"), located in the City of Moreno Valley, Riverside County, California.

2.1 PURPOSE

The purpose of this Phase I ESA was to identify and evaluate actual and potential environmental conditions involving the subject Site. It was not the purpose of this assessment to determine the degree or extent of contamination, if any, but rather the potential for contamination.

2.2 SCOPE OF WORK

The Phase I ESA is a general characterization of environmental concerns based on reasonably ascertainable information and observations. GEOTEK performed the Phase I ESA in substantial accordance with ASTM E 1527-13. The following services were provided for the assessment:

- A reconnaissance of the Site and surrounding properties was conducted to visually assess current utilization and indications of potential surface contamination. This was accomplished by driving the Site boundaries, and then traversing the Site until the entire Site had been surveyed.

- A reconnaissance of the surrounding area for approximately one-half mile was conducted, without entering the properties, making observations concerning property uses, conditions, and housekeeping.

- A review of the geologic and hydrogeologic settings was conducted using reasonably ascertainable public records and documents.

- An environmental database report was obtained from a data service provider. This database report compiles and locates documented "hazardous waste" facilities within specific minimum search distances as defined by ASTM E 1527-13. If necessary, additional information on identified facilities was gathered by a file review at the appropriate federal, state, local, and/or tribal regulatory agency.

- A review of reasonably ascertainable historical records (including aerial photographs, topographic maps, building records, and city directories) was conducted to assess the

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

historical land utilization and indications of potential contamination or sources of contamination for the Site.

- This report was prepared, which relates the findings of this study and presents our conclusions and recommendations.

Specific items not included in this Scope of Services are soil analysis, water analysis, asbestos containing materials analysis, radon analysis, lead-based paint analysis, lead in drinking water, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, vapor intrusion, high voltage power lines, and other items not within the scope of ASTM E 1527-13.

2.3 SIGNIFICANT ASSUMPTIONS

Specific assumptions by GEOTEK for this assessment include:

- GEOTEK had permission to access the Site area vicinity;
- The client has provided GEOTEK with available geotechnical or environmental reports for the Site;
- The client has provided GEOTEK with known current or historic uses of hazardous materials at the Site, or with other specialized knowledge of the environmental history of the Site and surrounding area.

2.4 LIMITATIONS AND EXCEPTIONS

GEOTEK conducted a Phase I Environmental Site Assessment in substantial accordance with ASTM E 1527-13 and as authorized by Frontier Enterprises. This study does not include sampling of soil, groundwater and/or the debris on-site for environmental testing. This report is intended for the use of Frontier Enterprises. The contents should not be relied upon by any party other than the aforementioned without the express written consent of GEOTEK.

The findings, conclusions, and recommendations made in this report are based on the information that was made available to GEOTEK, in most instances from public records. The information is relevant to the date of our site work and should not be relied on to represent conditions at any later date. The opinions and conclusions expressed herein are based on information obtained during our assessment and on our experience and current standards of technical practice. GEOTEK makes no other warranties, either express or implied, concerning the completeness of the data furnished to us. GEOTEK cannot be responsible for conditions or

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time our assessment was undertaken. GEOTEK is not responsible, nor liable for work, testing or recommendations performed or provided by others. This Phase I Environmental Site Assessment is not and should not be construed as a warranty or guarantee about the presence or absence of environmental hazards or contaminants, which may affect the subject site. Facts, conditions, and acceptable risk factors change with time; accordingly, this report should be viewed within this context.

Specific limitations to the scope of ASTM E 1527-13 due to contract limitations, availability of resources, and/or encountered Site conditions are discussed in the appropriate section(s) of this report.

2.5 SPECIAL TERMS AND CONDITIONS

This assessment report is presented as fulfilling the standard requirements of most financial institutions, governmental regulatory agencies, ASTM, and generally accepted industry standards and practices. Please refer to GEOTEK Proposal No. P3-0105714 for complete terms and conditions for this assessment.

2.6 RELIANCE

This assessment has been prepared for the exclusive use, and may be relied upon by, Frontier Enterprises and its successors and assignees. Third party reliance letters may be issued upon request and upon the payment of the, then current, fee for such letters. All third parties relying on this report, by such reliance, agree to be bound by the General Conditions and Limitations agreed to Frontier Enterprises. No reliance by any party is permitted without such agreement, regardless of the content of the reliance letter itself.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3.0 DESCRIPTION OF SITE AND SURROUNDING AREA

The objective of describing the Site and surrounding area is to document current conditions as observed and to obtain information which would indicate the likelihood of a recognized environmental condition in connection with the Site. A representative of GEOTEK conducted a Site reconnaissance on February 23, 2014. The weather was generally warm with clear skies. The Site can generally be accessed from Brodiaea Avenue.

3.1 SITE LOCATION AND LEGAL DESCRIPTION

The Site is located northwest of the intersection of Brodiaea Avenue and Quincy Street in the City of Moreno Valley, Riverside County, California. According to the U.S. Geological Survey (USGS) Sunnymead Quadrangle topographic map (7.5-minute series), the Site is located in Section 14, Township 3 South, Range 3 West, San Bernardino Baseline and Meridian (see Figure 1 in Appendix A). The Riverside County Assessor Parcel Number (APN) is 478-080-013. Additional legal descriptions for the Site are included in Appendix B, as obtained from the Riverside County Land Information System website (RCLIS) (http://www3.tlma.co.riverside.ca.us/pa/rclis/index.html).

3.2 SITE AND VICINITY GENERAL CHARACTERISTICS

The Site is in an area largely characterized by vacant land and/or residential development.

3.3 CURRENT PROPERTY USE

The Site is predominantly vacant and undeveloped land.

3.4 SITE IMPROVEMENTS

The Site is predominantly vacant and undeveloped land. A gas line is located within Brodiaea Avenue adjacent the Site.

3.4.1 HAZARDOUS SUBSTANCES

GEOTEK did not observe any obvious hazardous substances or wastes on the subject property. No significant stains or discolored soil were observed. No pungent or acrid odors were observed emanating from the Site.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3.4.2 Storage Tanks

GeoTek did not observe evidence of underground or above-ground storage tanks (such as vent pipes, fill pipes, regular-shaped depressions, etc.) on the Site.

3.4.3 Poly-Chlorinated Biphenyls (PCBs)

GeoTek did not observe any suspect equipment (transformers, elevators, trash compactors, etc.), which may contain PCBs on the Site.

3.4.4 Controlled Substances

GeoTek consulted the U.S. Drug Enforcement Agency (DEA) website to cross-check the Site address against published facilities subject to DEA enforcement. The Site did not appear on the list of published facilities. A copy of the DEA printout is included in Appendix B.

GeoTek did not observe evidence of illegal or controlled substances being used or manufactured at the Site.

3.4.5 Indications of Solid Waste Disposal

Waste disposal for the Site area is provided by Waste Management.

3.4.6 Utility Supply

Electricity services for the Site area are provided by Southern California Edison. Water and sewer services for the Site area are provided by the Eastern Municipal Water District. Natural gas is provided for the Site area by Southern California Gas.

3.4.7 Drainage

Natural drainage at the Site is generally interpreted to be toward the south, conforming to the natural topography in the area. Standing water was not observed on the Site on the date of our reconnaissance.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3.4.8 Other Conditions of Concern

No visual indication of other conditions of concern that would indicate a recognized environmental condition was observed during the Site reconnaissance.

3.4.9 Interviews

GeoTek interviewed the following individual while performing this assessment, in the form of completing a *User Questionnaire*:

- Mr. Lonnie Ellisor (a representative of Frontier Enterprises) completed the User Questionnaire.

Information from this interview is incorporated into the appropriate sections of this report.

3.5 CURRENT ADJOINING PROPERTY USE

The Site is in an area largely characterized by vacant land and/or residential development. Brodiaea Avenue followed by residential development and vacant land bounds the Site to the south. Vacant land bounds the Site to the north, west and east.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

4.0 CLIENT PROVIDED INFORMATION

As a form of interview, a representative of future Site ownership completed a "User Questionnaire" for the Site in accordance with ASTM E 1527-13. A copy of the completed questionnaire is included in Appendix B.

4.1 ENVIRONMENTAL CLEAN UP LIENS

Mr. Lonnie Ellisor is not aware of any environmental clean-up liens at the Site.

4.2 ACTIVITY AND USE LIMITATIONS

Mr. Lonnie Ellisor is not aware of an activity use limitations at the Site.

4.3 SPECIALIZED KNOWLEDGE

Mr. Lonnie Ellisor states that he has no specialized knowledge regarding the Site or adjacent properties.

4.4 PURCHASE PRICE

Mr. Lonnie Ellisor has indicated that the purchase price being paid for the Site reasonably reflects the fair market value of the Site.

4.5 COMMONLY KNOWN INFORMATION

Mr. Lonnie Ellisor is not aware of commonly known or reasonably ascertainable information regarding the Site.

4.6 OBVIOUS INDICATORS OF CONTAMINATION

Mr. Lonnie Ellisor is not aware of obvious indicators of a likely environmental impact at the Site.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

4.7 Owner, Property Manager and Occupant Information

It is our understanding that Canterbury Lots – 68, LLC is the current owner and property manager of the Site. No occupant information is available as the Site is unoccupied/vacant.

4.8 Reason for Performing Phase I ESA

This Phase I ESA was performed at the request of Frontier Enterprises.

4.9 Other User Provider Information

GeoTek was not provided with any other information for the Site by Frontier Enterprises.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.0 PROPERTY PHYSICAL SETTING

Surface and subsurface environments are of interest because they control the movement of water-born contaminants, which could be transported to and from the subject Site. GEOTEK reviewed information regarding the physical setting of the subject Site and immediately surrounding area.

5.1 REGIONAL GEOLOGY

The subject property is situated in the Peninsular Ranges geomorphic province. The Peninsular Ranges province is one of the largest geomorphic units in western North America. Basically, it extends roughly 975 miles from the north and northeasterly adjacent the Transverse Ranges geomorphic province to the tip of Baja California. This province varies in width from about 30 to 100 miles. It is bounded on the west by the Pacific Ocean, on the south by the Gulf of California and on the east by the Colorado Desert Province.

The Peninsular Ranges are essentially a series of northwest-southeast oriented fault blocks. Three major fault zones are found in this province. The Elsinore Fault zone and the San Jacinto Fault zones trend northwest-southeast and are found in the near the middle of the province. The San Andreas Fault zone borders the northeasterly margin of the province.

5.2 LOCAL GEOLOGIC SETTING AND TOPOGRAPHY

The Site and Site area are underlain by and older alluvial deposits. Additional data regarding soil survey information for the Site and Site area is also included in Appendix B. The Site area can be considered as having relatively flat terrain.

Based on the USGS topographic map for the area and documents reviewed for this assessment, the elevation of the subject Site ranges from approximately 1,592 to 1,600 feet above mean sea level (see Figure 1, Appendix A).

5.3 VICINITY SURFACE DRAINAGE

Natural drainage at the Site is interpreted to be dominantly directed toward the south, conforming to the natural topography in the area. Storm water runoff from the adjacent properties to the north may drain toward the Site due to the lack of improvements. Storm water runoff from the remaining adjacent properties do not appear to drain toward the Site.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

According to the Federal Emergency Management Agency (FEMA), the Site is located within a 100- and a 500-year flood plain (see Appendix D).

5.4 HYDROGEOLOGY

According to a review of historical groundwater data (California Department of Water Resources and California State Water Resources Control Board groundwater well data [http://wdl.water.ca.gov and http://geotracker.waterboards.ca.gov]) and in-house information, depth to groundwater is greater than 50 feet below ground surface in the general Site area with a flow direction to the south.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

6.0 ENVIRONMENTAL REGULATORY RECORDS REVIEW

The records review is conducted to help identify known recognized environmental conditions at the Site and/or on adjacent or nearby properties which may have impacted the subject Site.

6.1 ENVIRONMENTAL DATABASE RECORDS SEARCH

GEOTEK obtained and reviewed an environmental database report of the federal and state environmental records specified by ASTM E 1527-13. The database report was provided by Environmental Data Resources, Inc. (EDR) of Milford, Connecticut. Additionally, orphan or un-mappable sites listed by EDR were reviewed for the approximate minimum search distances noted and included in our discussion, if applicable. Refer to Appendix D for a copy of the database report.

ENVIRONMENTAL DATABASE	MINIMUM SEARCH DISTANCE	SITE	ADJACENT	TOTAL LISTED
U.S. Environmental Protection Agency (USEPA) - National Priorities List (NPL), including delisted NPL	1.0 Mile	No	0	0
USEPA - Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), including NFRAP[i] sites	0.5 Mile	No	0	0
USEPA – Resource Conservation and Recovery Act (RCRA), Corrective Action Facilities (CORRACTS)	1.0 Mile	No	0	0
USEPA – RCRA, Transportation, Storage, and Disposal facilities (TSD)	0.5 Mile	No	0	0
USEPA - RCRA Generators	Site and Adjacent	No	0	0
USEPA – Emergency Response Notification System (ERNS)	Site	No	N/A	0
Federal institutional control/engineering control registries	0.5 Mile	No	0	0
California Environmental Protection Agency (CEPA) – State Response Sites (SRS, formerly Annual Work Plan and Bond Expenditure Plan)	1.0 Mile	No	0	0

[i] NFRAP = "No Further Remedial Action Planned"

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ENVIRONMENTAL DATABASE	MINIMUM SEARCH DISTANCE	SITE	ADJACENT	TOTAL LISTED
CEPA – EnviroStor Database (formerly CALSITES)	0.5 Mile	No	0	1
CEPA – CHMIRS - California Hazardous Materials Information Reporting System	Site	No	No	0
CEPA - Solid Waste Fill/Landfill (SWF/LF), Solid Waste Assessment Test (SWAT)/Waste Management Unit Database System (WMUDS)	0.5 Mile	No	0	0
CEPA – Leaking Underground Storage Tanks (LUST)	0.5 Mile	No	0	0
CEPA – Underground Storage Tanks (UST), including historic USTs	Site and Adjacent	No	0	0
CEPA – Spills, Leaks, Investigations & Cleanup Cost Recovery Listing (SLIC)	0.5 Mile	No	0	0
State institutional control/engineering control registries	Site	No	N/A	0
Local and/or Tribal databases	Up To 1.0 Mile	No	0	0

N/A – Not Applicable

6.2 Discussion of Regulatory Records

6.2.1 National Priority List

The National Priority List (NPL) is the EPA's list of confirmed or proposed Superfund sites. Our review of this data includes sites which have been delisted from the NPL. The NPL is searched for a 1.0 mile distance.

The Site does not appear on the NPL. There no facilities on the NPL within 1.0 mile of the Site.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

6.2.2 Comprehensive Environmental Response, Compensation, and Liability Information System List

The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) is a compilation of sites that the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances. Our review of CERCLIS sites includes No Further Remedial Action Planed (NFRAP) facilities. The CERCLIS list is searched for a 0.5 mile distance.

The Site does not appear on the CERCLIS list. There are no facilities on the CERCLIS list within 0.5 mile of the Site.

6.2.3 Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act compile selective information on facilities which generate, transport, store, treat and or dispose of hazardous waste. RCRA facilities can be listed on one of three databases:

- *Corrective Action Facilities (CORRACTS)* are facilities undergoing corrective action. A corrective action order is issued pursuant to RCRA Section 3008(h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. The CORRACTS list is searched for a 1.0 mile distance.

  The Site does not appear on the CORRACTS list. There are no facilities on the CORRACTS list within 1.0 mile of the Site.

- *Transportation, Storage, and Disposal Facilities (TSD)* includes facilities that transport, store or dispose of hazardous waste and are not listed on the RCRA Generators list. The TSD is searched for a 0.5 mile distance.

  The Site does not appear on the RCRA TSD list. There are no facilities on the RCRA TSD list within 0.5 mile of the Site.

- *Generators List* identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Generators database is a compilation by the EPA of reporting facilities that generate hazardous waste. The RCRA generators list is searched for the Site and adjacent properties.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

The Site is not listed on the RCRA Generators list. There are no adjacent facilities listed as a RCRA Generator.

6.2.4 Emergency Response Notification System

The Emergency Response Notification System (ERNS) is a national database used to collect information on reported releases of oil or hazardous substances. The ERNS list is searched for the Site. The Site does not appear on the ERNS list.

6.2.5 Federal Institutional Control/Engineering Control Registries

The USEPA maintains two databases which list sites that have institutional and/or engineering controls in place as part of their operations. These databases are searched for the Site. The Site does not appear on either of these databases.

6.2.6 State Response Sites

The State Response Sites (SRS) records are the state equivalent to the federal National Priorities List (NPL) database. The SRS is searched for a 1.0-mile distance.

The Site does not appear on the on the SRS. There were no SRS facilities listed within a 1.0-mile distance of the Site.

6.2.7 EnviroStor Database

The EnviroStor Database (EnviroStor, formerly CALSITES) records are the state equivalent to the federal CERCLIS database. EnviroStor is searched for a 1.0 mile distance.

The Site does not appear on the EnviroStor database.

There us one (1) EnviroStor facility listed within a 1.0 mile distance of the Site. The facility is listed as Proposed Bay Avenue – Wilmot Street School Site, located at SW Corner Bay Avenue and Wilmot Street. The facility is listed as being located 0.25 to 0.5 (0.369) mile northeast of the Site. The facility status is listed as "no further action". Due to the facility status, this facility does not represent an environmental concern to the Site.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

6.2.8 California Hazardous Material Incident Report System

The California Hazardous Material Incident Report Systems (CHMIRS) is a state database used to collect information on reported hazardous materials incidents (accidental leaks and spills). The CHMIRS list is searched for a 0.25-mile distance.

The Site does not appear on the CHMIRS list. There are no CHMIRS facilities located within 0.25 mile of the Site.

6.2.9 Solid Waste Facilities List

The Solid Waste Fill/Landfill (SWF/LF), Solid Waste Assessment Test (SWAT) and Waste Management Unit Database System (WMUDS) databases includes information pertaining to closed and open solid waste facilities operating in the state of California. The SWF/LF, SWAT and WMUDS databases are searched for a 0.5-mile distance.

The Site does not appear on the SWF/LF, SWAT or WMUDS lists. There are no facilities on the SWF/LF, SWAT or WMUDS lists within 0.5-mile of the subject Site.

6.2.10 Leaking Underground Storage Tanks List

The California Leaking Underground Storage Tanks (LUST) list is a compilation of petroleum storage tank sites that have reported a release. The LUST list is searched for a 0.5 mile distance.

The Site did not appear on the LUST list. There are no nearby facilities listed as being on the LUST list within 0.5 mile of the Site.

6.2.11 Underground Storage Tanks List

The California Underground Storage Tank (UST) list is a compilation of petroleum storage tank sites that are registered with the state of California. The UST list is searched for the Site and adjacent properties.

The Site did not appear on the UST list. There are no facilities listed on the UST or HIST UST list within 0.25 mile of the Site.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

6.2.12 Spills, Leaks, Investigation and Cleanup Cost Recovery Listing (SLIC)

The SLIC database is compiled by the CEPA California Regional Water Quality Control Board, San Diego Region. It is designed to protect and restore water quality from spills, leaks, and similar discharges. The SLIC is searched for a 0.5 mile distance.

The Site does not appear on the SLIC. There are no SLIC facilities listed within a 0.5-mile distance of the Site.

6.2.13 State Institutional Control/Engineering Control Registries

The State of California maintains institutional and engineering control databases or registries. This lists sites with engineering or institutional controls in place. Institutional controls include administrative measures intended to prevent exposure to contaminants remaining on site. Engineering controls include various forms of caps, building foundations, liners, and treatment methods. The State Institutional Control/Engineering Control Registries is searched for the Site.

The subject Site does not appear on the State Institutional Control/Engineering Control Registries.

6.2.14 Tribal Databases

Tribal governments are under the jurisdiction of the USEPA for environmental concerns. Currently, the USEPA Region 9 publishes LUST and UST information for tribes in Arizona, California, Hawaii, Nevada, and the Pacific Territories. The LUST database is searched for 0.5 mile, and the UST database is searched for 0.25 mile.

The Site does not appear on the Tribal LUST or UST databases. No facilities were identified on the Tribal LUST or UST databases within 0.5 mile of the Site.

6.2.15 Dry Cleaners

The DRYCLEANERS list is compiled and provided by EDR. The DRYCLEANER database is searched for a 0.25 mile distance.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

The Site does not appear on the DRYCLEANER list. There are no DRYCLEANER facilities listed within 0.25 mile of the Site.

6.2.16 Vapor Encroachment Screen

The purpose of a Vapor Encroachment Screen (VES) is to identify, to the extent feasible, if a vapor encroachment condition exists at the Site.

A Vapor Encroachment Screen Report was generated for the Site and Site area utilizing EDR's Vapor Encroachment Worksheet (see Appendix B). It was determined that there are no historical dry cleaners or gas stations located within 600 feet and/or up gradient from the Site.

6.3 Local Regulatory Agency Records

GeoTek contacted the City of Moreno Valley Fire Department and the City of Moreno Valley Police Department regarding underground or above ground storage tanks, hazardous materials permits or business plans, emergency responses, spills, inspections, or other information of an environmental or hazardous nature.

No information was available from either department as the Site has no associated address.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

7.0 SITE AND SURROUNDING AREA HISTORY

In order to construct the history of the Site and the surrounding area, GEOTEK reviewed reasonably ascertainable public documents, including aerial photographs, topographic maps, building records, city directories, fire insurance maps, and county assessor history records.

7.1 HISTORICAL SITE USAGE

7.1.1 AERIAL PHOTOGRAPH REVIEW

GEOTEK reviewed aerial photographs dated 1938, 1953, 1967, 1970, 1989, 1994, 2002, 2005, 2006, 2009, 2010 and 2012 (see Appendix B).

In the 1938 aerial photograph, the Site appears to be utilized for agricultural purposes.

In the 1953, 1967, 1970, 1989, 1994, 2002, 2005, 2006, 2009, 2010 and 2012 aerial photographs, the Site is vacant land.

7.1.2 TOPOGRAPHIC MAP REVIEW

GEOTEK reviewed the Elsinore Quadrangle (30-minute series), dated 1901; the Southern California Sheet 1 Quadrangle (60-minute series), dated 1901; the Perris Quadrangle (15-minute series), dated 1943; the Sunnymead Quadrangle (7.5-minute series), dated 1953; the Sunnymead Quadrangle (7.5-minute series), dated 1967; the Sunnymead Quadrangle (7.5-minute series), dated 1973; and the Sunnymead Quadrangle (7.5-minute series), dated 1980 (see Appendix B).

The Site appears to be vacant land on all of the topographic map sheets reviewed.

7.1.3 BUILDING DEPARTMENT RECORDS

Building department records were not reviewed as part of this assessment as the Site currently has no associated address and the Site is currently vacant.

Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

7.1.4 City Directory Review

City directories were not reviewed as part of this assessment as the Site has no associated address, the Site is currently vacant and the surrounding properties are generally vacant land or residential development.

7.1.5 Sanborn Map Review

Sanborn Fire Insurance Maps for the parcel were requested from EDR-Sanborn, which owns and maintains the largest and most complete collection of the maps. No coverage for the Site was available. The Sanborn Map Report is included in Appendix B.

7.1.6 Chain of Title

GeoTek obtained a Preliminary Chain-of-Title report from Frontier Enterprises.

No environmental liens or activity use limitations were discovered for this assessment.

A copy of the Preliminary Chain-of-Title report is included in Appendix B.

7.2 Historical Immediately Surrounding Property Usage

7.2.1 Aerial Photograph Review

GeoTek reviewed aerial photographs dated 1938, 1953, 1967, 1970, 1989, 1994, 2002, 2005, 2006, 2009, 2010 and 2012 (see Appendix B).

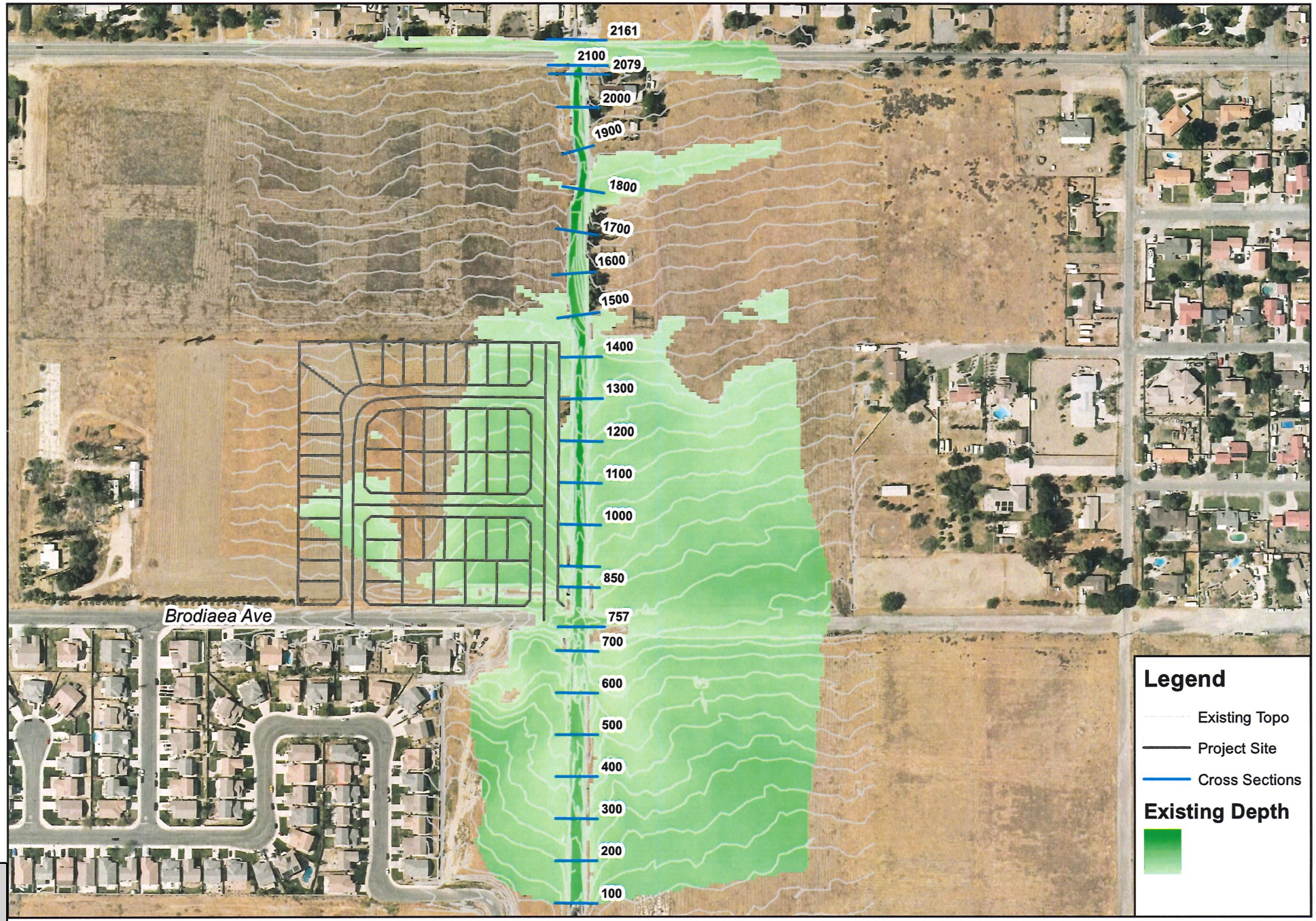
In the 1938 aerial photograph, the properties to the west, east and south are vacant land. The property to the north is utilized for agriculture.

In the 1953 aerial photograph, the surrounding properties are vacant land.

In the 1967, 1970, 1989, 1994 and 2002 aerial photographs, structures can be observed on the property to the west. The properties to the north, east and south remain vacant land.

In the 2005 aerial photograph, a residential development can be observed to the south of the Site. The properties to the north and east remain vacant land.

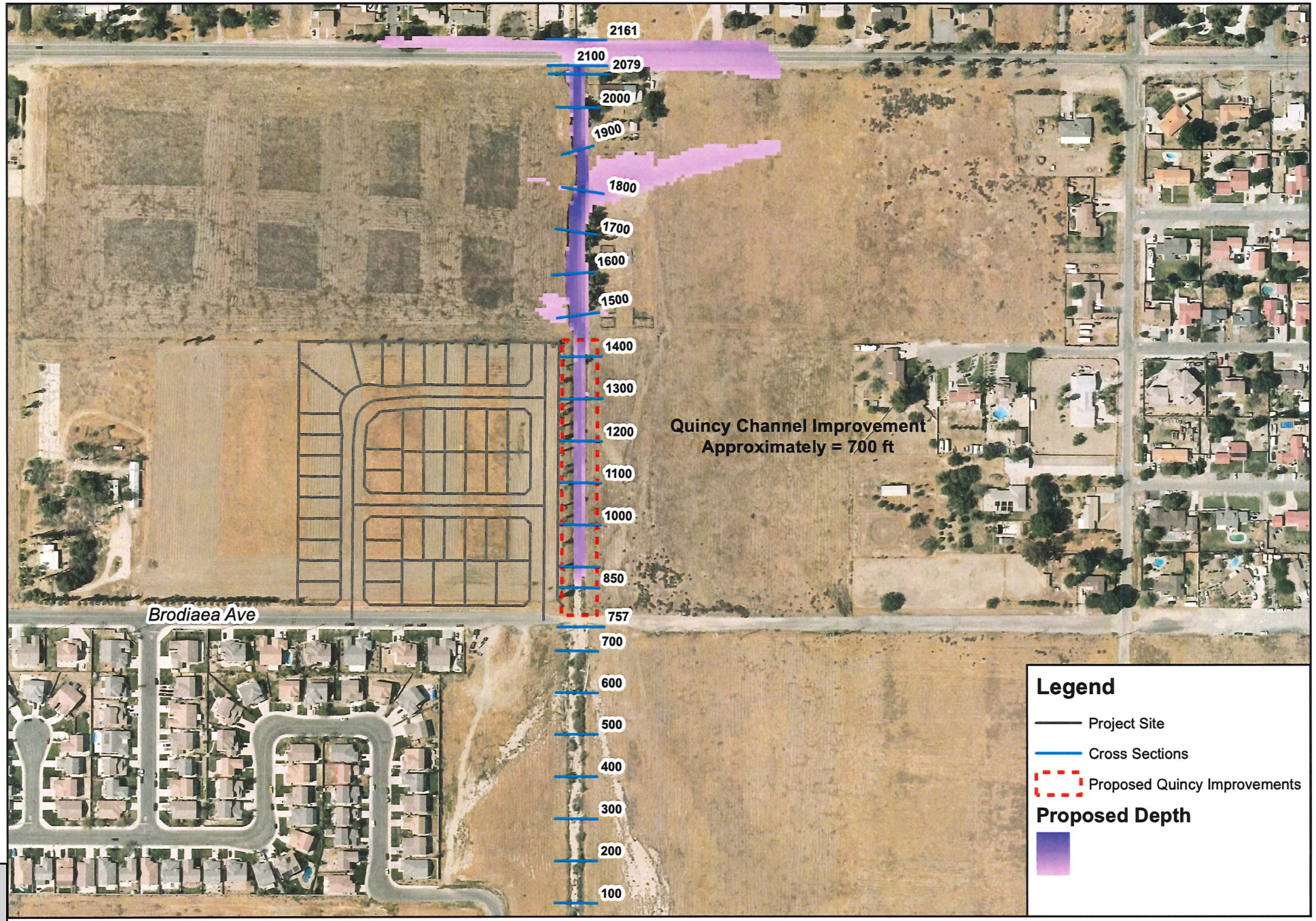
Attachment: Prelim Hydro MBI April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)



Michael Baker INTERNATIONAL

Moreno Valley

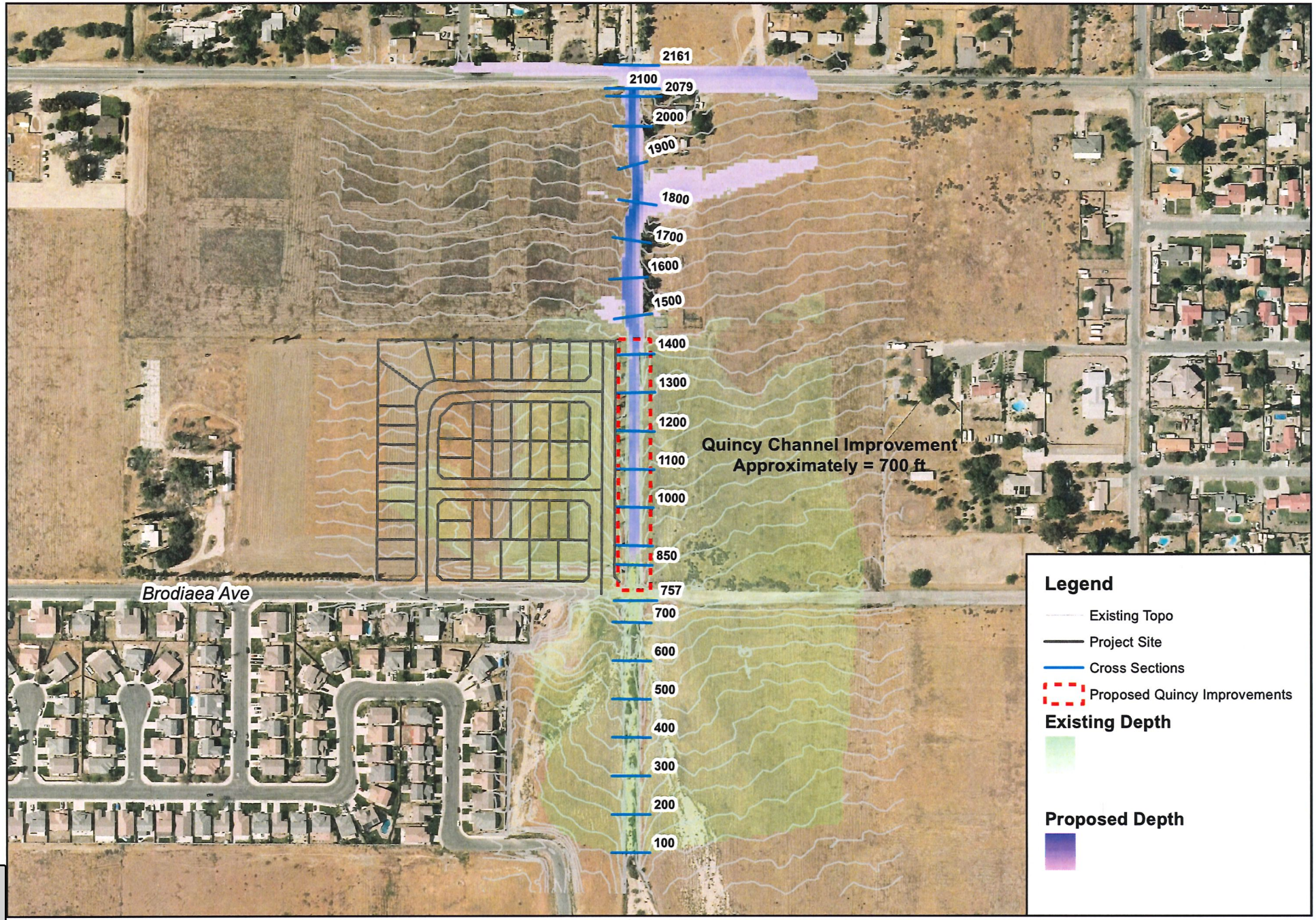
Existing Condition



Michael Baker INTERNATIONAL

Moreno Valley

Proposed Condition



Michael Baker INTERNATIONAL

Moreno Valley

Flood Comparison

t 3

Hydraulics Comparison

		Existing			Proposed			
River Sta	Profile	Min Ch El	W.S. Elev	Max Chl Dpth	Min Ch El	W.S. Elev	Max Chl Dpth	WSE Delta
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
2161	MPD	1607.31	1614.58	7.27	1607.31	1614.58	7.27	0
2100	MPD	1610.56	1611.98	1.59	1610.56	1611.98	1.59	0
2079	MPD	1603.98	1610.16	6.18	1603.98	1610.16	6.18	0
2000	MPD	1602.9	1608.81	5.91	1602.9	1608.81	5.91	0
1900	MPD	1601.35	1607.11	5.76	1601.35	1607.13	5.78	0.02
1800	MPD	1599.8	1606.55	6.75	1599.8	1606.58	6.78	0.03
1700	MPD	1596.95	1602.44	5.49	1596.95	1602.43	5.48	-0.01
1600	MPD	1595.66	1601.05	5.39	1595.66	1601.08	5.41	0.03
1500	MPD	1594.49	1599.7	5.21	1594.49	1599.7	5.21	0
1400	MPD	1592.71	1598.75	6.04	1591.74	1596.11	4.37	-2.64
1300	MPD	1591.13	1596.69	5.56	1590.26	1594.62	4.36	-2.07
1200	MPD	1589.47	1595.92	6.45	1588.8	1593.11	4.31	-2.81
1100	MPD	1588.29	1594.01	5.72	1587.34	1591.69	4.35	-2.32
1000	MPD	1586.96	1592.61	5.65	1586	1590.36	4.36	-2.25
900	MPD	1586.19	1591.31	5.12	1584.75	1589.11	4.36	-2.2
850	MPD	1585.38	1590.25	4.86	1581.4	1584.58	3.18	-5.67
835	Culvert							
757	MPD	1583.94	1588.08	4.14	1570.67	1576.5	5.83	-11.58
700	MPD	1582.42	1586.31	3.89	1570.44	1575.95	5.51	-10.36
600	MPD	1580.98	1584.27	3.29	1570	1575.14	5.14	-9.13
500	MPD	1579.21	1583.01	3.8	1569.25	1574.94	5.69	-8.07
400	MPD	1577.72	1581.71	3.99	1568.7	1573.95	5.25	-7.76
300	MPD	1576.38	1580.54	4.16	1568	1572.81	4.81	-7.73
200	MPD	1575.07	1579.31	4.24	1567	1571.98	4.98	-7.33
100	MPD	1573.73	1577.96	4.23	1566	1570.51	4.51	-7.45

Table 1

Off-Site Project Traffic Noise Level Increases (Existing Conditions)

Road	Adjacent Existing Land Use[1]	Existing ADT Volumes		CNEL at Adjacent Land Use (dBA)[4]			Noise-Sensitive Land Use?	Threshold Exceeded?[5]
		Without Project[2]	With Project[3]	Without Project	With Project	Project Addition		
Brodiaea Avenue	Residential	2.8	3.2	60.2	60.8	0.6	Yes	No

[1] Source: Google Earth aerial imagery.

[2] Based on an existing ADT traffic count taken by Counts Unlimited, Inc. on September 2017 on Brodiaea Avenue west of Heacock Street.

[3] Based on the combined Brodiaea Residential Trip Generation Summary (2018) and the existing count data from Brodiaea Avenue.

[4] Calculated based on the Federal Highway Administration traffic noise prediction model, RD-77-108, based on California Vehicle Noise Emission Levels.

[5] Does the Project off-site traffic noise level increase exceed the Federal Interagency Committee on Noise (FICON) threshold for Project-related increases of 3 dBA CNEL when the without Project noise level is between 60 to 65 dBA CNEL at existing sensitive land uses?

"ADT" = average daily traffic

Attachment: Noise Tables UC April 2018 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

September 4, 2018

c/o Mr. Daniel C. Pocius
Frontier Communities
8300 Utica Avenue, Suite 300
Rancho Cucamonga, CA 91730

SUBJECT: BRODIAEA (TTM 37544) TRIP GENERATION EVALUATION

Dear Mr. Daniel C. Pocius:

The firm of Urban Crossroads, Inc. is pleased to submit the following Trip Generation Evaluation for the proposed Brodiaea (TTM 37544) development (referred to as "Project") located in the City of Moreno Valley.

PROJECT DESCRIPTION

The Project is approximately 9.0 acres and is currently zoned for R-3 development (3 dwelling unit per acre or 27 units) and is proposing a zone change to R-10 (up to 10 dwelling units per acre). The Project is proposing development of up to 47 single-family detached residential dwelling units.

PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development. The trip generation rates used for this assessment are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual (10th Edition, 2017). The ITE Trip Generation Manual is a nationally recognized source for estimating site-specific trip generation.

PROPOSED PROJECT: R-10 SINGLE FAMILY DETACHED RESIDENTIAL

The development of 47 single family detached residential dwelling units is proposed. Trip generation rates and the daily and peak hour trip generation for proposed Project are also shown in Table 1. The proposed Project is anticipated to generate a net total of approximately 444 trip-ends per day with 36 AM peak hour trips and 48 PM peak hour trips.

Attachment: Trip Gen Memo Letter (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Mr. Daniel C. Pocius
Frontier Communities

TABLE 1: PROPOSED PROJECT TRIP GENERATION SUMMARY

Land Use	ITE LU Code	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates[1]									
Single Family Detached Residential	210	DU	0.19	0.56	0.74	0.62	0.37	0.99	9.44
Project	**Quantity**	**Units[2]**	**AM Peak Hour**			**PM Peak Hour**			**Daily**
			In	**Out**	**Total**	**In**	**Out**	**Total**	
Project Trip Generation Summary									
Brodieaea Residential	47	DU	9	27	36	30	18	48	444

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] DU = Dwelling Units

CURRENTLY APPROVED LAND USE: R-3 SINGLE FAMILY DETACHED RESIDENTIAL

Based on the existing zoning of R-3 and the allowable density for R-3 developments (3 dwelling unit per acre), the development of 27 single family detached residential dwelling units is currently approved. Table 2 summarizes the resulting trip generation estimates based on the currently approved zoning (R-3 residential development). The currently approved zoning is anticipated to generate a net total of approximately 255 trip-ends per day with 20 AM peak hour trips and 27 PM peak hour trips.

TABLE 2: CURRENTLY APPROVED LAND USE TRIP GENERATION SUMMARY

Land Use	ITE LU Code	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates[1]									
Single Family Detached Residential	210	DU	0.19	0.56	0.74	0.62	0.37	0.99	9.44
Project	**Quantity**	**Units[2]**	**AM Peak Hour**			**PM Peak Hour**			**Daily**
			In	**Out**	**Total**	**In**	**Out**	**Total**	
Project Trip Generation Summary									
Currently Approved Land Use (R-3)	27	DU	5	15	20	17	10	27	255

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] DU = Dwelling Units

TRIP GENERATION COMPARISON

As shown in Table 3, the development of the proposed Project is anticipated to generate 189 more trip-ends per day with 16 more AM peak hour trips and 21 more PM peak hour trips as compared to the currently approved zoning. However, no additional analysis is necessary based on the City's Traffic Impact Analysis Preparation Guide (August 2007) as the Project is anticipated to generate fewer than

Attachment: Trip Gen Memo Letter (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

50 peak hour trips. Typically, single family residential tracts of less than 100 lots are typically exempt from Traffic Impact Analysis requirements.

TABLE 3: TRIP GENERATION COMPARISON

Land Use	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	
Trip Generation Comparison							
Currently Proposed[1]	9	27	36	30	18	48	444
Currently Adopted Zoning (R3)[2]	5	15	20	17	10	27	255
***VARIANCE*[3]**	***4***	***12***	***16***	***13***	***8***	***21***	***189***

[1] Currently proposed Project (see Table 1).

[2] Trip generation based on currently adopted zoning (see Table 2).

[3] Variance = Currently Proposed - Currently Adopted Zoning

If you have any questions, please contact me directly at (949) 336-5987.

Respectfully submitted,

URBAN CROSSROADS, INC.

Haseeb Qureshi,
Senior Associate

Attachment: Trip Gen Memo Letter (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

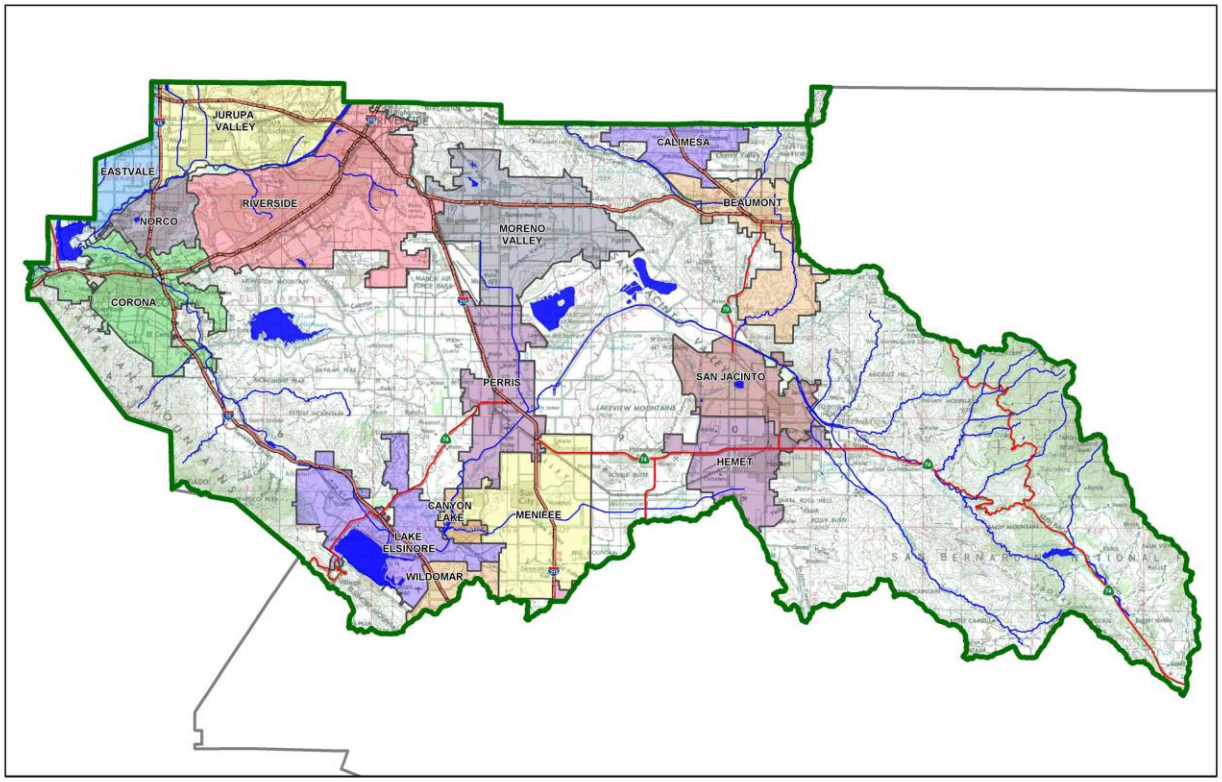
Project Specific Water Quality Management Plan

*A Template for Projects located within the **Santa Ana Watershed** Region of Riverside County*

Project Title: Brodiaea Moreno Valley 26 (TTM 37544)

Development No: TBD

Design Review/Case No: TBD



Contact Information:

Prepared for: Melissa Vallone
Frontier Communities
2151 E. Convention Center Way
Ontario, CA 91764
(909) 354-8014

Prepared by: Scott Gilbert, PE #65194
Michael Baker International
5 Hutton Centre Drive, Suite 500
Santa Ana, CA 92707
(949) 855-5762

☒ **Preliminary**
☐ **Final**

Original Date Prepared: April 24, 2018

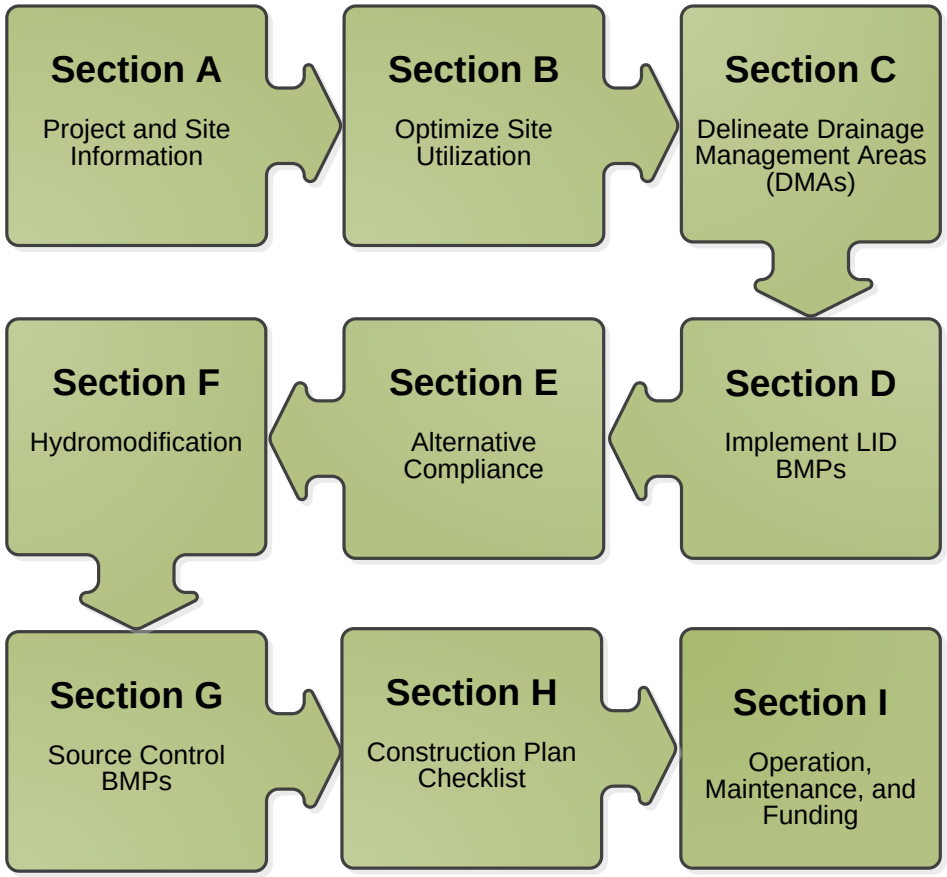
Revision Date(s):

Prepared for Compliance with
Regional Board Order No. **R8-2010-0033**

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

A Brief Introduction

This Project-Specific WQMP Template for the **Santa Ana Region** has been prepared to help guide you in documenting compliance for your project. Because this document has been designed to specifically document compliance, you will need to utilize the WQMP Guidance Document as your "how-to" manual to help guide you through this process. Both the Template and Guidance Document go hand-in-hand, and will help facilitate a well prepared Project-Specific WQMP. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for Frontier Communities by Michael Baker International for the Brodiaea Moreno Valley 26 project.

This WQMP is intended to comply with the requirements of Riverside County for R8-2010-0033 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under City of Moreno Valley Water Quality Ordinance (Municipal Code Section 8.10).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

Preparer's Signature	Date
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure:

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Table of Contents

Section A: Project and Site Information 6

A.1 Maps and Site Plans 6
A.2 Identify Receiving Waters 7
A.3 Additional Permits/Approvals required for the Project: 7

Section B: Optimize Site Utilization (LID Principles) 8

Section C: Delineate Drainage Management Areas (DMAs) 10

Section D: Implement LID BMPs 11

D.1 Infiltration Applicability 11
D.2 Harvest and Use Assessment 12
D.3 Bioretention and Biotreatment Assessment 14
D.4 Feasibility Assessment Summaries 15
D.5 LID BMP Sizing 15

Section E: Alternative Compliance (LID Waiver Program) 18

E.1 Identify Pollutants of Concern 19
E.2 Stormwater Credits 20
E.3 Sizing Criteria 20
E.4 Treatment Control BMP Selection 21

Section F: Hydromodification 22

F.1 Hydrologic Conditions of Concern (HCOC) Analysis 22
F.2 HCOC Mitigation 23

Section G: Source Control BMPs 24

Section H: Construction Plan Checklist 26

Section I: Operation, Maintenance and Funding 27

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

List of Tables

Table A.1 Identification of Receiving Waters 7
Table A.2 Other Applicable Permits 7
Table C.1 DMA Classifications 10
Table C.2 Type 'D', Areas Draining to BMPs 10
Table D.1 Infiltration Feasibility 11
Table D.2 LID Prioritization Summary Matrix 15
Table D.3 DCV Calculations for LID BMPs 15
Table D.4 DCV Calculations for LID BMPs 16
Table D.5 DCV Calculations for LID BMPs 16
Table D.6 DCV Calculations for LID BMPs 17
Table E.1 Potential Pollutants by Land Use Type 19
Table E.2 Water Quality Credits 20
Table E.3 Treatment Control BMP Sizing 20
Table E.4 Treatment Control BMP Selection 21
Table F.1 Hydrologic Conditions of Concern Summary 22
Table G.1 Permanent and Operational Source Control Measures 24
Table H.1 Construction Plan Cross-reference 26

List of Appendices

Appendix 1: Maps and Site Plans 28
Appendix 2: Construction Plans 29
Appendix 3: Soils Information 30
Appendix 4: Historical Site Conditions 31
Appendix 5: LID Infeasibility 32
Appendix 6: BMP Design Details 33
Appendix 7: Hydromodification 34
Appendix 8: Source Control 35
Appendix 9: O&M 36
Appendix 10: Educational Materials 37

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Residential
Planning Area:	N/A
Community Name:	N/A
Development Name:	TBD
	The project is proposing to redevelop the existing site into approximately 45 single family residences.
PROJECT LOCATION	
Latitude & Longitude (DMS): 33.9147, -117.1666	
Project Watershed and Sub-Watershed: Santa Ana Watershed, Perris Valley Sub-watershed	
APN(s): 478080014	
Map Book and Page No.: Thomas Brothers Page 718	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Residential
Proposed or Potential SIC Code(s)	6552
Area of Impervious Project Footprint (SF)	229,000
Total Area of proposed Impervious Surfaces within the Project Limits (SF)/or Replacement	229,000
Does the project consist of offsite road improvements?	☒ Y ☐ N
Does the project propose to construct unpaved roads?	☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y ☒ N
EXISTING SITE CHARACTERISTICS	
Total area of existing Impervious Surfaces within the project limits (SF)	0
Is the project located within any MSHCP Criteria Cell?	☐ Y ☒ N
If so, identify the Cell number:	N/A
Are there any natural hydrologic features on the project site?	☐ Y ☒ N
Is a Geotechnical Report attached?	☒ Y ☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	
What is the Water Quality Design Storm Depth for the project?	0.67 Inches

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the local vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Standard Labeling

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Co-Permittee plan reviewer must be able to easily analyze your project utilizing this template and its associated site plans and maps.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Canyon Lake (Railroad Canyon Reservoir)	Nutrients, Pathogens	AGR, GWR, MUN, REC1, REC2, WARM, WILD	3.25 Miles

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* Grading Permit, Building Permit	☒ Y	☐ N

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, **constraints** might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. **Opportunities** might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your LID design and explain your design decisions to others.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1.

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

Drainage patterns were established through an analysis of topographic data. Currently, site runoff sheet flows to the southern project boundary. The site has been designed to treat all onsite flows to prevent drainage across the project boundary. Post construction flows will move across the site in an equivalent manner to the pre-existing condition (see WQMP map in Appendix 1).

Did you identify and protect existing vegetation? If so, how? If not, why?

Existing vegetation was identified during a site investigation. The site is currently an un-developed site with sparse vegetation throughout the site. The proposed site will not allow for the existing vegetation to remain. Ornamental vegetation has been included where possible and the LID requirements will be met as much as possible.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

Yes, the existing infiltration capacity is being preserved with the implementation of infiltration chambers where natural infiltration is feasible. The existing infiltration capacity was analyzed during a geotechnical investigation (percolation testing) and summarized in a report conducted by Geotek, Inc. (Appendix 3). Infiltration is feasible on the southeast corner of the site because rates are greater than the required 1.6 inches per hour, with a recorded rate of 2 inches per hour including a factor of safety of 2. Where the rates are less than 1.6 inches per hour, infiltration is not feasible and could not be preserved.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Did you identify and minimize impervious area? If so, how? If not, why?

Yes, impervious areas were minimized and limited to the areas needed for the residential development and meet the minimum code requirements for parking and paved traveled ways. Pervious area has been optimized in the remaining areas.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

It was not possible to direct runoff into adjacent pervious areas due to site constraints and the site grading. The site is graded away from the adjacent pervious areas, so this was not feasible.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1]	Area (Sq. Ft.)	DMA Type
DMA 1	Mixed Surface Types	240,887	Building Roof, Ornamental Landscaping, Sidewalks, and Hardscape
DMA 2	Mixed Surface Types	67,564	Building Roof, Ornamental Landscaping, Sidewalks, and Hardscape
DMA 3	Mixed Surface Types	32,538	Building Roof, Ornamental Landscaping, Sidewalks, and Hardscape
DMA 4	Mixed Surface Types	35,518	Building Roof, Ornamental Landscaping, Sidewalks, and Hardscape

[1]*Reference Table 2-1 in the WQMP Guidance Document to populate this column*

Table C.2 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
DMA 1	Bioretention Basin
DMA 2	Modular Wetland System 1 (proprietary biotreatment)
DMA 3	Modular Wetland System 2 (proprietary biotreatment)
DMA 4	Stormtech underground infiltration basin

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ Y ☒ N

If yes has been checked, Infiltration BMPs shall not be used for the site. If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream 'Highest and Best Use' feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?	X	
If Yes, list affected DMAs: DMA 1, 2, 3		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
…geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

D.2 Harvest and Use Assessment

Please check what applies*:*

☐ Reclaimed water will be used for the non-potable water demands for the project.

☐Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

✓ The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If neither of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: N/A

Type of Landscaping (Conservation Design or Active Turf): N/A

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: N/A

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: N/A

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
N/A	N/A

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: N/A

Project Type: N/A

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-1 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: N/A

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: N/A

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
N/A	N/A

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

N/A

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: N/A

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Total Area of Impervious Surfaces: N/A

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-3 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-3: N/A

Step 4: Multiply the unit value obtained from Step 4 by the total of impervious areas from Step 3 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: N/A

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required non-potable use (Step 4)	**Projected average daily use (Step 1)**
N/A	N/A

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment, unless a site-specific analysis has been completed that demonstrates technical infeasibility as noted in D.3 below.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

✓ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA 1	☐	☐	☒	☐	☐
DMA 2	☐	☐	☐	☒	☐
DMA 3	☐	☐	☐	☒	☐
DMA 4	☒	☐	☐	☐	☐

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First**,** calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second**,** design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Bioretention Basin*		
	[A]		[B]	[C]	[A] x [C]			
1	*240887*	Mixed Surface Types	*0.65*	*0.45*	*108201.2*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	$A_T = \Sigma[A]$				Σ= [D] 108201.2	[E] 0.67	[F] = $\frac{[D]x[E]}{12}$ 6041.2	[G] ***6100***

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Table D.4 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Modular Wetland System 1*		
	[A]		[B]	[C]	[A] x [C]			
2	*67564*	Mixed Surface Types	*0.65*	*0.449*	*30348.3*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	$A_T = \Sigma[A]$				$\Sigma = [D]$ 30348.3	[E] 0.67	$[F] = \frac{[D]x[E]}{12}$ 1694.4	[G] ***2518***

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document
[E] is obtained from Exhibit A in the WQMP Guidance Document
[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Table D.5 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Modular Wetland System 2*		
	[A]		[B]	[C]	[A] x [C]			
3	*32538*	Mixed Surface Types	*0.65*	*0.449*	*14615.4*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	$A_T = \Sigma[A]$				$\Sigma = [D]$ 14615.4	[E] 0.67	$[F] = \frac{[D]x[E]}{12}$ 816	[G] ***1600***

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document
[E] is obtained from Exhibit A in the WQMP Guidance Document
[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Table D.6 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Underground Infiltration Basin*		
	[A]		[B]	[C]	[A] x [C]			
4	*33518*	Mixed Surface Types	*0.65*	*0.449*	*15953.9*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	A_T = Σ[A]				Σ= [D] 15953.9	[E] 0.67	[F] = $\frac{[D]x[E]}{12}$ 890.8	[G] ***1500***

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Copermittee). Check one of the following Boxes:

✓ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☒ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P(2)
☐ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft^2)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P
☐ Parking Lots (>5,000 ft^2)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☐ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☒	☐	☒	☒	☐	☒	☒	☒

P = Potential

N = Not Potential

(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

(3) A potential Pollutant is land use involving animal waste

(4) Specifically petroleum hydrocarbons

(5) Specifically solvents

(6) Bacterial indicators are routinely detected in pavement runoff

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

E.2 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
N/A	
Total Credit Percentage[1]	

[1]Cannot Exceed 50%
[2]Obtain corresponding data from Table 3-8 in the WQMP Guidance Document

E.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	DMA Runoff Factor [C]	DMA Area x Runoff Factor [A] x [C]		*Enter BMP Name / Identifier Here*		
						Design Storm Depth (in)	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	A_T = Σ[A]				Σ= [D]	[E]	$[F] = \frac{[D]x[E]}{[G]}$	[F] X (1-[H])	[I]

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document
[E] is obtained from Exhibit A in the WQMP Guidance Document
[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12
[H] is from the Total Credit Percentage as Calculated from Table E.2 above
[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]
N/A		

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.
[2] Cross Reference Table E.1 above to populate this column.
[3] As documented in a Co-Permittee Approved Study and provided in Appendix 6.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	**Post-condition**	**% Difference**
Time of Concentration			
Volume (Cubic Feet)			

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

Hydromodification will be mitigated using option “c” through an infiltration basin to capture and infiltrate excess discharge flow on site. The post-development hydrograph is 10.4% greater than the pre-development hydrograph, requiring excess volume to be captured or infiltrated. With the use of an underground infiltration basin, the site’s discharge will be no more than 10% greater than the pre-development hydrograph. Appendix 7 demonstrates how much extra the infiltration basin needs to capture and infiltrate, which calculates to approximately 50 cubic feet over its water quality treatment size to decrease the post-development flow rate. The infiltration basin is designed to accommodate the extra infiltration needed to reduce offsite peak flow rate. This ensures the post-development flow rate is no greater than 110% of the pre-development 2-year peak flow rate. The unit hydrographs can be seen in Appendix 7.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and "housekeeping", that must be implemented by the site's occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. ***Identify Pollutant Sources*:** Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.

2. ***Note Locations on Project-Specific WQMP Exhibit*:** Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.

3. ***Prepare a Table and Narrative*:** Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. **Add additional narrative** in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.

4. ***Identify Operational Source Control BMPs:*** To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
On-site Storm Drain Inlets	-All inlets will be marked with the words "Only Rain Down the Storm Drain" or similar.	-Maintain and periodically repaint or replace inlet markers -Stormwater pollution prevention information will be provided to new site owners, lessees, or operators -See Fact Sheet SC-44 in Appendix 10

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Landscape/Outdoor Pesticide Use	-Preserve existing native trees, shrubs, and ground cover to the maximum extent possible -Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. -Consider using pest-resistant plants, especially adjacent to hardscape -Plants appropriate to site conditions will be selected	-Maintain landscaping using minimum or no pesticides -Reference Educational Fact Sheet "What you should know for Landscaping and Gardening" in Appendix 10

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Section H: Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)
1	Bioretention Basin	33.9142°, -117.1671° (Appendix 1)
2	Modular Wetlands System 1	33.9142°, -117.1669° (Appendix 1)
3	Modular Wetlands System 2	33.9138°, -117.1667° (Appendix 1)
4	Underground Infiltration Basin	33.9141°, -117.1656° (Appendix 1)

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Section I: Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism:

Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

☒ Y ☐ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

R 07 W | R 06 W | R 05 W | R 04 W | R 03 W | R 02 W | R 01 W | R 01 E | R 02 E | R 03 E | R 04 E | R 05 E

T 01 S
T 02 S
T 03 S
T 04 S
T 05 S
T 06 S
T 07 S
T 08 S

0.85 MiraLoma
0.61 RiversideNorth
0.54 RiversideSouth
0.68 PigeonPass
0.66 MorenoEast
0.85 Beaumont
0.88 PradoDam
0.51 Woodcrest
0.50 LakeMathews
0.68 PerrisReservoir
0.87 VistaGrandeGS
0.70 SanJacintoNWS
1.18 Idyllwild
0.58 SunCity
0.68 Winchester
0.90 HurkeyCreek
0.70 ElsinoreNWS
1.11 ElCarisoStation
0.77 WildomarLaCresta
0.52 SkinnerLake
0.65 Anza
0.77 SantaRosaPlateau
1.00 TemeculaNWS
0.64 AguangaValley

Santa Ana River Watershed
Santa Margarita Watershed

JURUPA VALLEY | EASTVALE | NORCO | CORONA | RIVERSIDE | MORENO VALLEY | CALIMESA | BEAUMONT | SAN JACINTO | PERRIS | HEMET | CANYON LAKE | LAKE ELSINORE | WILDOMAR | MENIFEE | MURRIETA | TEMECULA

06	05	04	03	02	01
07	08	09	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

N

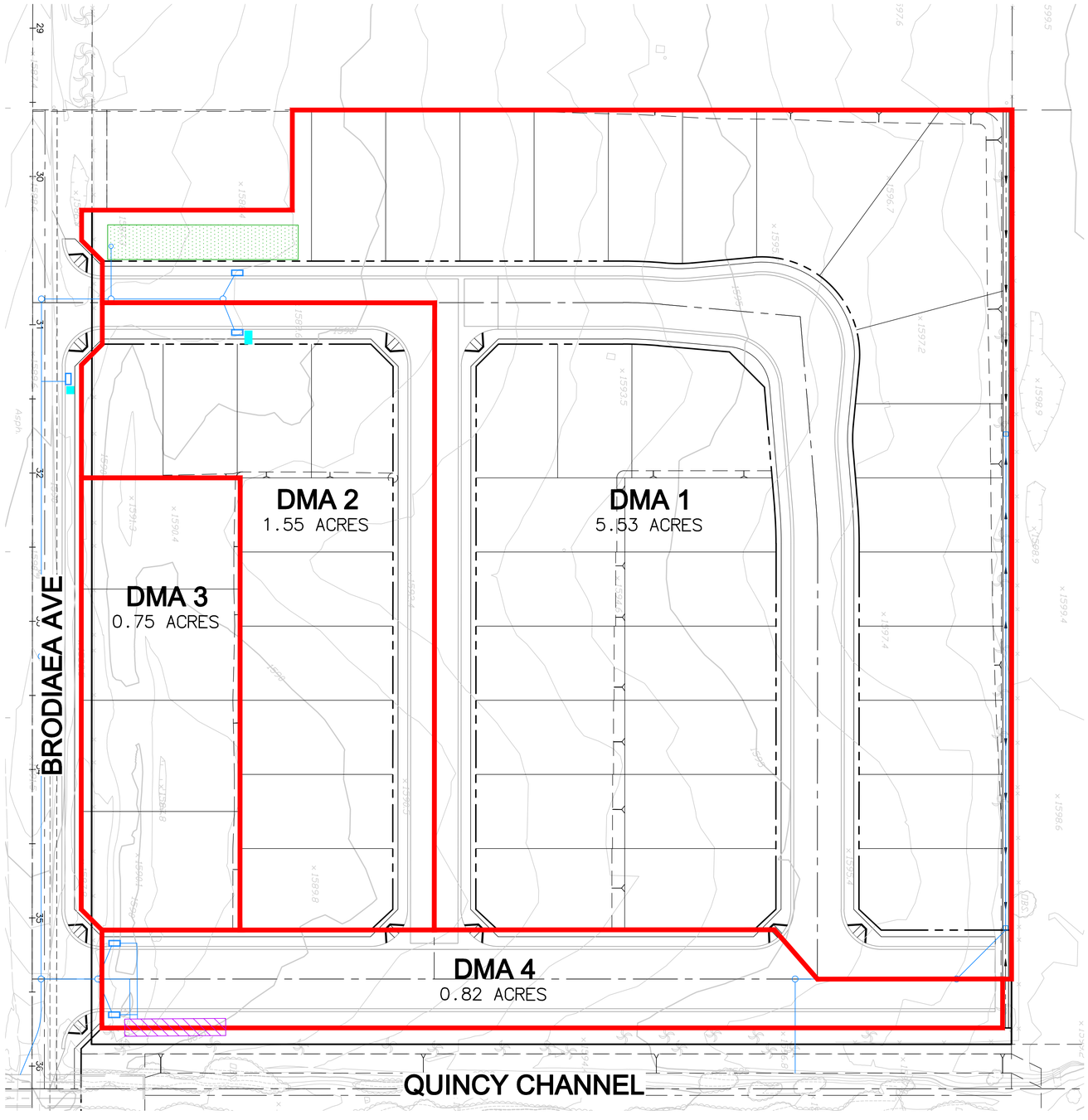
Rain Gage Locations

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Isohyetal Map for the 85th Percentile 24 hour Storm Event

July 2011

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)



LEGEND:

- MODULAR WETLAND UNIT
- BIORETENTION BASIN
- UNDERGROUND INFILTRATION BASIN
- DRAINAGE AREA BOUNDARY
- PROPOSED STORM DRAIN LINE

SCALE 1"=40'

40 20 0 40 80 120

SCALE: 1"=40'

JOB NO.:	161595
SCALE:	1" = 50'
DATE:	3/20/18
DESIGNED BY:	JMB

Michael Baker INTERNATIONAL
5 Hutton Centre Drive, Suite 500
Santa Ana CA 92707
Phone: (949) 472-3505
MBAKERINTL.COM

WATER QUALITY
PROPOSED CONDITION
BRODIAEA AVENUE

CITY OF MORENO VALLEY

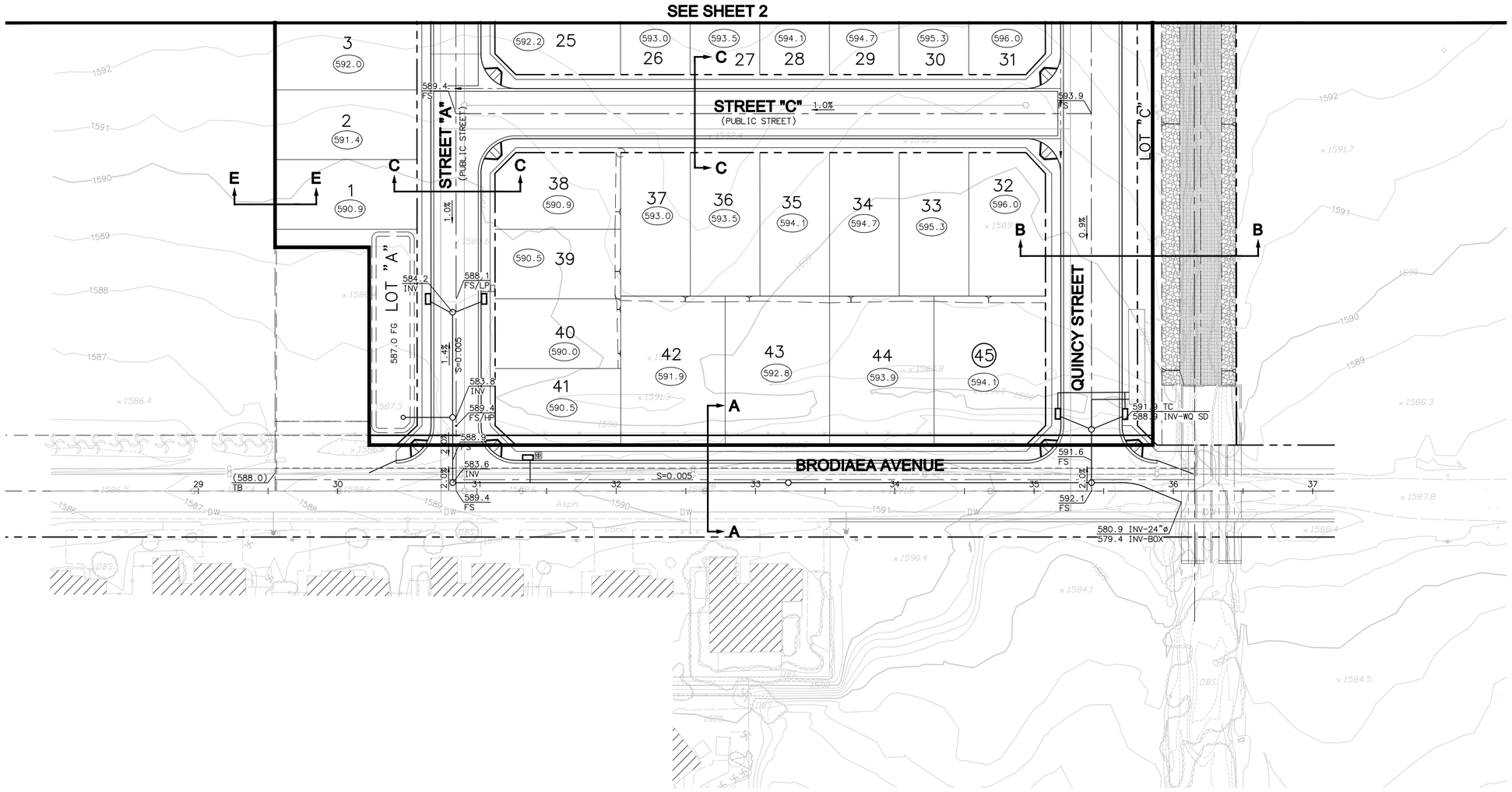
Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)
H:\PDATA\161595\CADD\LAND\DLV\HYDRO\161595-WQMP EXHIBIT.DWG CAMERON.WEISS 4/25/18 8:14 am

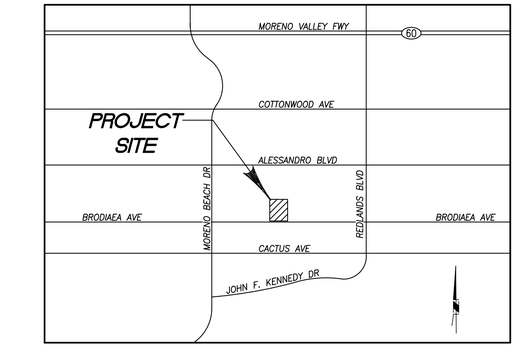
Appendix 2: Construction Plans

Grading and Drainage Plans

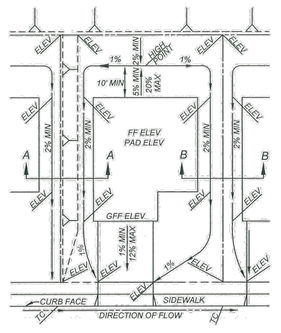
Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

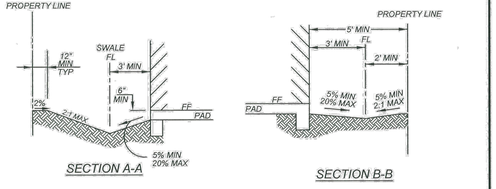
SEE SHEET 2





VICINITY MAP
NOT TO SCALE



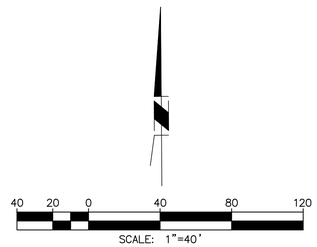


NOTES:

1.) SEE STD MVSI-160B-0 GRADING REQUIREMENTS.

NOT TO SCALE

CITY OF MORENO VALLEY	RECOMMENDED: DIVISION MANAGER 9/2/17 DATE APPROVED: INTERIM CITY ENGINEER 9/2/17 DATE	CITY OF MORENO VALLEY PUBLIC WORKS DEPARTMENT - LAND DEVELOPMENT DIVISION TYPICAL LOT DRAINAGE
		STANDARD PLAN: MVSI-154-0 SHEET 1 OF 1



DIGALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE PLOTTED FROM CITY RECORDS. NO ADDITIONAL UTILITY OR SUBSTRUCTURE RESEARCH HAS BEEN PERFORMED. THE CONTRACTOR SHALL DETERMINE THE EXISTENCE AND THE TRUE HORIZONTAL AND VERTICAL LOCATION AND SIZE OF ANY UNDERGROUND UTILITIES OR STRUCTURES AND SHALL BE RESPONSIBLE FOR PROTECTION, ADJUSTMENT, OR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR NOTIFYING U.S.A./DIG ALERT AT 1-800-227-2600 FOR UNDERGROUND UTILITY MARKING AT LEAST 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION. CONSTRUCTION SHALL NOT COMMENCE PRIOR TO SAID UNDERGROUND UTILITY MARKING.

REGISTERED PROFESSIONAL ENGINEER
SCOTT P. GILBERT
NO. 65194
CIVIL
STATE OF CALIFORNIA

Michael Baker
INTERNATIONAL
5 Hutton Centre Drive, Suite 500, Santa Ana, CA 92707
Phone: (949) 472-3505 · MBAKERINTL.COM

REVISIONS

N°	DATE	BY	DESCRIPTION

DEVELOPER:
FRONTIER ENTERPRISES
CONTACT: MELISSA VALLONE
2151 E. CONVENTION CENTER WAY
ONTARIO, CA
951-354-8040
MVALLONE@FRONTEIR-ENTERPRISE.COM

TTM 37544
PRELIMINARY GRADING PLAN

TRACT NO.
CITY CASE NO.
DATE: 04/24/18
SHEET 1 of 2

H:\PDATA\161595\CADD\LAND\DLV\GRADING\PRELIM\161595_GR_01.DWG CAMERON.WEISS 4/25/18 11:29 am
Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

LOT "B"

STREET "B" (PUBLIC STREET)

STREET "A" (PUBLIC STREET)

QUINCY STREET

LOT "C"

(599.2) FG | 599.2 RIM/HP | 598.6 RIM | 598.2 RIM | 598.3 RIM | 598.5 RIM | (598.9) FG | 598.1 RIM/LP 593.8 INV | (599.0) FG | 598.8 RIM | 599.0 RIM/HP | 598.9 RIM | 598.7 RIM | 598.5 RIM | (598.5) FG | 598.2 RIM/LP 592.1 INV | 598.7 FS | 599.0 RIM/HP | 593.0 INV

(598.0) FG | 8 (594.0) | 9 (594.4) | 10 (594.7) | 11 (595.2) | 12 (596.1) | 13 (597.0) | 14 (598.0) | 15 (598.9) | 16 (599.8)

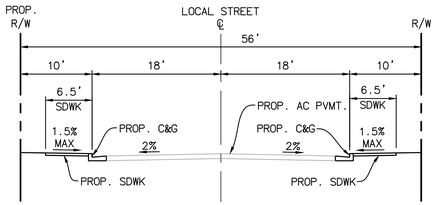
0.5% | S=0.005 | 1.2% | 1.8% | 591.9 INV | 591.3 INV | 591.0 INV

E E | 7 (593.7) | 592.6 FS | 593.6 FS | 596.5 FS | 1.0%

(595.5) FG | 6 (593.4) | 5 (593.0) | (593.3) FG | 4 (592.5) | 591.4 FS | 590.7 FS | 23 (593.3) | 22 (595.2) | 21 (596.1) | 20 (597.0) | 19 (598.0) | 18 (598.9) | 17 (599.8) | 24 (592.7) | 25 (592.2) | 26 (593.0) | 27 (593.5) | 28 (594.1) | 29 (594.7) | 30 (595.3) | 31 (596.0)

C C | D D

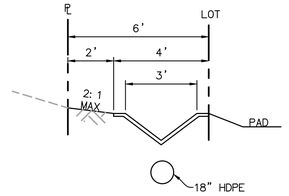
SEE SHEET 1



NOTE: STREET DESIGN PER STD. MVSI-107A

SECTION C-C

SCALE: 1"=10'



SECTION D-D

NOT TO SCALE

SECTION E-E

NOT TO SCALE

NOTE: STREET DESIGN PER STD. MVSI-106B

SECTION A-A

SCALE: 1"=10'

NOTE: STREET DESIGN PER STD. MVSI-106B

SECTION B-B

SCALE: 1"=10'

DIGALERT — DIAL TOLL FREE 1-800-227-2600 — AT LEAST TWO DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE PLOTTED FROM CITY RECORDS. NO ADDITIONAL UTILITY OR SUBSTRUCTURE RESEARCH HAS BEEN PERFORMED. THE CONTRACTOR SHALL DETERMINE THE EXISTENCE AND THE TRUE HORIZONTAL AND VERTICAL LOCATION AND SIZE OF ANY UNDERGROUND UTILITIES OR STRUCTURES AND SHALL BE RESPONSIBLE FOR PROTECTION, ADJUSTMENT, OR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR NOTIFYING U.S.A./DIG ALERT AT 1-800-227-2600 FOR UNDERGROUND UTILITY MARKING AT LEAST 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION. CONSTRUCTION SHALL NOT COMMENCE PRIOR TO SAID UNDERGROUND UTILITY MARKING.

REGISTERED PROFESSIONAL ENGINEER — SCOTT P. GILBERT — NO. 65194 — CIVIL — STATE OF CALIFORNIA

Michael Baker INTERNATIONAL
5 Hutton Centre Drive, Suite 500, Santa Ana, CA 92707
Phone: (949) 472-3505 · MBAKERINTL.COM

REVISIONS

N°	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			
6			

DEVELOPER:
FRONTIER ENTERPRISES
CONTACT: MELISSA VALLONE
2151 E. CONVENTION CENTER WAY
ONTARIO, CA
951-354-8040
MVALLONE@FRONTEIR-ENTERPRISE.COM

TTM 37544
PRELIMINARY GRADING PLAN

TRACT NO.
CITY CASE NO.
DATE: 04/24/18
SHEET 2 of 2

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)
H:\PDATA\161595\CADD\LAND\DLV\GRADING\PRELIM\161595-GR-02.DWG CAMERON.WEISS 4/25/18 11:30 am

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GEOTECHNICAL EVALUATION AND INFILTRATION STUDY

FOR

PROPOSED RESIDENTIAL DEVELOPMENT

APN 478-080-013

CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

PREPARED FOR

FRONTIER ENTERPRISES
8300 UTICA AVENUE, SUITE 300
RANCHO CUCAMONGA, CALIFORNIA 91730

PREPARED BY

GEOTEK, INC.
710 EAST PARKRIDGE AVENUE, SUITE 105
CORONA, CALIFORNIA 92879

PROJECT NO. 1132-CR3 FEBRUARY 12, 2014

GEOTEK

GeoTek, Inc.
710 E. Parkridge Avenue, Suite 105, Corona, California 92879-1097
(951) 710-1160 Office (951) 710-1167 Fax www.geotekusa.com

February 12, 2014
Project No. 1132-CR3

Frontier Enterprises
8300 Utica Avenue, Suite 300
Rancho Cucamonga, California 91730

Attention: Mr. Lonnie Ellisor

Subject: Geotechnical Evaluation and Infiltration Study
Proposed Residential Development
APN 478-080-013
City of Moreno Valley, Riverside County, California

Dear Mr. Ellisor:

We are pleased to provide herein the results of our Geotechnical Evaluation and Infiltration Study for the subject project located in the City of Moreno Valley, Riverside County, California. This report presents the results of our evaluation and discussion of our findings. In our opinion, site development appears feasible from a geotechnical viewpoint. Site development and grading plans should be reviewed by this firm as they become available, as it will be necessary to provide appropriate recommendations for intended specific site development as those plans become refined.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to call our office.

Respectfully submitted,
GeoTek, Inc.

Edward H. LaMont
CEG 1824, Exp. 07/31/14
Principal Geologist

Edmond Vardeh
RCE 56992, Exp. 06/30/15
Project Engineer

Distribution: (1) Addressee via email
G:\Projects\1101 to 1150\1132CR3 Frontier Enterprises Moreno Valley\Geo\1132CR3 Geotechnical Evaluation and Infiltration Study APN 478-080-013.doc

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS

1. PURPOSE AND SCOPE OF SERVICES 1

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT 1

2.1 SITE DESCRIPTION 1
2.2 PROPOSED DEVELOPMENT 1

3. FIELD EXPLORATION AND LABORATORY TESTING 2

3.1 FIELD EXPLORATION 2
3.2 LABORATORY TESTING 2

4. GEOLOGIC AND SOILS CONDITIONS 2

4.1 REGIONAL SETTING 2
4.2 GENERAL SOIL CONDITIONS 3
4.2.1 Alluvial Deposits 3
4.3 SURFACE WATER AND GROUNDWATER 3
4.3.1 Surface Water 3
4.3.2 Groundwater 3
4.4 FAULTING AND SEISMICITY 4
4.4.1 Seismic Design Parameters 4
4.5 LIQUEFACTION/SEISMIC SETTLEMENT 4
4.6 OTHER SEISMIC HAZARDS 5

5. CONCLUSIONS AND RECOMMENDATIONS 5

5.1 GENERAL 5
5.2 EARTHWORK CONSIDERATIONS 5
5.2.1 General 5
5.2.2 Site Clearing and Preparation 6
5.2.3 Remedial Grading 6
5.2.4 Engineered Fill 7
5.2.5 Excavatability and Oversized Materials 7
5.2.6 Shrinkage and Bulking 7
5.2.7 Trench Excavations and Backfill 8
5.3 DESIGN RECOMMENDATIONS 8
5.3.1 Foundation Design Criteria 8
5.3.2 Miscellaneous Foundation Recommendations 11
5.3.3 Foundation Set Backs 11
5.3.4 Soil Corrosivity 12
5.3.5 Soil Sulfate Content 12
5.4 RETAINING WALL DESIGN AND CONSTRUCTION 12
5.4.1 General Design Criteria 12
5.4.2 Wall Backfill and Drainage 13
5.4.3 Restrained Retaining Walls 14
5.5 CONCRETE CONSTRUCTION 14
5.5.1 General 14
5.5.2 Concrete Mix Design 14
5.5.3 Concrete Flatwork 14

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TABLE OF CONTENTS

5.5.4 Concrete Performance *15*
5.6 INFILTRATION STUDY 15
5.7 POST CONSTRUCTION CONSIDERATIONS 16
5.7.1 Landscape Maintenance and Planting *16*
5.7.2 Drainage *16*
5.8 PLAN REVIEW AND CONSTRUCTION OBSERVATIONS 17

6. LIMITATIONS 17

7. SELECTED REFERENCES 18

ENCLOSURES

Figure 1 – Site Location Map
Figure 2 – General Site Topography Map
Figure 3 – Boring Location Map

Appendix A – Logs of Exploratory Borings
Appendix B – Results of Laboratory Testing
Appendix C – Infiltration Test Results
Appendix D – General Earthwork Grading Guidelines

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

1. PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to evaluate the general geotechnical conditions on the site. Services provided for this study included the following:

- Research and review of available geologic and geotechnical data, and general information pertinent to the site,
- Site exploration consisting of the excavation, logging and sampling of four (4) exploratory borings by a geologist from our firm,
- Laboratory testing of soil samples collected during the field investigation,
- Evaluation of near-surface water infiltration potential at the project site,
- Review and evaluation of site seismicity, and
- Compilation of this geotechnical report which presents our findings and a general summary of pertinent site geotechnical conditions relevant for site development.

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

2.1 SITE DESCRIPTION

The subject project site is located northwest of the intersection of Quincy Street and Brodiaea Avenue in the City of Moreno Valley, Riverside County, California (see Figure 1). The square-shaped property is comprised of roughly 9 acres of vacant land. The property is bounded by Brodiaea Avenue followed by an existing residential development to the south, vacant land to the north and west, and Quincy Street followed by vacant land to the east.

The site is relatively flat with total relief across the site on the order of roughly fifteen feet, with surface drainage generally directed toward the south. Topographically, the property ranges from approximately 1,580 to approximately 1,595 feet above mean sea level (msl). Figure 2, to the rear of the text of this report, shows historic topographic contours of the site and site area.

2.2 PROPOSED DEVELOPMENT

It is our understanding that proposed development will consist of single-family residential structures and associated streets. For this evaluation it was assumed that the structures will be one (1)- to two (2)-story, wood-framed residences situated atop slab-on-ground

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

foundations. As site development planning progresses and plans become available, the plans should be provided to GeoTek for review and comment.

3. FIELD EXPLORATION AND LABORATORY TESTING

3.1 FIELD EXPLORATION

Field exploration was conducted on January 22, 2014 and consisted of excavating four (4) exploratory borings, one (1) to a maximum depth of approximately 51.5 feet. Approximate locations of the exploratory borings are shown on the Boring Location Map (see Figure 3). A geologist from our firm logged the excavations and collected samples for use in the laboratory testing. The logs of the exploratory borings are included in Appendix A.

3.2 LABORATORY TESTING

Laboratory testing was performed on selected soil samples collected during the field exploration. The purpose of the laboratory testing was to help confirm the field classification of the soil materials encountered and to evaluate their physical and chemical properties for use in the engineering design and analysis. Results of the laboratory testing program, along with a brief description and relevant information regarding testing procedures, are included in Appendix B.

4. GEOLOGIC AND SOILS CONDITIONS

4.1 REGIONAL SETTING

The subject property is situated in the Peninsular Ranges geomorphic province. The Peninsular Ranges province is one of the largest geomorphic units in western North America. Basically, it extends roughly 975 miles from the north and northeasterly adjacent the Transverse Ranges geomorphic province to the tip of Baja California. This province varies in width from about 30 to 100 miles. It is bounded on the west by the Pacific Ocean, on the south by the Gulf of California and on the east by the Colorado Desert Province.

The Peninsular Ranges are essentially a series of northwest-southeast oriented fault blocks. Several major fault zones are found in this province. The Elsinore Fault zone and the San Jacinto Fault zones trend northwest-southeast and are found in the near the middle of the province. The San Andreas Fault zone borders the northeasterly margin of the province.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

More specific to the subject property, the site is located in an area geologically mapped to be underlain by Quaternary age alluvial fan deposits (Dibblee, 2003). No faults are shown in the immediate site vicinity on the maps reviewed for the area.

4.2 GENERAL SOIL CONDITIONS

A brief description of the earth materials encountered during our subsurface exploration is presented in the following section. Based on our site reconnaissance, field observations, our exploratory excavations and review of published geologic maps the subject site area is locally underlain by alluvial deposits. Although not encountered during our subsurface exploration, localized accumulations of undocumented artificial fill materials may exist onsite.

4.2.1 Alluvial Deposits

Alluvial deposits were observed to underlie the project site at the explored locations. The alluvial deposits encountered generally consist of sandy silt, silty sand and clayey sand, which is mostly gray brown to red brown, dry to slightly moist, and medium dense to dense (see logs in Appendix A).

Based on the results of the laboratory testing performed on a sample of the near surface onsite materials, these near surface alluvial materials indicated a "very low" expansion potential ($0 \leq EI \leq 20$) when tested and classified in accordance with ASTM D 4829. It is likely that most of the onsite materials encountered during grading and construction will have a "very low" expansion potential. Test results are shown in Appendix B.

4.3 SURFACE WATER AND GROUNDWATER

4.3.1 Surface Water

Surface water was not observed during our site visit. If encountered during earthwork construction, surface water on this site is the result of precipitation or possibly some minor surface run-off from immediately surrounding properties. Overall site area drainage is generally in a southerly direction, as directed by site topography. Provisions for surface drainage will need to be accounted for by the project civil engineer.

4.3.2 Groundwater

Groundwater was not encountered in any of our exploratory borings excavated for the herein evaluation. Perched groundwater or localized seepage can occur due to variations in rainfall, irrigation practices, and other factors not evident at the time of this investigation.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

4.4 FAULTING AND SEISMICITY

The geologic structure of the entire southern California area is dominated mainly by northwest-trending faults associated with the San Andreas system. The site is in a seismically active region. No active or potentially active fault is known to exist at this site nor is the site situated within an *"Alquist-Priolo"* Earthquake Fault Zone or a Special Studies Zone (CGS, 1974; Bryant and Hart, 2007). No faults are identified on geologic maps readily available and reviewed by this firm for the immediate study area. The County of Riverside has designated the site as having a "moderate" potential for liquefaction, as being "susceptible" to subsidence and not within a Riverside county designated fault zone.

4.4.1 Seismic Design Parameters

The site is located at approximately 33.9148 Latitude and -117.1665 Longitude. Site spectral accelerations (Ss and S_1), for 0.2 and 1.0 second periods for a Class "D" site, were determined from the USGS Website, Earthquake Hazards Program, U.S. Seismic Design Maps for Risk-Targeted Maximum Considered Earthquake (MCE_R) Ground Motion Response Accelerations for the Conterminous 48 States by Latitude/Longitude. The results are presented in the following table:

SITE SEISMIC PARAMETERS	
Mapped 0.2 sec Period Spectral Acceleration, S_s	1.992g
Mapped 1.0 sec Period Spectral Acceleration, S_1	0.891g
Site Coefficient for Site Class "D", F_a	1.0
Site Coefficient for Site Class "D", F_v	1.5
Maximum Considered Earthquake Spectral Response Acceleration for 0.2 Second, S_{MS}	1.992g
Maximum Considered Earthquake Spectral Response Acceleration for 1.0 Second, S_{M1}	1.336g
5% Damped Design Spectral Response Acceleration Parameter at 0.2 Second, S_{DS}	1.328g
5% Damped Design Spectral Response Acceleration Parameter at 1 second, S_{D1}	0.891g

4.5 LIQUEFACTION/SEISMIC SETTLEMENT

Liquefaction describes a phenomenon in which cyclic stresses, produced by earthquake-induced ground motion, create excess pore pressures in relatively cohesionless soils. These soils may thereby acquire a high degree of mobility, which can lead to lateral movement, sliding, consolidation and settlement of loose sediments, sand boils and other damaging deformations. This phenomenon occurs only below the water table, but, after liquefaction has

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

developed, the effects can propagate upward into overlying non-saturated soil as excess pore water dissipates.

The factors known to influence liquefaction potential include soil type and grain size, relative density, groundwater level, confining pressures, and both intensity and duration of ground shaking. In general, materials that are susceptible to liquefaction are loose, saturated granular soils having low fines content under low confining pressures.

The liquefaction potential on this site is considered to be low due to the lack of a shallow groundwater table.

4.6 OTHER SEISMIC HAZARDS

Evidence of ancient landslides or slope instabilities at this site was not observed during our investigation as the topography of the site is relatively flat. Thus, the potential for landslides is considered negligible.

The potential for secondary seismic hazards such as seiche and tsunami are considered to be remote due to site elevation and distance from an open body of water.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 GENERAL

Development of the site appears feasible from a geotechnical viewpoint. Specific recommendations for site development provided herein will need to be further evaluated when development plans are provided for our review.

5.2 EARTHWORK CONSIDERATIONS

5.2.1 General

Earthwork and grading should be performed in accordance with the applicable grading ordinances of City of Moreno Valley, the 2013 California Building Code (CBC), and recommendations contained in this report. The Grading Guidelines included in Appendix D outline general procedures and do not anticipate all site specific situations. In the event of conflict, the recommendations presented in the text of this report should supersede those contained in Appendix D.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.2.2 Site Clearing and Preparation

Site preparation should start with demolition/razing of any existing improvements and removal of deleterious materials and vegetation. These materials should be properly disposed of offsite. Any existing underground improvements, utilities and trench backfill should also be removed or be further evaluated as part of site development operations.

5.2.3 Remedial Grading

Prior to placement of fill materials, the upper loose and compressible materials should be removed for structural site areas. Additionally, all undocumented artificial fill materials should be removed for structural site areas (if encountered). The lateral extent of removals beyond the outside edge of all settlement sensitive structures/foundations should minimally be equivalent to that vertically removed. Depending on actual field conditions encountered during grading, locally deeper and/or shallower areas of removal may be necessary.

Removal depths a minimum of five (5) feet across the site are recommended. At a minimum, removal bottoms in alluvial areas should extend down to relatively uniform material which is not visibly porous. Removal bottoms should also be tested to have a minimum in-place relative compaction of at least 85%, at optimum moisture content or above.

At a minimum, any proposed cut lots and the cut portion(s) of any transition building pad areas should be overexcavated a minimum of three (3) feet below existing grades or a minimum of one (1) foot below the bottom of the deepest proposed footing, whichever is deeper, if not already mitigated by the removal recommendations provided above. Overexcavations should extend a minimum of five (5) feet outside the proposed building envelope(s). The intent of the recommended overexcavation is to support the improvements on engineered fill with relatively uniform engineering characteristics and decrease the potential for future differential settlement.

The bottom of all removals should be scarified to a minimum depth of eight (8) inches, brought to at or above optimum moisture content, and then compacted to minimum project standards prior to fill placement. The remedial excavation bottoms of should be observed by a GeoTek representative prior to scarification. The resultant voids from remedial grading/overexcavation should be filled with materials placed in accordance with Section 5.2.4 Engineered Fill of this report.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.2.4 Engineered Fill

Onsite materials are generally considered suitable for reuse as engineered fill provided they are free from vegetation, roots, and rock/concrete or hard lumps greater than six (6) inches in maximum dimension. The earthwork contractor should have the proposed excavated and stockpiled materials to be used as engineered fill at this project approved by the soils engineer prior to placement.

Engineered fill materials should be moisture conditioned to above optimum moisture content and compacted in horizontal lifts not exceeding eight (8) inches in loose thickness to a minimum relative compaction of 90% as determined in accordance with laboratory test procedure ASTM D 1557.

If fill is being placed on slopes steeper than 5:1 (h:v), the fill should be properly benched into the existing slopes and a sufficient size keyway shall be constructed in accordance with the recommendations of the soils engineer.

5.2.5 Excavatability and Oversized Materials

The alluvial materials should excavate easily using conventional heavy equipment in good working condition and modern earthmoving methods. Oversized materials (larger than six (6) inches in dimension) were not encountered during this investigation and are not anticipated to be encountered during rough grading. If encountered, placement of such materials may require special handing. No oversized rocks should be placed within the building footprint or street areas. Oversized materials may be placed in open space, landscape areas, if acceptable to the local agency. Alternatively, the rocks should be reduced in size, removed from the site, or handled as discussed in Appendix D.

Additional recommendations may be necessary based on exposed conditions during earthwork construction. General grading guidelines are included in Appendix D at the back of this report.

5.2.6 Shrinkage and Bulking

Several factors will impact earthwork balancing on the site, including shrinkage, subsidence, trench spoil from utilities and footing excavations, as well as the accuracy of topography.

Shrinkage and subsidence are primarily dependent upon the degree of compactive effort achieved during construction, depth of fill and underlying site conditions. For planning purposes, a shrinkage factor of up to 5 to 15 percent may be considered for the

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

materials requiring removal and recompaction. Subsidence on the order of approximately 0.2 foot may occur. Site balance areas should be available in order to adjust project grades, depending on actual field conditions at the conclusion of site earthwork construction.

5.2.7 Trench Excavations and Backfill

Temporary excavations within the onsite materials should be stable at 1:1 inclinations for short durations during construction, and where cuts do not exceed 10 feet in height. Temporary cuts to a maximum height of 4 feet can be excavated vertically.

Trench excavations should conform to Cal-OSHA regulations. The contractor should have a competent person, per OSHA requirements, on site during construction to observe conditions and to make the appropriate recommendations.

Utility trench backfill should be compacted to at least 90% relative compaction (as determined per ASTM D 1557). Under-slab trenches should also be compacted to project specifications. Where applicable, based on jurisdictional requirements, the top 12 inches of backfill below subgrade for road pavements should be compacted to at least 95 percent relative compaction. Onsite materials may not be suitable for use as bedding material, but should be suitable as backfill provided particles larger than 6± inches are removed.

Compaction should be achieved with a mechanical compaction device. Ponding or jetting of trench backfill is not recommended. If backfill soils have dried out, they should be thoroughly moisture conditioned prior to placement in trenches.

5.3 DESIGN RECOMMENDATIONS

5.3.1 Foundation Design Criteria

Preliminary foundation design criteria, in general conformance with the 2013 CBC, are presented herein. These are typical design criteria and are not intended to supersede the design by the structural engineer.

Based on the results of our recent testing, the anticipated onsite soils near subgrade may be preliminary classified as having an expansion potential "very low" ($0 \leq EI \leq 20$) in accordance with ASTM D 4829. Presented below are foundation design parameters for the proposed single-family residences.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Foundations should be designed in accordance with the *2013 California Building Code* (CBC).

Additional testing of the soils should be performed during construction to evaluate the as-graded conditions. Final foundation recommendations will be based on the as-graded soils conditions.

MINIMUM DESIGN REQUIREMENTS

DESIGN PARAMETER	0≤EI≤20
Foundation Depth or Minimum Perimeter Beam Depth (inches below lowest adjacent grade)	One-Story Exterior Footing – 12" One-Story Interior Footing – 12" Two-Story Exterior Footing – 18" Two-Story Interior Footing – 18"
Minimum Foundation Width	One-Story - 12" Two-Story – 15"
Minimum Slab Thickness (actual)	4"
Minimum Slab Reinforcing	No. 3 rebar 24" on-center, placed in the middle 1/3 of the slab
Minimum Footing Reinforcement	Two (2) No. 4 Reinforcing Bars- one (1) top and one (1) bottom
Presaturation of Subgrade Soil (Percent of Optimum/Depth in Inches)	100% to a depth of 12 inches

It should be noted that the above recommendations are based on soil support characteristics only. The structural engineer should design the slab and beam reinforcement based on actual loading conditions. If it is desired to utilize post-tensioned foundations, then those recommendations can be provided at the appropriate time.

5.3.1.1 An allowable bearing capacity of 1500 pounds per square foot (psf) may be used for design of continuous and perimeter footings 12 inches deep and 12 inches wide, and pad footings 24 inches square and 12 inches deep. This value may be increased by 200 pounds per square foot for each additional 12 inches in depth and 100 pounds per square foot for each additional 12 inches in width to a maximum value of 2000 psf. Additionally, an increase of one-third may be applied when considering short-term live loads (e.g. seismic and wind loads).

5.3.1.2 Based on our experience in the area, foundations may experience a total settlement of approximately one (1) inch as a result of structural loading. Differential settlement of up to one-half of the total settlement over a horizontal distance of 40 feet could result from structural loading. The foundation engineer should incorporate these settlement estimates from the structural loads into the design of the slab, as appropriate.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.3.1.3 The passive earth pressure may be computed as an equivalent fluid having a density of 150 psf per foot of depth, to a maximum earth pressure of 2,000 psf for footings founded on engineered fill. A coefficient of friction between soil and concrete of 0.30 may be used with dead load forces. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third.

5.3.1.4 A grade beam, a minimum of 12 inches wide and 12 inches deep, should be utilized across large entrances. The base of the grade beam should be at the same elevation as the bottom of the adjoining footings.

5.3.1.5 A moisture and vapor retarding system should be placed below slabs-on-grade where moisture migration through the slab is undesirable. Guidelines for these are provided in the 2013 California Green Building Standards Code (CALGreen) Section 4.505.2 and the 2013 CBC Section 1907.1 It should be realized that the effectiveness of the vapor retarding membrane can be adversely impacted as a result of construction related punctures (e.g. stake penetrations, tears, punctures from walking on the aggregate layer, etc.). These occurrences should be limited as much as possible during construction.

Thicker membranes are generally more resistant to accidental puncture that thinner ones. Products specifically designed for use as moisture/vapor retarders may also be more puncture resistant. Although the CBC specifies a 6 mil vapor retarder membrane, it is GeoTek's opinion that a minimum 10 mil membrane with joints properly overlapped and sealed should be considered, unless otherwise specified by the slab design professional.

Moisture and vapor retarding systems are intended to provide a certain level of resistance to vapor and moisture transmission through the concrete, but do not eliminate it. The acceptable level of moisture transmission through the slab is to a large extent based on the type of flooring used and environmental conditions. Ultimately, the vapor retarding system should be comprised of suitable elements to limit migration of water and reduce transmission of water vapor through the slab to acceptable levels. The selected elements should have suitable properties (i.e. thickness, composition, strength and permeance) to achieve the desired performance level. Consideration should be given to consulting with an individual possessing specific expertise in this area for additional evaluation.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.3.1.6 We recommend that control joints be placed in two directions spaced approximately 24 to 36 times the thickness of the slab in inches. These joints are a widely accepted means to control cracks and should be reviewed by the project structural engineer.

5.3.2 Miscellaneous Foundation Recommendations

5.3.2.1 To minimize moisture penetration beneath the slab on grade areas, utility trenches should be backfilled with engineered fill, lean concrete or concrete slurry where they intercept the perimeter footing or thickened slab edge.

5.3.2.2 Isolated exterior footings should be tied back to the main foundation system in two orthogonal directions.

5.3.2.3 Soils from the footing excavations should not be placed in the slab-on-grade areas unless properly compacted and tested. The excavations should be free of loose/sloughed materials and be neatly trimmed at the time of concrete placement.

5.3.2.4 Unsuitable soil removals along the property lines will likely be restricted due to adjacent improvements. Special considerations will be required for foundation elements in these areas. Such considerations may include deepening of foundations, reduced bearing capacity, or other measures. This issue should be further evaluated once site plans become available.

5.3.3 Foundation Set Backs

Where applicable, the following setbacks should apply to all foundations. Any improvements not conforming to these setbacks may be subject to lateral movements and/or differential settlements:

- The outside bottom edge of all footings should be set back a minimum of H/3 (where H is the slope height) from the face of any descending slope. The setback should be at least 7 feet and need not exceed 40 feet.
- The bottom of all footings for structures near retaining walls should be deepened so as to extend below a 1:1 projection upward from the bottom inside edge of the wall stem. This applies to the existing retaining walls along the perimeter, if they are to remain.
- The bottom of any existing foundations for structures should be deepened so as to extend below a 1:1 projection upward from the bottom of the nearest excavation.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.3.4 Soil Corrosivity

The soil resistivity at this site was tested in the laboratory on a sample collected during the field investigation. The results of the testing indicate that the onsite soils are considered "moderately corrosive" to buried metal in accordance with current standards used by corrosion engineers. These characteristics are considered typical of soils commonly found in southern California. We recommend that a corrosion engineer be consulted to provide recommendations for protection of buried metal at this site.

5.3.5 Soil Sulfate Content

The sulfate content was determined in the laboratory for onsite soil sample. The results indicate that the water soluble sulfate range is less than 0.1 percent by weight, which is considered "not applicable" (negligible) as per Table 4.2.1 of ACI 318.

5.4 RETAINING WALL DESIGN AND CONSTRUCTION

5.4.1 General Design Criteria

Recommendations presented herein may apply to typical masonry or concrete vertical retaining walls to a maximum height of 10 feet. Additional review and recommendations should be requested for higher walls.

Retaining wall foundations embedded a minimum of 18 inches into engineered fill or dense formational materials should be designed using an allowable bearing capacity of 1500 psf. An increase of one-third may be applied when considering short-term live loads (e.g. seismic and wind loads). The passive earth pressure may be computed as an equivalent fluid having a density of 200 psf per foot of depth, to a maximum earth pressure of 2,000 psf. A coefficient of friction between soil and concrete of 0.25 may be used with dead load forces. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third.

An equivalent fluid pressure approach may be used to compute the horizontal active pressure against the wall. The appropriate fluid unit weights are given in the table below for specific slope gradients of retained materials.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Surface Slope of Retained Materials (H:V)	Equivalent Fluid Pressure (PCF) Select Backfill*
Level	35
2:1	55

*Select backfill should consist of imported sand other approved materials with an SE>30 and an EI≤20.

The above equivalent fluid weights do not include other superimposed loading conditions such as expansive soil, vehicular traffic, structures, seismic conditions or adverse geologic conditions.

Additional lateral forces can be induced on retaining walls during an earthquake. For level backfill and a Site Class "D", the minimum earthquake-induced force (F_{eq}) should be $10H^2$ (lbs/linear foot of wall) for cantilever walls. This force can be assumed to act at a distance of 0.6H above the base of the wall, where "H" is the height of the retaining wall measured from the base of the footing (in feet).

5.4.2 Wall Backfill and Drainage

Wall backfill should include a minimum one (1) foot wide section of ¾ to 1-inch clean crushed rock (or approved equivalent). The rock should be placed immediately adjacent to the back of wall and extend up from the backdrain to within approximately 12 inches of finish grade. The upper 12 inches should consist of compacted onsite materials. If the walls are designed using the "select" backfill design parameters, then the "select" materials shall be placed within the active zone as defined by a 1:1 (H:V) projection from the back of the retaining wall footing up to the retained surface behind the wall. Presence of other materials might necessitate revision to the parameters provided and modification of wall designs.

The backfill materials should be placed in lifts no greater than eight (8) inches in thickness and compacted at 90% relative compaction in accordance with ASTM Test Method D 1557. Proper surface drainage needs to be provided and maintained. Water should not be allowed to pond behind retaining walls. Waterproofing of site walls should be performed where moisture migration through the wall is undesirable.

Retaining walls should be provided with an adequate pipe and gravel back drain system to reduce the potential for hydrostatic pressures to develop. A 4-inch diameter perforated collector pipe (Schedule 40 PVC, or approved equivalent) in a minimum of one cubic foot per lineal foot of 3/8 to one inch clean crushed rock or equivalent, wrapped in filter fabric should be placed near the bottom of the backfill and be directed (via a solid outlet pipe) to an

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

appropriate disposal area. Maximum horizontal spacing between drain outlets should be 100 feet.

Walls from two (2) to four (4) feet in height may be drained using localized gravel packs behind weep holes at 10 feet maximum spacing (e.g. approximately 1.5 cubic feet of gravel in a woven plastic bag). Weep holes should be provided or the head joints omitted in the first course of block extended above the ground surface. However, nuisance water may still collect in front of the wall.

Drain outlets should be maintained over the life of the project and should not be obstructed or plugged by adjacent improvements.

5.4.3 Restrained Retaining Walls

Any retaining wall that will be restrained prior to placing backfill or walls that have male or reentrant corners should be designed for at-rest soil conditions using an equivalent fluid pressure of 60 pcf (select backfill), plus any applicable surcharge loading. For areas having male or reentrant corners, the restrained wall design should extend a minimum distance equal to twice the height of the wall laterally from the corner, or as otherwise determined by the structural engineer.

5.5 CONCRETE CONSTRUCTION

5.5.1 General

Concrete construction should follow the 2013 CBC and ACI guidelines regarding design, mix placement and curing of the concrete. If desired, we could provide quality control testing of the concrete during construction.

5.5.2 Concrete Mix Design

As indicated in Section 5.3.5, no special concrete mix design is required by Code to resist sulfate attack based on the existing test results. However, additional testing should be performed during grading so that specific recommendations can be formulated based on the as-graded conditions.

5.5.3 Concrete Flatwork

Exterior concrete flatwork (patios, walkways, driveways, etc.) is often some of the most visible aspects of site development. They are typically given the least level of quality control, being considered "non-structural" components. Cracking of these features is fairly common due to

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

various factors. While cracking is not usually detrimental, it is unsightly. We suggest that the same standards of care be applied to these features as to the structure itself.

Flatwork may consist of 4 inch thick concrete and the use of reinforcement is suggested. The project structural engineer should provide final design recommendations.

5.5.4 Concrete Performance

Concrete cracks should be expected. These cracks can vary from sizes that are essentially unnoticeable to more than 1/8 inch in width. Most cracks in concrete while unsightly do not significantly impact long-term performance. While it is possible to take measures (proper concrete mix, placement, curing, control joints, etc.) to reduce the extent and size of cracks that occur, some cracking will occur despite the best efforts to minimize it. Concrete undergoes chemical processes that are dependent on a wide range of variables, which are difficult, at best, to control. Concrete, while seemingly a stable material, also is subject to internal expansion and contraction due to external changes over time.

One of the simplest means to control cracking is to provide weakened control joints for cracking to occur along. These do not prevent cracks from developing; they simply provide a relief point for the stresses that develop. These joints are a widely accepted means to control cracks but are not always effective. Control joints are more effective the more closely spaced they are. GeoTek suggests that control joints be placed in two directions and located a distance apart roughly equal to 24 to 36 times the slab thickness.

5.6 INFILTRATION STUDY

Percolation testing was performed in a test hole located in the southeastern portion of the site The infiltration testing was completed in general conformance with ASTM D 3385 using a double ring infiltrometer device in the excavation. A representative from our firm conducted the actual infiltration testing.

The slowest/most conservative infiltration rate of four (4) inches per hour was measured for the test hole, after the infiltration rate had generally stabilized. A copy of the infiltration test field data is included in Appendix C.

Over the lifetime of the disposal area, the infiltration rates may be affected by silt build up and biological activities, as well as local variations in near surface soil conditions. Additionally, both remedial and design cut and/or fill grading will be required to construct the proposed improvements. Consideration should be given to re-evaluating the site infiltration rates at the completion of grading.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.7 POST CONSTRUCTION CONSIDERATIONS

5.7.1 Landscape Maintenance and Planting

Water has been shown to weaken the inherent strength of soil, and slope stability is significantly reduced by overly wet conditions. Positive surface drainage away from graded slopes should be maintained and only the amount of irrigation necessary to sustain plant life should be provided for planted slopes. Controlling surface drainage and runoff, and maintaining a suitable vegetation cover can minimize erosion. Plants selected for landscaping should be lightweight, deep-rooted types that require little water and are capable of surviving the prevailing climate.

Overwatering should be avoided. The soils should be maintained in a solid to semi-solid state as defined by the materials Atterberg Limits. Care should be taken when adding soil amendments to avoid excessive watering. Leaching as a method of soil preparation prior to planting is not recommended. An abatement program to control ground-burrowing rodents should be implemented and maintained. This is critical as burrowing rodents can decreased the long-term performance of slopes.

It is common for planting to be placed adjacent to structures in planter or lawn areas. This will result in the introduction of water into the ground adjacent to the foundation. This type of landscaping should be avoided. If used, then extreme care should be exercised with regard to the irrigation and drainage in these areas. Waterproofing of the foundation and/or subdrains may be warranted and advisable. We could discuss these issues, if desired, when plans are made available.

5.7.2 Drainage

The need to maintain proper surface drainage and subsurface systems cannot be overly emphasized. Positive site drainage should be maintained at all times. Drainage should not flow uncontrolled down any descending slope. Water should be directed away from foundations and not allowed to pond or seep into the ground. Pad drainage should be directed toward approved area(s) and not be blocked by other improvements.

It is the owner's responsibility to maintain and clean drainage devices on or contiguous to their lot. In order to be effective, maintenance should be conducted on a regular and routine schedule and necessary corrections made prior to each rainy season.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.8 PLAN REVIEW AND CONSTRUCTION OBSERVATIONS

We recommend that site grading, specifications, retaining wall plans and foundation plans be reviewed by this office prior to construction to check for conformance with the recommendations of this report. Additional recommendations may be necessary based on these reviews. We also recommend that GeoTek representatives be present during site grading and foundation construction to check for proper implementation of the geotechnical recommendations. The owner/developer should have GeoTek's representative perform at least the following duties:

- Observe site clearing and grubbing operations for proper removal of unsuitable materials.
- Observe and test bottom of removals prior to fill placement.
- Evaluate the suitability of on-site and import materials for fill placement, and collect soil samples for laboratory testing when necessary.
- Observe the fill for uniformity during placement including utility trenches.
- Test the fill for field density and relative compaction.
- Observe and probe foundation excavations to confirm suitability of bearing materials.

If requested, a construction observation and compaction report can be provided by GeoTek, which can comply with the requirements of the governmental agencies having jurisdiction over the project. We recommend that these agencies be notified prior to commencement of construction so that necessary grading permits can be obtained.

6. LIMITATIONS

It is the intent of this report to aid in the design and construction of the proposed development. Implementation of the advice presented in Section 5 of this report is intended to reduce risk associated with construction projects. The professional opinions and geotechnical advice contained in this report are not intended to imply total performance of the project or guarantee that unusual or variable conditions will not be discovered during or after construction.

The scope of our evaluation is limited to the area explored that is shown on the Boring Location Map (Figure 2). This evaluation does not and should in no way be construed to encompass any areas beyond the specific area of proposed construction as indicated to us by the client. Further, no evaluation of any existing site improvements is included. The scope is

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

based on our understanding of the project and the client's needs, our proposal (Proposal No. P3-1201213) dated December 5, 2013 and geotechnical engineering standards normally used on similar projects in this region.

The materials observed on the project site appear to be representative of the area; however, soil and bedrock materials vary in character between excavations and natural outcrops or conditions exposed during site construction. Site conditions may vary due to seasonal changes or other factors. GeoTek, Inc. assumes no responsibility or liability for work, testing or recommendations performed or provided by others.

Since our recommendations are based on the site conditions observed and encountered, and laboratory testing, our conclusions and recommendations are professional opinions that are limited to the extent of the available data. Observations during construction are important to allow for any change in recommendations found to be warranted. These opinions have been derived in accordance with current standards of practice and no warranty is expressed or implied. Standards of practice are subject to change with time.

7. SELECTED REFERENCES

Bryant, W.A., and Hart, E.W., 2007, Fault Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps, California Geological Survey: Special Publication 42.

California Code of Regulations, Title 24, 2013 "California Building Code," 3 volumes.

California Geological Survey (CGS, formerly referred to as the California Division of Mines and Geology), 1974, "State of California Special Studies Zones, Sunnymead Quadrangle."

_____, 1977, "Geologic Map of California."

_____, 1998, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada: International Conference of Building Officials.

_____, 2008, "Guidelines for Evaluating and Mitigating Seismic Hazards in California," Special Publication 117A.

Dibblee, Jr., T.W., 2003, "Geologic Map of the Sunnymead/South ½ of Redlands Quadrangles, San Bernardino and Riverside Counties, California," Dibblee Geology Center Map #DF-110, map scale 1:24000.

GeoTek, Inc., In-house proprietary information.

Seismic Design Values for Buildings (http://geohazards.usgs.gov/designmaps/us/application.php).

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Frontier Enterprises
APN 478-080-013
City of Moreno Valley
Riverside County, California

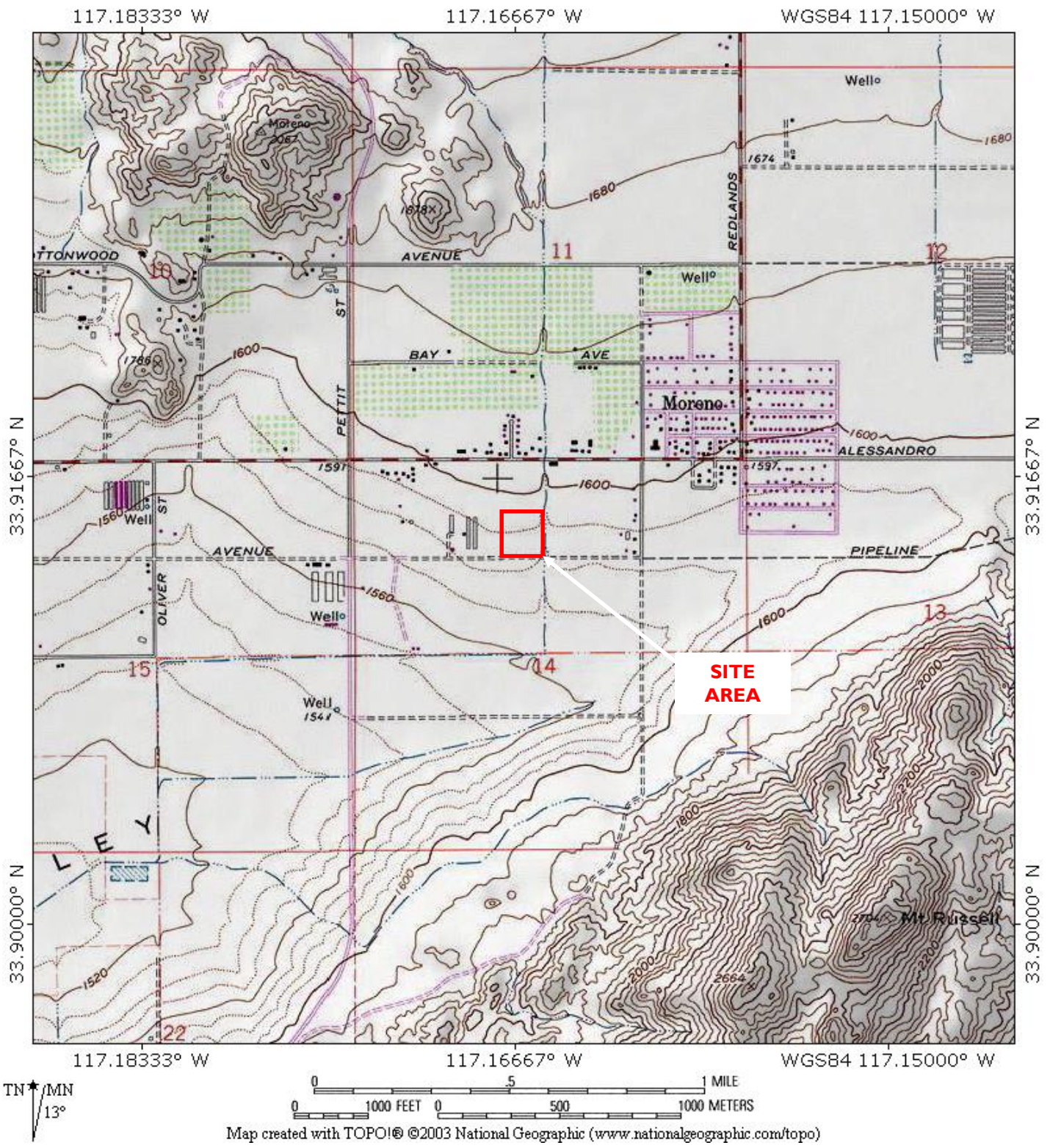
GeoTek Project No. 1132-CR3

Figure 1

Site Location Map

GEOTEK

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)



Frontier Enterprises
APN 478-080-013
City of Moreno Valley
Riverside County, California

GeoTek Project No. 1132-CR3

Figure 2

General Site Topography Map

GEOTEK

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Frontier Enterprises
APN 478-080-013
City of Moreno Valley
County of Riverside, California

GeoTek Project No. 1132-CR3

N

Figure 3

Boring Location Map

GEOTEK

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX A

LOGS OF EXPLORATORY BORINGS

APN 478-080-013
City of Moreno Valley, California
Project No. 1132-CR3

GEOTEK

A - FIELD TESTING AND SAMPLING PROCEDURES

The Modified Split-Barrel Sampler (Ring)

The Ring sampler is driven into the ground in accordance with ASTM Test Method D 3550. The sampler, with an external diameter of 3.0 inches, is lined with 1-inch long, thin brass rings with inside diameters of approximately 2.4 inches. The sampler is typically driven into the ground 12 or 18 inches with a 140-pound hammer free falling from a height of 30 inches. Blow counts are recorded for every 6 inches of penetration as indicated on the log of boring. The samples are removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

Bulk Samples (Large)

These samples are normally large bags of representative earth materials over 20 pounds in weight collected from the field by means of hand digging or exploratory cuttings.

B - BORING LOG LEGEND

The following abbreviations and symbols often appear in the classification and description of soil and rock on the logs of borings:

SOILS

USCS	Unified Soil Classification System
f-c	Fine to coarse
f-m	Fine to medium

GEOLOGIC

B: Attitudes	Bedding: strike/dip
J: Attitudes	Joint: strike/dip
C:	Contact line
……..	Dashed line denotes USCS material change
_____	Solid Line denotes unit / formational change
_____	Thick solid line denotes end of boring

(Additional denotations and symbols are provided on the log of boring)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	AMS
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jeff
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	1/22/2014

BORING NO.: B-1

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			SH, MD, EI, SR
	Ring	2 8 8	B1-1	ML	2': Fine sandy SILT, light gray brown, dry, soft, porous	5.7	88.2	
5	Ring	4 7 9	B1-2		5': SAME	7.6	85.5	
10	Ring	5 9 12	B1-3		10': SAME, firm to stiff, no visible porosity	7.5	87.6	HC
15	Ring	24 50	B1-4	SC	15': Clayey silty f-c SAND, red brown, slightly moist, dense			
20	Ring	18 32 50-5"	B1-5	SM	20': Silty fine SAND, light gray brown, slightly moist, dense			
25								
30	Ring	11 14 21	B1-6		30': SAME			

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	AMS
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jeff
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	1/22/2014

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	BORING NO.: B-1 (continued) / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium (continued)			
40		18 23 36	B1-7	SM	40': Silty fine SAND, light gray brown, slightly moist, dense			
50		20 30 50	B1-8	SM	50': Silty fine SAND, red brown, slightly moist, dense			
					BORING TERMINATED AT 51.5 FEET No groundwater encountered Boring backfilled with cuttings			

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	AMS
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jeff
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	1/22/2014

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	BORING NO.: B-2 / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			
	■	6 7 9	B2-1	ML	2': Fine sandy SILT, light gray brown, dry, soft	5.1	101.1	
5	■	7 7 9	B2-2		5': SAME, slightly moist, firm	7.4	108.6	
10	■	5 7 8	B2-3	SM	10': Silty fine SAND, light gray brown, slightly moist, medium dense	7.1	101.2	
15	■	9 12 21	B2-4	SC	15': Silty clayey SAND, red brown, slightly moist, dense			
20	■	23 50	B2-5		20': SAME			
					BORING TERMINATED AT 21 FEET No groundwater encountered Boring backfilled with cuttings			
25								
30								

LEGEND

Sample type: ■ ---Ring ▮ ---SPT ▨ ---Small Bulk ▩ ---Large Bulk □ ---No Recovery ▽ ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	AMS
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jeff
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	1/22/2014

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	BORING NO.: B-3 / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			
	■	6 5 7	B3-1	ML	2': Fine sandy SILT, light gray brown, dry, soft	7.4	102.2	
5	■	4 6 6	B3-2	SM	5': Silty fine SAND, light gray brown, slightly moist to moist, medium dense	12.4	105.9	
10	■	3 6 7	B3-3	SM	10': SAME	9.7	106.2	
15	■	8 18 27	B3-4	SC	15': Silty clayey SAND, red brown, slightly moist, dense			
20	■	17 25 28	B3-5	SM	20': Silty f-c SAND, light red brown to light brown, slightly moist, dense			
25					**BORING TERMINATED AT 21.5 FEET** No groundwater encountered Boring backfilled with cuttings			
30								

LEGEND

Sample type: ■ ---Ring ▮ ---SPT ▨ ---Small Bulk ▩ ---Large Bulk □ ---No Recovery ▽ ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	AMS
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jeff
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	1/22/2014

BORING NO.: B-4

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			
	■	5 8 10	B4-1	SM	2': Silty fine SAND, light gray brown, slightly moist, medium dense	6.7	101.5	
5	■	6 7 8	B4-2		5': SAME	5.2	106.7	HC
10	■	6 8 10	B4-3		10': SAME	8.7	108.0	
15	■	7 15 26	B4-4	SC	15': Silty clayey SAND, red brown, slightly moist, dense			
20	■	12 20 38	B4-5	SM	20': Silty f-c SAND, light yellow brown, slightly moist, dense			
25					**BORING TERMINATED AT 21.5 FEET** No groundwater encountered Boring backfilled with cuttings			
30								

LEGEND

Sample type: ■ ---Ring ▮ ---SPT ▨ ---Small Bulk ▩ ---Large Bulk □ ---No Recovery ▽ ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX B

RESULTS OF LABORATORY TESTING

APN 478-080-013
City of Moreno Valley, California
Project No. 1132-CR3

GEOTEK

SUMMARY OF LABORATORY TESTING

Classification

Soils were classified visually in general accordance to the Unified Soil Classification System (ASTM Test Method D 2487). The soil classifications are shown on the logs of exploratory test borings in Appendix A.

Moisture-Density Relations

Laboratory testing was performed on a selected sample collected during the recent subsurface exploration. The laboratory maximum dry density and optimum moisture content for the sample tested was determined in general accordance with test method ASTM Test Method D 1557. The results are included herein.

Expansion Index

Expansion Index testing was performed in general accordance with ASTM Test Method D 4829. The test results are included herein.

Consolidation

Consolidation testing was performed on selected samples of the site soils according to ASTM Test Method D 2435. The results of this testing is presented herein.

Direct Shear Test

Shear testing was performed on a remolded sample of the site soil materials in general accordance with ASTM Test Method D 3080. The test results are included herein.

Sulfate Content, Resistivity and Chloride Content

Testing to determine the water-soluble sulfate content was performed by others in general accordance with California Test No. 417. Resistivity testing was completed by others in general accordance with California Test 643. Testing to determine the chloride content was performed by others in general accordance with California Test No. 422. The results of the testing are included herein.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GEOTEK

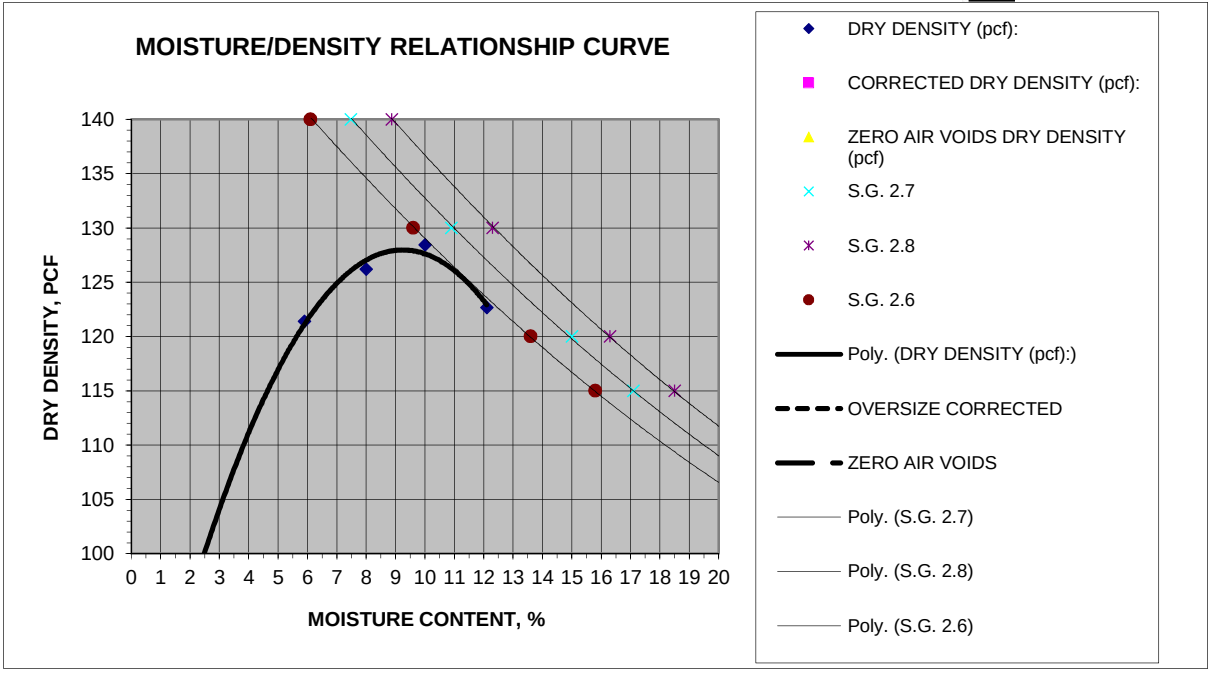
MOISTURE/DENSITY RELATIONSHIP

Client:	Frontier Enterprises	**Job No.:**	1132-CR3
Project:	Quincy/Brodiaea	**Lab No.:**	Corona
Location:	Moreno Valley		
Material Type:	Brown Sandy Silt		
Material Supplier:			
Material Source:			
Sample Location:	B-1 @ 0-5'		
Sampled By:	AMS	**Date Sampled:**	22-Jan-14
Received By:	DI	**Date Received:**	22-Jan-14
Tested By:	DI	**Date Tested:**	30-Jan-14
Reviewed By:	AMS	**Date Reviewed:**	11-Feb-14

Test Procedure: ASTM 1557 **Method:** A

Oversized Material (%): 3.2 **Correction Required:** [ ] yes [x] no

MOISTURE/DENSITY RELATIONSHIP CURVE



MOISTURE DENSITY RELATIONSHIP VALUES

Maximum Dry Density, pcf	127.5	**@ Optimum Moisture, %**	9.5
Corrected Maximum Dry Density, pcf		**@ Optimum Moisture, %**	

MATERIAL DESCRIPTION

Grain Size Distribution:

	% Gravel (retained on No. 4)
	% Sand (Passing No. 4, Retained on No. 200)
	% Silt and Clay (Passing No. 200)

Atterberg Limits:

	Liquid Limit, %
	Plastic Limit, %
	Plasticity Index, %

Classification:

Unified Soils Classification:

AASHTO Soils Classification:

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GEOTEK

EXPANSION INDEX TEST

(ASTM D4829)

Client:	1132-CR3	***Tested/ Checked By:***	DI Lab No Corona
Project Number:	Frontier Enterprises	***Date Tested:***	2/4/2014
Project Location:	Moreno Valley	***Sample Source:***	B-1 @ 0-5'
		Sample Description:	Brown Silty Sand

Ring #:_____ Ring Dia. : 4.01" Ring Ht.1"

Loading weight: 5516. grams

DENSITY DETERMINATION

A	Weight of compacted sample & ring (gm)	767.1
B	Weight of ring (gm)	363.8
C	Net weight of sample (gm)	403.3
D	Wet Density, lb / ft3 (C*0.3016)	121.6
E	Dry Density, lb / ft3 (D/1.F)	**112.1**

SATURATION DETERMINATION

F	Moisture Content, %	8.5
G	Specific Gravity, assumed	2.6
H	Unit Wt. of Water @ 20°C, (pcf)	62.3
I	% Saturation	**50**

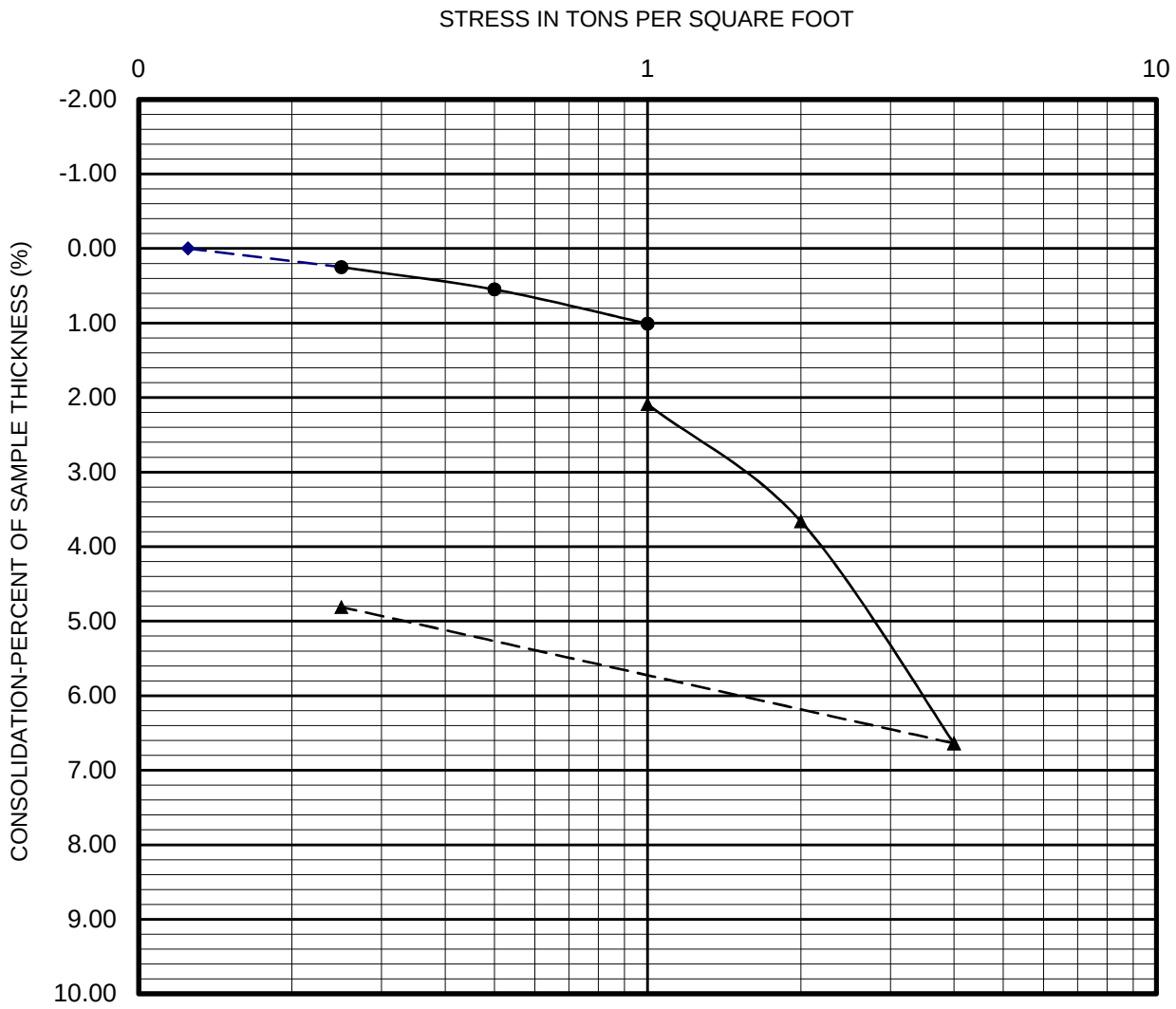
READINGS

DATE	TIME	READING	
2/4/2014	11:00	0.1790	Initial
	11:10	0.1790	10 min/Dry
	11:11	0.1790	1 min/Wet
	11:16	0.1820	5 min/Wet
2/5/2014	4:07	0.1860	Random
	5:12	0.1860	Final

FINAL MOISTURE

Weight of wet sample & tare	Weight of dry sample & tare	Tare	% Moisture
402.0	344.8		**16.6%**

EXPANSION INDEX = 7



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

GEOTEK

CHECKED BY: AMS	Lab: DI
PROJECT NO.: 1132-CR3	02/14

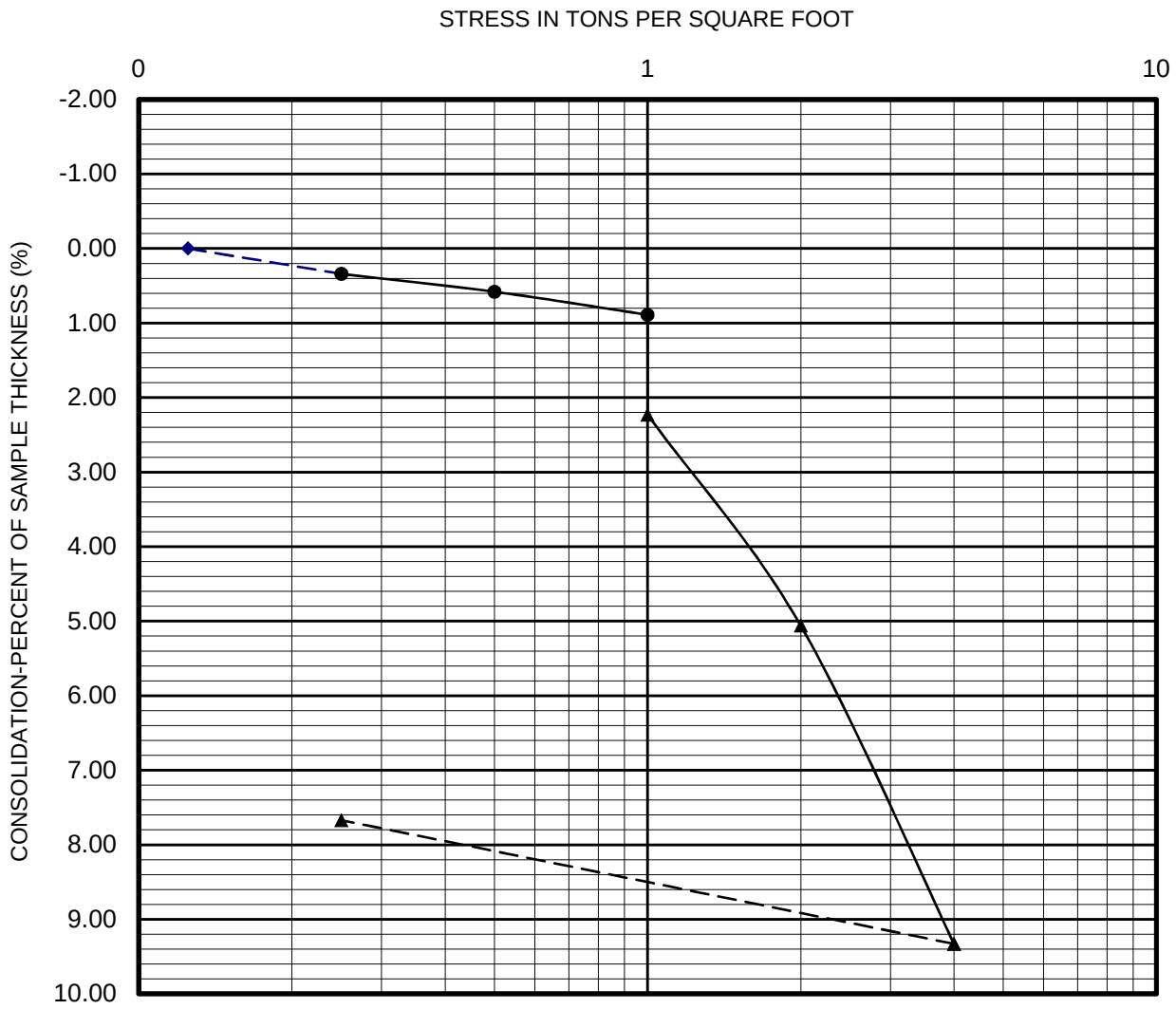
CONSOLIDATION REPORT

Sample: B-1 @ 10'

Quincy Street/Brodiaea Avenue
Moreno Valley, California

Plate C-1

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

GEOTEK

CHECKED BY: AMS	Lab: DI
PROJECT NO.: 1132-CR3	02/14

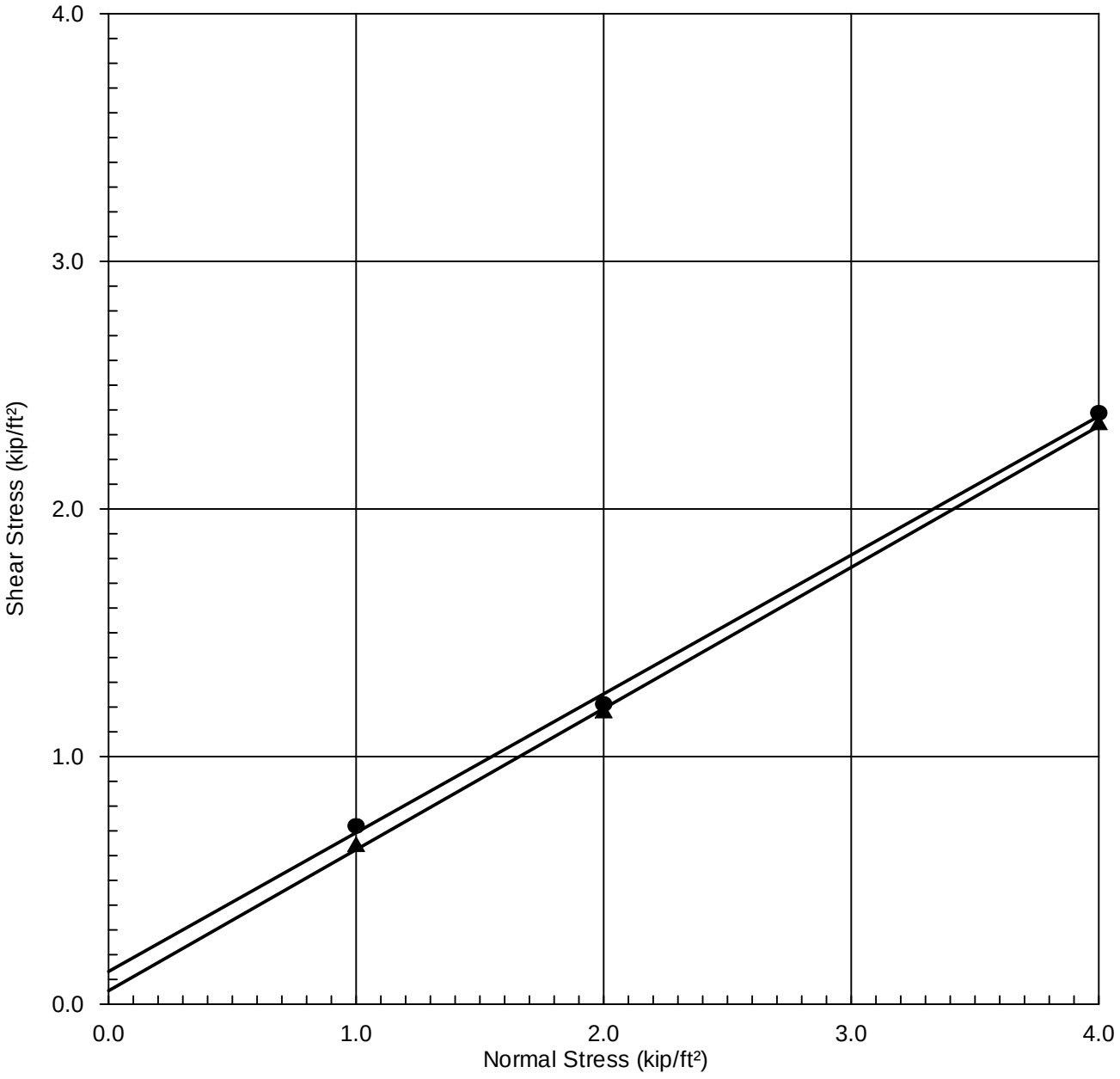
CONSOLIDATION REPORT

Sample: B-4 @ 5'

Quincy Street/Brodiaea Avenue
Moreno Valley, California

Plate C-2

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)



Boring No. : B-1
Depth (ft.) : 0 - 5
Sample : Remolded
Moisture : Saturated

ULTIMATE STRENGTH PARAMETERS

Cohesion(C) = 50 psf
Friction (ϕ) = 29.5°

PEAK STRENGTH PARAMETERS

Cohesion(C) = 130 psf
Friction (ϕ) = 29°

Project Name: Geotek (1132-CR3)

Project No.: 10-2700

TGR
Geotechnical
Environmental
Hydrogeology
Material Testing
Construction Inspection

TGR GEOTECHNICAL
3037 S. HARBOR BLVD
SANTA ANA, CA 92704
P 714.641.7189 F 714.641.7190
WWW.TGRGEOTECH.COM

DIRECT SHEAR TEST RESULTS
(ASTM D 3080)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Cal Land Engineering, Inc.
dba Quartech Consultants
Geotechnical, Environmental, and Civil Engineering

GeoTek, Inc.
710 East Parkridge Avenue, Suite 105
Corona, California 92879

Client: Frontier
W.O.: 1132-CR3
Project: Moreno Valley

Date: January 31, 2014
QCI Project No.: 14-167-01N
Summarized by: KA

Corrosivity Test Results

Sample ID	Depth (Feet)	pH CT-532 (643)	Chloride CT-422 (ppm)	Sulfate CT-417 (% By Weight)	Resistivity CT-532 (643) (ohm-cm)
B-1	0-5’	8.44	106	0.0025	2,950

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX C

INFILTRATION TEST DATA

APN 478-080-013
City of Moreno Valley, California
Project No. 1132-CR3

GEOTEK

SE CORNER BRODIAEA AVENUE AT QUINCY STREET

1132-CR3 FRONTIER

DOUBLE RING INFILTROMETER TEST DATA

Project Name and Test Location:		Liquid Used:	TAP WATER
Trench No.:	4	Ground Temperature:	
Tested by:	DVG	Liquid Level Mainted by Using:	
Date of Testing:	2/6/14	Penetration of Rings Into Soil (in.):	4 6
Water Table Depth:		USCS Classification:	

				FLOW READINGS					INFILTRATION RATE		
TRIAL NO.	START/END	TIME	ELAPSED TIME (Min.)	INNER RING (in.)	RING FLOW (water added in ml)	ANNULAR READING (in.)	SPACE FLOW (water added in ml)	LIQUID TEMP. (F)	INNER (in./hr.)	ANNULAR (in./hr.)	REMARKS
1	S	5:17	0:00	10.0		12.0		72			
	E	5:27	10:00	9.0	1853	11.0	5560		6.0	6.0	
2	S	5:29	0:00	10.0		12.0					
	E	5:39	10:15	9.0	1853	11.0	5560		5.9	5.9	
3	S	5:41	0:00	10.0		12.0					
	E	5:52	10:30	9.0	1853	11.0	5560		5.7	5.7	
4	S	5:54	0:00	10.0		12.0					
	E	6:05	10:45	9.0	1853	11.0	5560		5.6	5.6	
5	S	6:07	0:00	10.0		12.0					
	E	6:18	11:00	9.0	1853	11.0	5560		5.5	5.5	
6	S	6:20	0:00	10.0		12.0					
	E	6:31	11:15	9.0	1853	11.0	5560		5.3	5.3	
7	S	6:33	0:00	10.0		12.0					
	E	6:45	11:30	9.0	1853	11.0	5560		5.2	5.2	
8	S	6:47	0:00	10.0		12.0					
	E	6:59	11:45	9.0	1853		5560		5.1	5.1	
9	S	7:01	0:00	10.0		12.0					
	E	7:13	12.00	9.0	1853	11.0	5560		5.0	5.0	
10	S	7:15	0:00	10.0		12.0					
	E	7:45	30:00	7.5	4633	9 1/2	13900		5.0	5.0	
11	S	7:50	0:00	10.0		12.0					
	E	8:20	30:00	7.5	4633	9 1/2	13900		5.0	5.0	
12	S	8:25	0:00	10.0		12.0					
	E	8:55	30:00	7.5	4633	9 1/2	13900		5.0	5.0	
13	S	9:00	0:00	10.0		12.0					
	E	9:30	30:00	7 5/8	4111	9 1/2	13900		4.75	5.0	
14	S	9:35	0:00	10.0		12.0					
	E	10:05	30:00	7 3/4	4170	9 5/8	13205		4.5	5.0	
15	S	10:10	0:00	10.0		12.0					
	E	10:40	30:00	7 7/8	3938	9 3/4	12510		4.25	4.5	
16	S	10:45	0:00	10.0		12.0					
	E	11:15	30:00	7 7/8	3938	9 3/4	12510		4.25	4.5	
17	S	11:20	0:00	10.0		12.0					
	E	11:50	30:00	8.0	3707	9 3/4	12510		4.0	4.5	
18	S	11:55	0:00	10.0		12.0					
	E	12:25	30:00	8.0	3707	9 3/4	12510		4.0	4.5	
19	S	12:30	0:00	10.0		12.0					
	E	1:00	30:00	8.0	3707	9 3/4	12510	72	4.0	4.5	

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX D

GENERAL EARTHWORK GRADING GUIDELINES

APN 478-080-013
City of Moreno Valley, California
Project No. 1132-CR3

GEOTEK

GENERAL GRADING GUIDELINES

Guidelines presented herein are intended to address general construction procedures for earthwork construction. Specific situations and conditions often arise which cannot reasonably be discussed in general guidelines, when anticipated these are discussed in the text of the report. Often unanticipated conditions are encountered which may necessitate modification or changes to these guidelines. It is our hope that these will assist the contractor to more efficiently complete the project by providing a reasonable understanding of the procedures that would be expected during earthwork and the testing and observation used to evaluate those procedures.

General

Grading should be performed to at least the minimum requirements of governing agencies, Chapters 18 and 33 of the Uniform Building Code, CBC (2013) and the guidelines presented below.

Preconstruction Meeting

A preconstruction meeting should be held prior to site earthwork. Any questions the contractor has regarding our recommendations, general site conditions, apparent discrepancies between reported and actual conditions and/or differences in procedures the contractor intends to use should be brought up at that meeting. The contractor (including the main onsite representative) should review our report and these guidelines in advance of the meeting. Any comments the contractor may have regarding these guidelines should be brought up at that meeting.

Grading Observation and Testing

1. Observation of the fill placement should be provided by our representative during grading. Verbal communication during the course of each day will be used to inform the contractor of test results. The contractor should receive a copy of the "Daily Field Report" indicating results of field density tests that day. If our representative does not provide the contractor with these reports, our office should be notified.
2. Testing and observation procedures are, by their nature, specific to the work or area observed and location of the tests taken, variability may occur in other locations. The contractor is responsible for the uniformity of the grading operations; our observations and test results are intended to evaluate the contractor's overall level of efforts during grading. The contractor's personnel are the only individuals participating in all aspect of site work. Compaction testing and observation should not be considered as relieving the contractor's responsibility to properly compact the fill.
3. Cleanouts, processed ground to receive fill, key excavations, and subdrains should be observed by our representative prior to placing any fill. It will be the contractor's responsibility to notify our representative or office when such areas are ready for observation.
4. Density tests may be made on the surface material to receive fill, as considered warranted by this firm.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5. In general, density tests would be made at maximum intervals of two feet of fill height or every 1,000 cubic yards of fill placed. Criteria will vary depending on soil conditions and size of the fill. More frequent testing may be performed. In any case, an adequate number of field density tests should be made to evaluate the required compaction and moisture content is generally being obtained.
6. Laboratory testing to support field test procedures will be performed, as considered warranted, based on conditions encountered (e.g. change of material sources, types, etc.) Every effort will be made to process samples in the laboratory as quickly as possible and in progress construction projects are our first priority. However, laboratory workloads may cause in delays and some soils may require a **minimum of 48 to 72 hours to complete test procedures**. Whenever possible, our representative(s) should be informed in advance of operational changes that might result in different source areas for materials.
7. Procedures for testing of fill slopes are as follows:
   a) Density tests should be taken periodically during grading on the flat surface of the fill, three to five feet horizontally from the face of the slope.
   b) If a method other than over building and cutting back to the compacted core is to be employed, slope compaction testing during construction should include testing the outer six inches to three feet in the slope face to determine if the required compaction is being achieved.
8. Finish grade testing of slopes and pad surfaces should be performed after construction is complete.

Site Clearing

1. All vegetation, and other deleterious materials, should be removed from the site. If material is not immediately removed from the site it should be stockpiled in a designated area(s) well outside of all current work areas and delineated with flagging or other means. Site clearing should be performed in advance of any grading in a specific area.
2. Efforts should be made by the contractor to remove all organic or other deleterious material from the fill, as even the most diligent efforts may result in the incorporation of some materials. This is especially important when grading is occurring near the natural grade. All equipment operators should be aware of these efforts. Laborers may be required as root pickers.
3. Nonorganic debris or concrete may be placed in deeper fill areas provided the procedures used are observed and found acceptable by our representative.

Treatment of Existing Ground

1. Following site clearing, all surficial deposits of alluvium and colluvium as well as weathered or creep effected bedrock, should be removed unless otherwise specifically indicated in the text of this report.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2. In some cases, removal may be recommended to a specified depth (e.g. flat sites where partial alluvial removals may be sufficient). The contractor should not exceed these depths unless directed otherwise by our representative.
3. Groundwater existing in alluvial areas may make excavation difficult. Deeper removals than indicated in the text of the report may be necessary due to saturation during winter months.
4. Subsequent to removals, the natural ground should be processed to a depth of six inches, moistened to near optimum moisture conditions and compacted to fill standards.
5. Exploratory back hoe or dozer trenches still remaining after site removal should be excavated and filled with compacted fill if they can be located.

Fill Placement

1. Unless otherwise indicated, all site soil and bedrock may be reused for compacted fill; however, some special processing or handling may be required (see text of report).
2. Material used in the compacting process should be evenly spread, moisture conditioned, processed, and compacted in thin lifts six (6) to eight (8) inches in compacted thickness to obtain a uniformly dense layer. The fill should be placed and compacted on a nearly horizontal plane, unless otherwise found acceptable by our representative.
3. If the moisture content or relative density varies from that recommended by this firm, the contractor should rework the fill until it is in accordance with the following:
   a) Moisture content of the fill should be at or above optimum moisture. Moisture should be evenly distributed without wet and dry pockets. Pre-watering of cut or removal areas should be considered in addition to watering during fill placement, particularly in clay or dry surficial soils. The ability of the contractor to obtain the proper moisture content will control production rates.
   b) Each six-inch layer should be compacted to at least 90 percent of the maximum dry density in compliance with the testing method specified by the controlling governmental agency. In most cases, the testing method is ASTM Test Designation D 1557.
4. Rock fragments less than eight inches in diameter may be utilized in the fill, provided:
   a) They are not placed in concentrated pockets;
   b) There is a sufficient percentage of fine-grained material to surround the rocks;
   c) The distribution of the rocks is observed by, and acceptable to, our representative.
5. Rocks exceeding eight (8) inches in diameter should be taken off site, broken into smaller fragments, or placed in accordance with recommendations of this firm in areas designated suitable for rock disposal. On projects where significant large quantities of oversized materials are anticipated, alternate guidelines for placement may be included. If significant oversize materials are encountered during construction, these guidelines should be requested.
6. In clay soil, dry or large chunks or blocks are common. If in excess of eight (8) inches minimum dimension, then they are considered as oversized. Sheepsfoot compactors or other suitable

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

methods should be used to break up blocks. When dry, they should be moisture conditioned to provide a uniform condition with the surrounding fill.

Slope Construction

1. The contractor should obtain a minimum relative compaction of 90 percent out to the finished slope face of fill slopes. This may be achieved by either overbuilding the slope and cutting back to the compacted core, or by direct compaction of the slope face with suitable equipment.
2. Slopes trimmed to the compacted core should be overbuilt by at least three (3) feet with compaction efforts out to the edge of the false slope. Failure to properly compact the outer edge results in trimming not exposing the compacted core and additional compaction after trimming may be necessary.
3. If fill slopes are built "at grade" using direct compaction methods, then the slope construction should be performed so that a constant gradient is maintained throughout construction. Soil should not be "spilled" over the slope face nor should slopes be "pushed out" to obtain grades. Compaction equipment should compact each lift along the immediate top of slope. Slopes should be back rolled or otherwise compacted at approximately every 4 feet vertically as the slope is built.
4. Corners and bends in slopes should have special attention during construction as these are the most difficult areas to obtain proper compaction.
5. Cut slopes should be cut to the finished surface. Excessive undercutting and smoothing of the face with fill may necessitate stabilization.

UTILITY TRENCH CONSTRUCTION AND BACKFILL

Utility trench excavation and backfill is the contractors responsibility. The geotechnical consultant typically provides periodic observation and testing of these operations. While efforts are made to make sufficient observations and tests to verify that the contractors' methods and procedures are adequate to achieve proper compaction, it is typically impractical to observe all backfill procedures. As such, it is critical that the contractor use consistent backfill procedures.

Compaction methods vary for trench compaction and experience indicates many methods can be successful. However, procedures that "worked" on previous projects may or may not prove effective on a given site. The contractor(s) should outline the procedures proposed, so that we may discuss them **prior** to construction. We will offer comments based on our knowledge of site conditions and experience.

1. Utility trench backfill in slopes, structural areas, in streets and beneath flat work or hardscape should be brought to at least optimum moisture and compacted to at least 90 percent of the laboratory standard. Soil should be moisture conditioned prior to placing in the trench.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2. Flooding and jetting are not typically recommended or acceptable for native soils. Flooding or jetting may be used with select sand having a Sand Equivalent (SE) of 30 or higher. This is typically limited to the following uses:

   a) shallow (12 + inches) under slab interior trenches and,

   b) as bedding in pipe zone.

   The water should be allowed to dissipate prior to pouring slabs or completing trench compaction.

3. Care should be taken not to place soils at high moisture content within the upper three feet of the trench backfill in street areas, as overly wet soils may impact subgrade preparation. Moisture may be reduced to 2% below optimum moisture in areas to be paved within the upper three feet below sub grade.

4. Sand backfill should not be allowed in exterior trenches adjacent to and within an area extending below a 1:1 projection from the outside bottom edge of a footing, unless it is similar to the surrounding soil.

5. Trench compaction testing is generally at the discretion of the geotechnical consultant. Testing frequency will be based on trench depth and the contractors procedures. A probing rod would be used to assess the consistency of compaction between tested areas and untested areas. If zones are found that are considered less compact than other areas, this would be brought to the contractors attention.

JOB SAFETY

General

Personnel safety is a primary concern on all job sites. The following summaries are safety considerations for use by all our employees on multi-employer construction sites. On ground personnel are at highest risk of injury and possible fatality on grading construction projects. The company recognizes that construction activities will vary on each site and that job site safety is the contractor's responsibility. However, it is, imperative that all personnel be safety conscious to avoid accidents and potential injury.

In an effort to minimize risks associated with geotechnical testing and observation, the following precautions are to be implemented for the safety of our field personnel on grading and construction projects.

1. Safety Meetings: Our field personnel are directed to attend the contractor's regularly scheduled safety meetings.

2. Safety Vests: Safety vests are provided for and are to be worn by our personnel while on the job site.

3. Safety Flags: Safety flags are provided to our field technicians; one is to be affixed to the vehicle when on site, the other is to be placed atop the spoil pile on all test pits.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

In the event that the contractor's representative observes any of our personnel not following the above, we request that it be brought to the attention of our office.

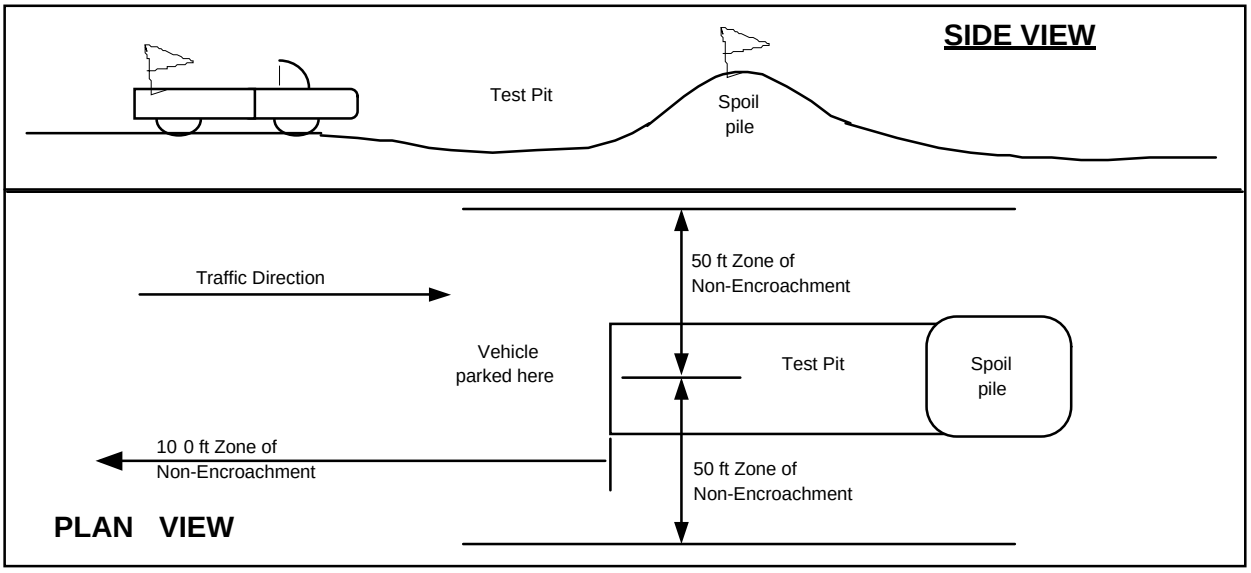
Test Pits Location, Orientation and Clearance

The technician is responsible for selecting test pit locations. The primary concern is the technician's safety. However, it is necessary to take sufficient tests at various locations to obtain a representative sampling of the fill. As such, efforts will be made to coordinate locations with the grading contractors authorized representatives (e.g. dump man, operator, supervisor, grade checker, etc.), and to select locations following or behind the established traffic pattern, preferably outside of current traffic. The contractors authorized representative should direct excavation of the pit and safety during the test period. Again, safety is the paramount concern.

Test pits should be excavated so that the spoil pile is placed away from oncoming traffic. The technician's vehicle is to be placed next to the test pit, opposite the spoil pile. This necessitates that the fill be maintained in a drivable condition. Alternatively, the contractor may opt to park a piece of equipment in front of test pits, particularly in small fill areas or those with limited access.

A zone of non-encroachment should be established for all test pits (see diagram below). No grading equipment should enter this zone during the test procedure. The zone should extend outward to the sides approximately 50 feet from the center of the test pit and 100 feet in the direction of traffic flow. This zone is established both for safety and to avoid excessive ground vibration, which typically decreases test results.

TEST PIT SAFETY PLAN



Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Slope Tests

When taking slope tests, the technician should park their vehicle directly above or below the test location on the slope. The contractor's representative should effectively keep all equipment at a safe operation distance (e.g. 50 feet) away from the slope during testing.

The technician is directed to withdraw from the active portion of the fill as soon as possible following testing. The technician's vehicle should be parked at the perimeter of the fill in a highly visible location.

Trench Safety

It is the contractor's responsibility to provide safe access into trenches where compaction testing is needed. Trenches for all utilities should be excavated in accordance with CAL-OSHA and any other applicable safety standards. Safe conditions will be required to enable compaction testing of the trench backfill.

All utility trench excavations in excess of 5 feet deep, which a person enters, are to be shored or laid back. Trench access should be provided in accordance with OSHA standards. Our personnel are directed not to enter any trench by being lowered or "riding down" on the equipment.

Our personnel are directed not to enter any excavation which;

1. is 5 feet or deeper unless shored or laid back,
2. exit points or ladders are not provided,
3. displays any evidence of instability, has any loose rock or other debris which could fall into the trench, or
4. displays any other evidence of any unsafe conditions regardless of depth.

If the contractor fails to provide safe access to trenches for compaction testing, our company policy requires that the soil technician withdraws and notifies their supervisor. The contractors representative will then be contacted in an effort to effect a solution. All backfill not tested due to safety concerns or other reasons is subject to reprocessing and/or removal.

Procedures

In the event that the technician's safety is jeopardized or compromised as a result of the contractor's failure to comply with any of the above, the technician is directed to inform both the developer's and contractor's representatives. If the condition is not rectified, the technician is required, by company policy, to immediately withdraw and notify their supervisor. The contractor's representative will then be contacted in an effort to effect a solution. No further testing will be performed until the situation is rectified. Any fill placed in the interim can be considered unacceptable and subject to reprocessing, recompaction or removal.

In the event that the soil technician does not comply with the above or other established safety guidelines, we request that the contractor bring this to technicians attention and notify our project

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

manager or office. Effective communication and coordination between the contractors' representative and the field technician(s) is strongly encouraged in order to implement the above safety program and safety in general.

The safety procedures outlined above should be discussed at the contractor's safety meetings. This will serve to inform and remind equipment operators of these safety procedures particularly the zone of non-encroachment.

The safety procedures outlined above should be discussed at the contractor's safety meetings. This will serve to inform and remind equipment operators of these safety procedures particularly the zone of non-encroachment.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.
1548 North Maple Street, Corona, California 92880
(951) 710-1160 Office (951) 710-1167 Fax www.geotekusa.com

April 4, 2018
Project No. 1132-CR3

Frontier Enterprises
2151 East Convention Center Way, Suite 100
Ontario, California 91764

Attention: Ms. Camille Thomas-McGee

Subject: Infiltration Evaluation
Proposed Storm Water Infiltration Area
Assessor's Parcel Number (APN) 478-080-013
Moreno Valley, Riverside County, California

References: See Page 4

Dear Ms. Thomas-McGee:

As requested and authorized, GeoTek, Inc. (GeoTek) has performed an infiltration evaluation at the subject property. The intent of this study is to evaluate the infiltration properties of the underlying soils within a proposed storm water infiltration area as indicated to us by the project civil engineer, Michael Baker International. This report presents the results of the testing completed by GeoTek.

Site and Project Description

The subject project is located northwest of the intersection of Quincy Street and Brodiaea Avenue in the city of Moreno Valley, Riverside County, California. The site consists of approximately 9 acres and is generally undeveloped and vacant land.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Two percolation test borings (Borings I-1 and I-2) were excavated in the southwest portion of the site where the proposed storm water infiltration area is to be constructed. These percolation borings were excavated to an approximate depth of six feet below the existing grades. The logs of the percolation borings are presented in Appendix A.

Groundwater was not encountered in any of the prior soil test borings excavated on the site to a maximum depth of 51.5 feet (GeoTek, 2014).

Infiltration Testing

Percolation testing was performed within each of the excavations within the lower 20 inches by a representative from our firm in general conformance with the referenced document (County of Riverside) and converted to an infiltration rate.

The infiltration rates are presented in the follow table for each of the borings after the rates had stabilized.

Test No.	Infiltration Rate (inches per hour)
I-1	1.26
I-2	1.20

Copies of the percolation data sheets and infiltration conversion sheets (Porchet Method) are included in Appendix B.

Over the lifetime of the storm water disposal areas, the infiltration rates may be affected by silt build up and biological activities, as well as local variations in near surface soil conditions. As per the *Design Handbook for Low Impact Development Best Management Practices,* a factor of safety of 3.0 should be applied to the infiltration rate.

LIMITATIONS

The materials observed on the project site appear to be representative of the area; however, soil materials vary in character between excavations and natural outcrops or conditions exposed during site construction. Site conditions may vary due to seasonal changes or other factors. GeoTek, Inc. assumes no responsibility or liability for work, testing or recommendations performed or provided by others.

Our conclusions and recommendations are professional opinions that are limited to the extent of the available data. Observations during construction are important to allow for any change in recommendations found to be warranted. These opinions have been derived in accordance

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

with current standards of practice and no warranty is expressed or implied. Standards of practice are subject to change with time.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to call our office.

Respectfully submitted,
GeoTek, Inc.

Edward H. LaMont
CEG 1892, Exp. 07/31/18
Principal Geologist

Robert R. Russell
GE 2042, Exp. 12/31/18
Senior Project Engineer

Anna M. Scott
Project Geologist

Enclosures: Figure 1 – Exploration Location Map
Appendix A – Logs of Exploratory Percolation Borings
Appendix B – Percolation Data Sheets and Conversion Sheets (Porchet Method)

Distribution: (1) Addressee via email (PDF file)

G:\Projects\1101 to 1150\1132CR3 Frontier Enterprises Moreno Valley\Infiltration Evaluation\1132CR3 Infiltration Evaluation Moreno Valley 26.doc

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

REFERENCES

GeoTek, Inc., 2014, "Geotechnical Evaluation and Infiltration Study, Proposed Residential Development, Assessor's Parcel Numbes (APN) 478-080-013, City of Moreno Valley, Riverside County, California," Project No. 1132-CR3, dated February 12.

Riverside County Flood Control and Water Conservation District, 2011, "Design Handbook for Low Impact Development Best Management Practices, Appendix A – Infiltration Testing Guidelines," effective September 2011.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Frontier Enterprises
APN 478-080-013
Moreno Valley, Riverside County, California

GeoTek Project No. 1132-CR3

GEOTEK

Figure 1

Infiltration Test Location Map

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX A

LOGS OF EXPLORATORY PERCOLATION BORINGS

APN 478-080-013

Moreno Valley, Riverside County, California

Project No. 1132-CR3

GEOTEK

BORING LOG LEGEND

The following abbreviations and symbols often appear in the classification and description of soil and rock on the log of borings:

SOILS

USCS	Unified Soil Classification System
f-c	Fine to coarse
f-m	Fine to medium

GEOLOGIC

B: Attitudes	Bedding: strike/dip
J: Attitudes	Joint: strike/dip
C: Contact line	
……..	Dashed line denotes USCS material change
———	Solid Line denotes unit / formational change
———	Thick solid line denotes end of the boring

(Additional denotations and symbols are provided on the log of boring)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	DRW
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jerry
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	3/30/2018

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	BORING NO.: I-1 / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
0					**Alluvium:**			
				ML	Fine sandy SILT, light grayish brown, dry to slightly moist, porous, trace coarse grained sand			
5					**BORING TERMINATED AT 6 FEET** No groundwater encountered			
10								
15								
20								
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling	**LOGGED BY:**	DRW
PROJECT NAME:	Quincy Street/Brodiaea Avenue	**DRILL METHOD:**	8" Hollow Stem	**OPERATOR:**	Jerry
PROJECT NO.:	1132-CR3	**HAMMER:**	Auto 140#/30"	**RIG TYPE:**	CME 75
LOCATION:	See Boring Location Map			**DATE:**	3/30/2018

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	BORING NO.: I-2 / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
5				ML	**Alluvium:** Fine sandy SILT, light gray, dry to slightly moist, trace coarse grained sand			
					BORING TERMINATED AT 6 FEET No groundwater encountered			
10								
15								
20								
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

APPENDIX B

PERCOLATION DATA SHEETS AND CONVERSION SHEETS

APN 478-080-013

Moreno Valley, Riverside County, California

Project No. 1132-CR3

GEOTEK

PERCOLATION DATA SHEET

Project: APN 478-080-013 **Job No.:** 1132-CR3

Test Hole No.: I-1 **Tested by:** DVG **Date:** 03/31/2018

Depth of Hole As Drilled: 72 inches **Before Test:** 72 inches **After Test:** 72 inches

Reading No.	Time	Time Interval (Min)	Total Depth of Hole (Inches)	Initial Water Level (Inches)	Final Water Level (Inches)	Δ In Water Level (Inches)	Rate (Minutes per Inch)	Comments
	7:10 AM		72	20				
	7:35 AM	25			13.25	6.75	3.7	
	7:37 AM		72	20				
	8:02 AM	25			13.25	7	3.7	
	8:04 AM		72	20				
	8:34 AM	30			13	7.00	4.3	
	8:36 AM		72	20				
	9:06 AM	30			13	7	4.3	
	9:08 AM		72	20				
	9:38 AM	30			13.25	7	4.4	
	9:40 AM		72	20				
	10:10 AM	30			13.25	7	4.4	
	10:12 AM		72	20				
	10:42 AM	30			13.25	7	4.4	
	10:44 AM		72	20				
	11:14 AM	30			13.5	6.5	4.6	
	11:16 AM		72	20				
	11:46 AM	30			13.5	6.5	4.6	
	11:48 AM		72	20				
	12:18 PM	30			13.75	6.25	4.8	
	12:20 PM		72	20				
	12:50 PM	30			13	7	4.3	
	12:52 PM		72	20				
	1:22 PM	30			14	6	5.0	
	1:24 PM		72	20				
	1:54 PM	30			14	6	5.0	
	1:56 PM		72	20				
	2:26 PM	30			14	6	5.0	

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

PERCOLATION DATA SHEET

Project: APN 478-080-013 **Job No.:** 1132-CR3

Test Hole No.: I-2 **Tested by:** DVG **Date:** 03/31/2018

Depth of Hole As Drilled: 72 inches **Before Test:** 72 inches **After Test:** 72 inches

Reading No.	Time	Time Interval (Min)	Total Depth of Hole (Inches)	Initial Water Level (Inches)	Final Water Level (Inches)	Δ In Water Level (Inches)	Rate (Minutes per Inch)	Comments
	8:50 AM		72	20				
	9:15 AM	25			13.5	6.5	3.8	
	9:17 AM		72	20				
	9:42 AM	25			13.5	7	3.8	
	9:44 AM		72	20				
	10:14 AM	30			13.25	6.75	4.4	
	10:16 AM		72	20				
	10:46 AM	30			13.25	7	4.4	
	10:48 AM		72	20				
	11:18 AM	30			13.25	7	4.4	
	11:20 AM		72	20				
	11:50 AM	30			13.5	7	4.6	
	11:52 AM		72	20				
	12:22 PM	30			13.50	7	4.6	
	12:24 PM		72	20				
	12:54 PM	30			13.75	6.25	4.8	
	12:56 PM		72	20				
	1:26 PM	30			13.75	6.25	4.8	
	1:28 PM		72	20				
	1:58 PM	30			14	6	5.0	
	2:00 PM		72	20				
	2:30 PM	30			14	6	5.0	
	2:32 PM		72	20				
	3:02 PM	30			14	6	5.0	
	3:04 PM		72	20				
	3:34 PM	30			14.25	5.75	5.2	
	3:36 PM		72	20				
	4:06 PM	30			14.25	5.75	5.2	

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Client:	**Frontier Enterprises**
Project:	**Moreno Valley 26**
Project No:	**1132-CR3**
Date:	**3/31/2018**

Boring No. **I-1**

Percolation Rate (Porchet Method)

Time Interval, Δt =	30
Final Depth to Water, D_F =	58
Test Hole Radius, r =	4
Initial Depth to Water, D_O =	52
Total Test Hole Depth, D_T =	72

Equation - $I_t = \dfrac{\Delta H\ (60r)}{\Delta t\ (r+2H_{avg})}$

$H_O = D_T - D_O$ =	20
$H_F = D_T - D_F$ =	14
$\Delta H = \Delta D = H_O - H_F$ =	6
$H_{avg} = (H_O+H_F)/2$ =	17

I_t = 1.26 **Inches per Hour**

GEOTEK

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Client:	**Frontier Enterprises**
Project:	**Moreno Valley 26**
Project No:	**1132-CR3**
Date:	**3/31/2018**

Boring No. **I-2**

Percolation Rate (Porchet Method)

Time Interval, Δt =	30
Final Depth to Water, D_F =	57.75
Test Hole Radius, r =	4
Initial Depth to Water, D_O =	52
Total Test Hole Depth, D_T =	72

Equation - $I_t = \dfrac{\Delta H\ (60r)}{\Delta t\ (r+2H_{avg})}$

$H_O = D_T - D_O$ =	20
$H_F = D_T - D_F$ =	14.25
$\Delta H = \Delta D = H_O - H_F$ =	5.75
$H_{avg} = (H_O+H_F)/2$ =	17.125

I_t = 1.20 **Inches per Hour**

GEOTEK

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

LID Infeasibility Analysis

The infiltration rates were analyzed during a geotechnical investigation (percolation testing) and is summarized in a report conducted by Geotek, Inc. (Appendix 3). Infiltration is feasible for DMA 4 due to the infiltration rate being 2 inches per hour including a factor of safety of 2, which is greater than the required 1.6 inches per hour. The infiltration rate recorded for DMA 1 is 1.26 and 1.20 in the approximate location of the bioretention basin. This is less than the required 1.6 inches per hour, therefore infiltration is not feasible at the location of the bioretention basin located in DMA 1.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Santa Ana Watershed - BMP Design Volume, V_{BMP}

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Michael Baker International	Date	4/16/2018
Designed by	Cameron Weiss	Case No	
Company Project Number/Name	Brodiaea Moreno Valley		

BMP Identification

BMP NAME / ID: Bioretention Basin

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85} = 0.67 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
1	*240887*	*Mixed Surface Types*	*0.65*	*0.45*	*108201.2*			
	240887		*Total*		108201.2	0.67	*6041.2*	

Proposed Volume must be greater than the Design Capture Volume

Notes:

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Santa Ana Watershed - BMP Design Volume, V_{BMP}

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Michael Baker International	Date	4/16/2018
Designed by	Cameron Weiss	Case No	
Company Project Number/Name	Brodiaea Moreno Valley		

BMP Identification

BMP NAME / ID: Modular Wetland System 1

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85} = 0.67 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
2	*67564*	*Mixed Surface Types*	*0.65*	*0.45*	*30348.3*			

Santa Ana Watershed - BMP Design Volume, V_{BMP}

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Michael Baker International	Date	4/16/2018
Designed by	Cameron Weiss	Case No	
Company Project Number/Name	Brodiaea Moreno Valley		

BMP Identification

BMP NAME / ID: Modular Wetland System 2

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85} = 0.67 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
3	*32538*	*Mixed Surface Types*	*0.65*	*0.45*	*14615.4*			
	32538		***Total***		**14615.4**	**0.67**	***816***	

Proposed Volume must be greater than the Design Capture Volume

Notes:

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Santa Ana Watershed - BMP Design Volume, V_{BMP}

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Michael Baker International	Date	4/16/2018
Designed by	Cameron Weiss	Case No	
Company Project Number/Name	Brodiaea Moreno Valley		

BMP Identification

BMP NAME / ID: Underground Infiltration Basin

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

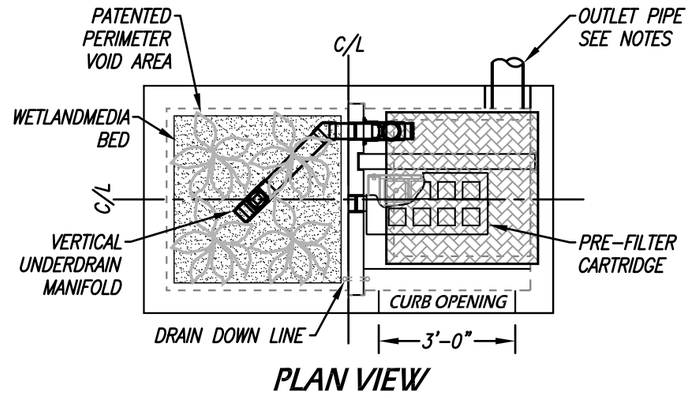
D_{85} = 0.67 inches

Drainage Management Area Tabulation

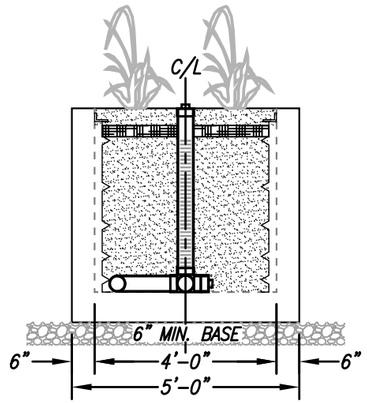
Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
4	*35518*	*Mixed Surface Types*	*0.65*	*0.45*	*15953.9*			

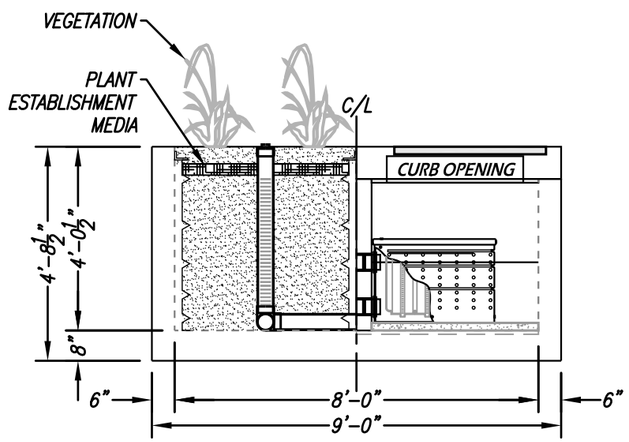
SITE SPECIFIC DATA			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PARKWAY	OPEN PLANTER	PARKWAY
FRAME & COVER	36" X 36"	N/A	N/A
WETLANDMEDIA VOLUME (CY)			2.03
WETLANDMEDIA DELIVERY METHOD			TBD
ORIFICE SIZE (DIA. INCHES)			ø1.53"
MAXIMUM PICK WEIGHT (LBS)			15000
NOTES:			



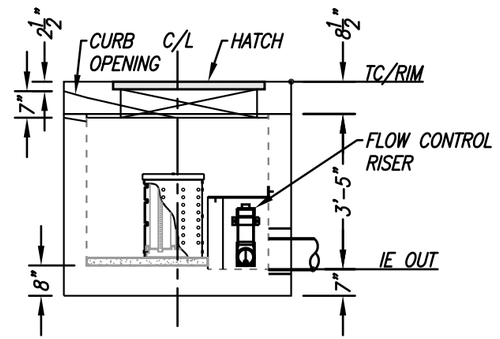
PLAN VIEW



LEFT END VIEW
BIOFILTRATION



ELEVATION VIEW



RIGHT END VIEW
PRETREATMENT/DISCHARGE

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
3. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL GAPS AROUND PIPES SHALL BE SEALED WATER TIGHT WITH A NON-SHRINK GROUT PER MANUFACTURERS STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. DRIP OR SPRAY IRRIGATION REQUIRED ON ALL UNITS WITH VEGETATION.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT MANUFACTURER.

TREATMENT FLOW (CFS)	0.115
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	TBD
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

THE PRODUCT DESCRIBED MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING US PATENTS: 7,425,262; 7,470,362; 7,674,378; 8,303,816; RELATED FOREIGN PATENTS OR OTHER PATENTS PENDING

PROPRIETARY AND CONFIDENTIAL:

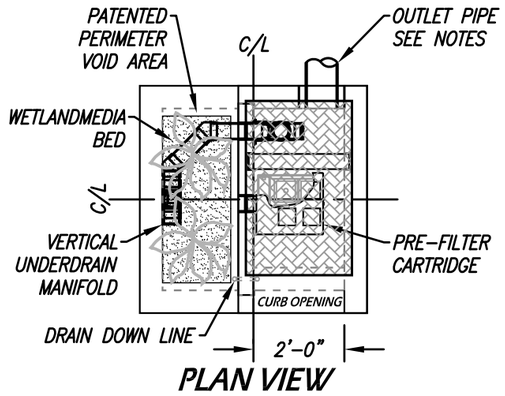
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MODULAR WETLANDS SYSTEMS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF MODULAR WETLANDS SYSTEMS IS PROHIBITED.

MODULAR WETLANDS
www.ModularWetlands.com | (855) 5MOD-WET

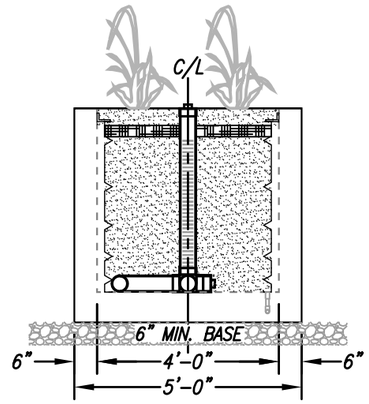
MWS-L-4-8-C
STORMWATER BIOFILTRATION SYSTEM STANDARD DETAIL

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

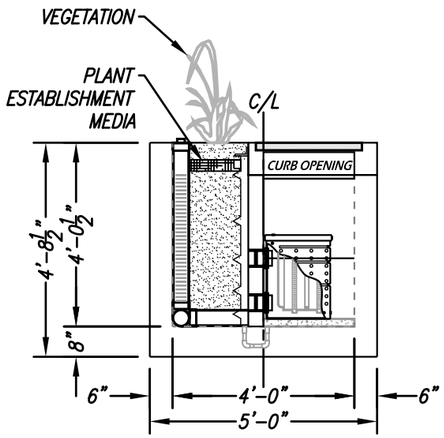
SITE SPECIFIC DATA			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PARKWAY	OPEN PLANTER	PARKWAY
FRAME & COVER	24" x 42"	N/A	N/A
WETLANDMEDIA VOLUME (CY)			0.83
WETLANDMEDIA DELIVERY METHOD			TBD
ORIFICE SIZE (DIA. INCHES)			ø1.03"
MAXIMUM PICK WEIGHT (LBS)			9000
NOTES:			



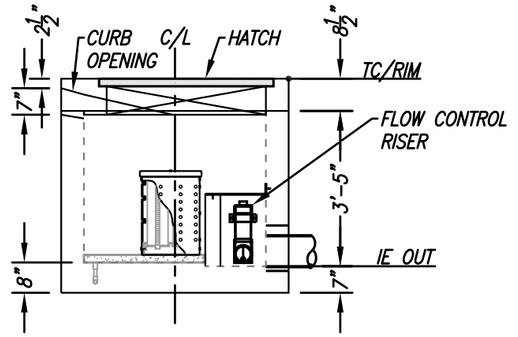
PLAN VIEW



LEFT END VIEW
BIOFILTRATION



ELEVATION VIEW



RIGHT END VIEW
PRETREATMENT/DISCHARGE

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
3. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL GAPS AROUND PIPES SHALL BE SEALED WATER TIGHT WITH A NON-SHRINK GROUT PER MANUFACTURERS STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. DRIP OR SPRAY IRRIGATION REQUIRED ON ALL UNITS WITH VEGETATION.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT MANUFACTURER.

TREATMENT FLOW (CFS)	0.052
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	TBD
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

THE PRODUCT DESCRIBED MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING US PATENTS: 7,425,262; 7,470,362; 7,674,378; 8,303,816; RELATED FOREIGN PATENTS OR OTHER PATENTS PENDING

PROPRIETARY AND CONFIDENTIAL:

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MODULAR WETLANDS SYSTEMS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF MODULAR WETLANDS SYSTEMS IS PROHIBITED.

MODULAR WETLANDS
www.ModularWetlands.com | (855) 5MOD-WET

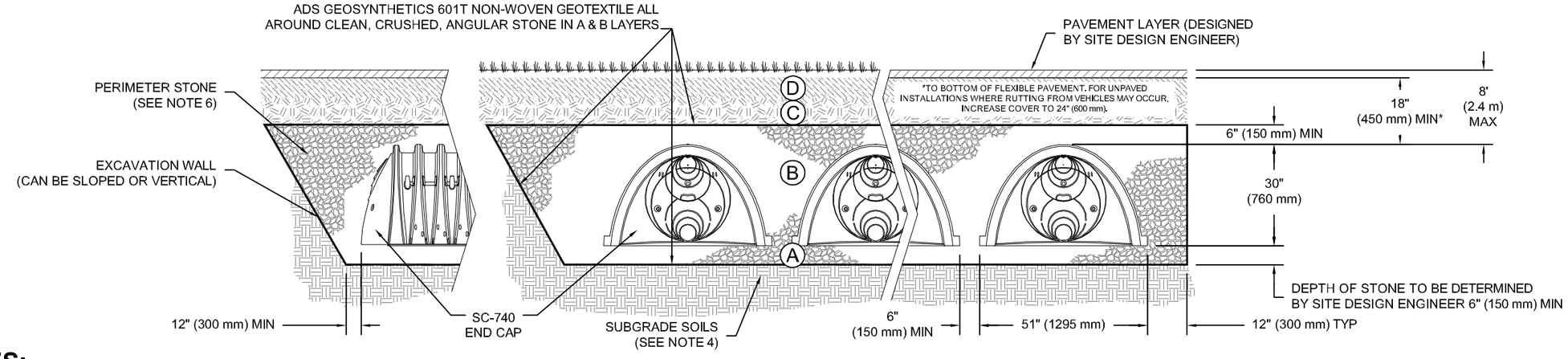
MWS-L-4-4-C
STORMWATER BIOFILTRATION SYSTEM STANDARD DETAIL

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2 3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:

1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

SC-740 STANDARD CROSS SECTION

3.t

DATE: 11/18/14 | DRAWN: JLM | CHECKED: JLM | PROJECT #:

REV	DRW	CHK	DESCRIPTION
01/19/16	JLM	JLM	UPDATE

StormTech®
Detention• Retention• Water Quality
70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067
860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

ADS®
ADVANCED DRAINAGE SYSTEMS, INC.
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

SHEET

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)
Packet Pg. 2074

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Pre-Development 2-Year Hydrograph		
ID	Area (AC)	Volume (ac-ft)
A	10.67	0.1511
B	7.43	0.1052
Total	18.1	0.2563

Post-Development 2-Year Hydrograph		
ID	Area (AC)	Volume (ac-ft)
A-1	2.92	0.0413
A-2	6.61	0.0936
B	7.2	0.1095
C	0.62	0.0272
D	0.75	0.0114
Total	18.1	0.2830

Volume Difference	0.0267	ac-ft
	1163	cf

Percent Increase	10.4%

Max Increase = 10%

Volume required to hold on site:	0.0011	ac-ft
	47	cf

New Proposed Volume	0.2819	ac-ft

Volume Difference	0.0256	ac-ft
	1116	cf

Percent Increase	10.0%

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

User Inputs

Chamber Model	SC-740
Outlet Control Structure	Yes (Outlet)
Project Name	Brodiaea
Engineer	JMB
Project Location	Moreno Valley, CA
Project Date	03/16/2018
Measurement Type	Imperial
Required Storage Volume	1,500 cubic ft.
Stone Porosity	40%
Stone Foundation Depth	6 in.
Stone Above Chambers	6 in.
Average Cover Over Chambers	18 in.
Design Constraint	Width
Design Constraint Dimension	15 ft.

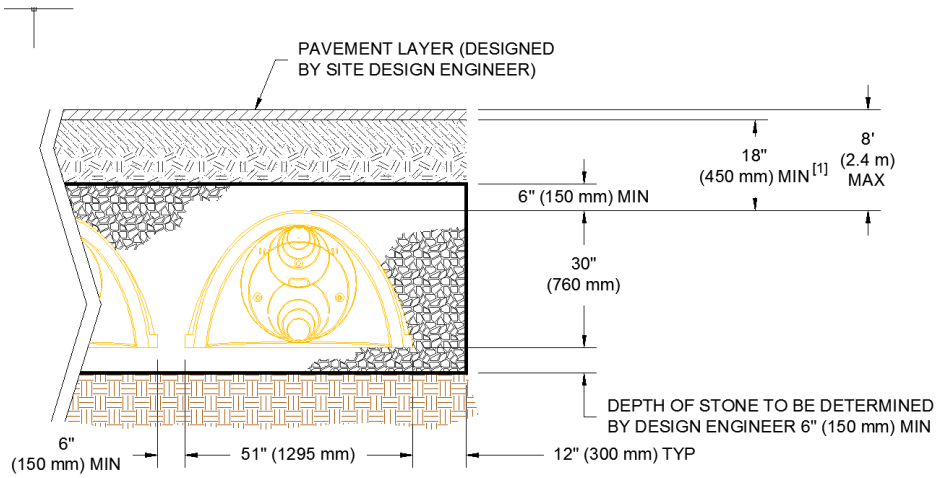
Results

System Volume and Bed Size

Installed Storage Volume	1520 cubic ft.
Storage Volume Per Chamber	74.90 cubic ft.
Number Of Chambers Required	16 each
Number Of End Caps Required	4 each
Rows/Chambers	2 row(s) of 8 chamber(s)
Maximum Length	68.03 ft.
Maximum Width	11.60 ft.
Approx. Bed Size Required	771 square ft.

System Components

Amount Of Stone Required	73 cubic yards
Volume Of Excavation (Not Including Fill)	100 cubic yards
Non-woven Filter Fabric Required	227 square yards
Length Of Isolator Row	58.54 ft.
Non-Woven Isolator Row Fabric	51 square yards
Woven Isolator Row Fabric	63 square yards



[1] - TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).

© ADS Stormtech 2016

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
**************************************************************************

              F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2013 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 20.0)
                  Release Date: 06/01/2013  License ID 1264

                           Analysis prepared by:

                               RBF Consulting
                            14257 Alton Parkway
                                 Irvine, CA
                                   92618

 ************************** DESCRIPTION OF STUDY **************************
* MORENO VALLEY                                                          *
* 2 YR HYDROGRAPH                                                        *
* PROPOSED CONDITION                                                     *
 **************************************************************************

  FILE NAME: PR-HYD.DAT
  TIME/DATE OF STUDY: 09:22 03/29/2018


**************************************************************************
  FLOW PROCESS FROM NODE      0.00 TO NODE      0.10 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =       2.920 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
  Warning: Watershed Area is less than 10 acres
         *USER ENTERED "LAG" TIME =    0.214 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.269
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.900
         MINIMUM SOIL-LOSS RATE(INCH/HOUR) =   0.123
         USER-ENTERED RAINFALL =  1.70 INCHES
         RCFC&WCD 24-Hour Storm (15-Minute period) SELECTED
         RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 1.0000


         UNIT HYDROGRAPH TIME UNIT =  15.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME = 116.550



==========================================================================
                      UNIT HYDROGRAPH DETERMINATION

--------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
--------------------------------------------------------------------------
        1               24.057                2.832
        2               72.946                5.755
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3	86.622	1.610
4	92.736	0.720
5	96.245	0.413
6	98.174	0.227
7	99.052	0.103
8	99.621	0.067
9	99.905	0.033
10	100.000	0.011

TOTAL STORM RAINFALL(INCHES) = 1.70
TOTAL SOIL-LOSS(INCHES) = 1.53
TOTAL EFFECTIVE RAINFALL(INCHES) = 0.17

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 0.3723
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 0.0413

♀

==========

2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

==========

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.083	0.0000	0.00	Q	.	.	.	.
0.167	0.0000	0.00	Q	.	.	.	.
0.250	0.0000	0.00	Q	.	.	.	.
0.333	0.0000	0.00	Q	.	.	.	.
0.417	0.0001	0.00	Q	.	.	.	.
0.500	0.0001	0.00	Q	.	.	.	.
0.583	0.0001	0.00	Q	.	.	.	.
0.667	0.0002	0.00	Q	.	.	.	.
0.750	0.0002	0.00	Q	.	.	.	.
0.833	0.0002	0.01	Q	.	.	.	.
0.917	0.0003	0.01	Q	.	.	.	.
1.000	0.0003	0.01	Q	.	.	.	.
1.083	0.0004	0.01	Q	.	.	.	.
1.167	0.0004	0.01	Q	.	.	.	.
1.250	0.0005	0.01	Q	.	.	.	.
1.333	0.0005	0.01	Q	.	.	.	.
1.417	0.0005	0.01	Q	.	.	.	.
1.500	0.0006	0.01	Q	.	.	.	.
1.583	0.0006	0.01	Q	.	.	.	.
1.667	0.0007	0.01	Q	.	.	.	.
1.750	0.0007	0.01	Q	.	.	.	.
1.833	0.0007	0.01	Q	.	.	.	.
1.917	0.0008	0.01	Q	.	.	.	.
2.000	0.0008	0.01	Q	.	.	.	.
2.083	0.0009	0.01	Q	.	.	.	.
2.167	0.0009	0.01	Q	.	.	.	.
2.250	0.0010	0.01	Q	.	.	.	.
2.333	0.0010	0.01	QV	.	.	.	.
2.417	0.0011	0.01	QV	.	.	.	.
2.500	0.0012	0.01	QV	.	.	.	.
2.583	0.0012	0.01	QV	.	.	.	.
2.667	0.0013	0.01	QV	.	.	.	.
2.750	0.0013	0.01	QV	.	.	.	.
2.833	0.0014	0.01	QV	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2.917	0.0015	0.01	QV	.	.	.	.
3.000	0.0015	0.01	QV	.	.	.	.
3.083	0.0016	0.01	QV	.	.	.	.
3.167	0.0017	0.01	QV	.	.	.	.
3.250	0.0017	0.01	QV	.	.	.	.
3.333	0.0018	0.01	QV	.	.	.	.
3.417	0.0019	0.01	QV	.	.	.	.
3.500	0.0019	0.01	QV	.	.	.	.
3.583	0.0020	0.01	QV	.	.	.	.
3.667	0.0021	0.01	QV	.	.	.	.
3.750	0.0021	0.01	Q V	.	.	.	.
3.833	0.0022	0.01	Q V	.	.	.	.
3.917	0.0023	0.01	Q V	.	.	.	.
4.000	0.0023	0.01	Q V	.	.	.	.
4.083	0.0024	0.01	Q V	.	.	.	.
4.167	0.0025	0.01	Q V	.	.	.	.
4.250	0.0026	0.01	Q V	.	.	.	.
4.333	0.0027	0.01	Q V	.	.	.	.
4.417	0.0027	0.01	Q V	.	.	.	.
4.500	0.0028	0.01	Q V	.	.	.	.
4.583	0.0029	0.01	Q V	.	.	.	.
4.667	0.0030	0.01	Q V	.	.	.	.
4.750	0.0031	0.01	Q V	.	.	.	.
4.833	0.0032	0.01	Q V	.	.	.	.
4.917	0.0033	0.01	Q V	.	.	.	.
5.000	0.0034	0.01	Q V	.	.	.	.
5.083	0.0035	0.01	Q V	.	.	.	.
5.167	0.0036	0.01	Q V	.	.	.	.
5.250	0.0037	0.01	Q V	.	.	.	.
5.333	0.0038	0.01	Q V	.	.	.	.
5.417	0.0039	0.01	Q V	.	.	.	.
5.500	0.0040	0.01	Q V	.	.	.	.
5.583	0.0041	0.01	Q V	.	.	.	.
5.667	0.0042	0.01	Q V	.	.	.	.
5.750	0.0043	0.01	Q V	.	.	.	.
5.833	0.0044	0.02	Q V	.	.	.	.
5.917	0.0045	0.02	Q V	.	.	.	.
6.000	0.0046	0.02	Q V	.	.	.	.
6.083	0.0047	0.02	Q V	.	.	.	.
6.167	0.0048	0.02	Q V	.	.	.	.
6.250	0.0049	0.02	Q V	.	.	.	.
6.333	0.0050	0.02	Q V	.	.	.	.
6.417	0.0052	0.02	Q V	.	.	.	.
6.500	0.0053	0.02	Q V	.	.	.	.
6.583	0.0054	0.02	Q V	.	.	.	.
6.667	0.0055	0.02	Q V	.	.	.	.
6.750	0.0057	0.02	Q V	.	.	.	.
6.833	0.0058	0.02	Q V	.	.	.	.
6.917	0.0059	0.02	Q V	.	.	.	.
7.000	0.0060	0.02	Q V	.	.	.	.
7.083	0.0062	0.02	Q V	.	.	.	.
7.167	0.0063	0.02	Q V	.	.	.	.
7.250	0.0065	0.02	Q V	.	.	.	.
7.333	0.0066	0.02	Q V	.	.	.	.
7.417	0.0067	0.02	Q V	.	.	.	.
7.500	0.0069	0.02	Q V	.	.	.	.
7.583	0.0070	0.02	Q V	.	.	.	.
7.667	0.0072	0.02	Q V	.	.	.	.
7.750	0.0073	0.02	Q V	.	.	.	.
7.833	0.0075	0.02	Q V	.	.	.	.
7.917	0.0077	0.02	Q V	.	.	.	.
8.000	0.0078	0.02	Q V	.	.	.	.
8.083	0.0080	0.03	Q V	.	.	.	.
8.167	0.0082	0.03	Q V	.	.	.	.
8.250	0.0084	0.03	Q V	.	.	.	.
8.333	0.0085	0.03	Q V	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
 8.417      0.0087      0.03  Q        V .          .          .          .
 8.500      0.0089      0.03  Q        V .          .          .          .
 8.583      0.0091      0.03  Q        V .          .          .          .
 8.667      0.0093      0.03  Q         V.          .          .          .
 8.750      0.0096      0.03  Q         V.          .          .          .
 8.833      0.0098      0.03  Q         V.          .          .          .
 8.917      0.0100      0.03  Q         V.          .          .          .
 9.000      0.0102      0.03  Q         V.          .          .          .
 9.083      0.0104      0.03  Q          V          .          .          .
 9.167      0.0107      0.03  Q          V          .          .          .
 9.250      0.0109      0.03  Q          V          .          .          .
 9.333      0.0112      0.04  Q          V          .          .          .
 9.417      0.0114      0.04  Q           V         .          .          .
 9.500      0.0117      0.04  Q           V         .          .          .
 9.583      0.0119      0.04  Q          .V         .          .          .
 9.667      0.0122      0.04  Q          .V         .          .          .
 9.750      0.0125      0.04  Q           . V       .          .          .
 9.833      0.0128      0.04  Q           . V       .          .          .
 9.917      0.0130      0.04  Q           . V       .          .          .
10.000      0.0133      0.04  Q           . V       .          .          .
10.083      0.0136      0.04  Q           .  V      .          .          .
10.167      0.0139      0.04  Q           .  V      .          .          .
10.250      0.0141      0.04  Q           .  V      .          .          .
10.333      0.0144      0.03  Q           .  V      .          .          .
10.417      0.0146      0.03  Q           .   V     .          .          .
10.500      0.0148      0.03  Q           .   V     .          .          .
10.583      0.0151      0.03  Q           .   V     .          .          .
10.667      0.0153      0.03  Q           .   V     .          .          .
10.750      0.0155      0.03  Q           .    V    .          .          .
10.833      0.0158      0.04  Q           .    V    .          .          .
10.917      0.0161      0.04  Q           .    V    .          .          .
11.000      0.0163      0.04  Q           .    V    .          .          .
11.083      0.0166      0.04  Q           .     V   .          .          .
11.167      0.0169      0.04  Q           .     V   .          .          .
11.250      0.0171      0.04  Q           .     V   .          .          .
11.333      0.0174      0.04  Q           .     V   .          .          .
11.417      0.0176      0.04  Q           .      V  .          .          .
11.500      0.0179      0.04  Q           .      V  .          .          .
11.583      0.0182      0.04  Q           .      V  .          .          .
11.667      0.0184      0.04  Q           .      V  .          .          .
11.750      0.0187      0.04  Q           .       V .          .          .
11.833      0.0189      0.04  Q           .       V .          .          .
11.917      0.0192      0.04  Q           .       V .          .          .
12.000      0.0194      0.04  Q           .       V .          .          .
12.083      0.0197      0.04  Q           .        V.          .          .
12.167      0.0200      0.04  Q           .        V.          .          .
12.250      0.0202      0.04  Q           .        V.          .          .
12.333      0.0205      0.05  Q           .        V.          .          .
12.417      0.0209      0.05  Q           .         V          .          .
12.500      0.0212      0.05  Q           .         V          .          .
12.583      0.0215      0.05  Q           .         V          .          .
12.667      0.0219      0.05  Q           .          V         .          .
12.750      0.0222      0.05  Q           .          V         .          .
12.833      0.0226      0.05  Q           .         .V         .          .
12.917      0.0230      0.05  Q           .         . V        .          .
13.000      0.0234      0.05  Q           .         . V        .          .
13.083      0.0238      0.06  Q           .         . V        .          .
13.167      0.0242      0.06  Q           .         .  V       .          .
13.250      0.0246      0.06  Q           .         .  V       .          .
13.333      0.0250      0.06  Q           .         .   V      .          .
13.417      0.0255      0.06  Q           .         .   V      .          .
13.500      0.0259      0.06  Q           .         .    V     .          .
13.583      0.0263      0.06  Q           .         .    V     .          .
13.667      0.0267      0.06  Q           .         .    V     .          .
13.750      0.0272      0.06  Q           .         .     V    .          .
13.833      0.0275      0.05  Q           .         .     V    .          .
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

13.917	0.0279	0.05	Q	V
14.000	0.0282	0.05	Q	V
14.083	0.0286	0.05	Q	V
14.167	0.0289	0.05	Q	V
14.250	0.0293	0.05	Q	V
14.333	0.0296	0.05	Q	V
14.417	0.0300	0.05	Q	V
14.500	0.0303	0.05	Q	V
14.583	0.0307	0.05	Q	V
14.667	0.0311	0.05	Q	V
14.750	0.0314	0.05	Q	V
14.833	0.0318	0.05	Q	V
14.917	0.0321	0.05	Q	V
15.000	0.0325	0.05	Q	V
15.083	0.0328	0.05	Q	V
15.167	0.0332	0.05	Q	V
15.250	0.0335	0.05	Q	V
15.333	0.0339	0.05	Q	V
15.417	0.0342	0.05	Q	V
15.500	0.0345	0.05	Q	V
15.583	0.0348	0.05	Q	V
15.667	0.0351	0.05	Q	V
15.750	0.0355	0.05	Q	V
15.833	0.0357	0.04	Q	V
15.917	0.0360	0.04	Q	V
16.000	0.0363	0.04	Q	V
16.083	0.0365	0.03	Q	V
16.167	0.0367	0.03	Q	V
16.250	0.0370	0.03	Q	V
16.333	0.0371	0.02	Q	V
16.417	0.0372	0.02	Q	V
16.500	0.0373	0.02	Q	V
16.583	0.0374	0.01	Q	V
16.667	0.0375	0.01	Q	V
16.750	0.0376	0.01	Q	V
16.833	0.0376	0.01	Q	V
16.917	0.0377	0.01	Q	V
17.000	0.0377	0.01	Q	V
17.083	0.0378	0.01	Q	V
17.167	0.0379	0.01	Q	V
17.250	0.0379	0.01	Q	V
17.333	0.0380	0.01	Q	V
17.417	0.0380	0.01	Q	V
17.500	0.0381	0.01	Q	V
17.583	0.0382	0.01	Q	V
17.667	0.0382	0.01	Q	V
17.750	0.0383	0.01	Q	V
17.833	0.0384	0.01	Q	V
17.917	0.0384	0.01	Q	V
18.000	0.0385	0.01	Q	V
18.083	0.0386	0.01	Q	V
18.167	0.0386	0.01	Q	V
18.250	0.0387	0.01	Q	V
18.333	0.0387	0.01	Q	V
18.417	0.0388	0.01	Q	V
18.500	0.0389	0.01	Q	V
18.583	0.0389	0.01	Q	V
18.667	0.0390	0.01	Q	V
18.750	0.0390	0.01	Q	V
18.833	0.0391	0.01	Q	V
18.917	0.0391	0.01	Q	V
19.000	0.0391	0.01	Q	V
19.083	0.0392	0.01	Q	V
19.167	0.0392	0.01	Q	V
19.250	0.0392	0.01	Q	V
19.333	0.0393	0.01	Q	V

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

19.417	0.0393	0.01	Q	.	.	.	V .
19.500	0.0394	0.01	Q	.	.	.	V .
19.583	0.0394	0.01	Q	.	.	.	V .
19.667	0.0395	0.01	Q	.	.	.	V .
19.750	0.0395	0.01	Q	.	.	.	V .
19.833	0.0396	0.01	Q	.	.	.	V .
19.917	0.0396	0.01	Q	.	.	.	V .
20.000	0.0396	0.01	Q	.	.	.	V .
20.083	0.0397	0.01	Q	.	.	.	V .
20.167	0.0397	0.01	Q	.	.	.	V .
20.250	0.0397	0.01	Q	.	.	.	V .
20.333	0.0398	0.01	Q	.	.	.	V .
20.417	0.0398	0.01	Q	.	.	.	V .
20.500	0.0399	0.01	Q	.	.	.	V .
20.583	0.0399	0.01	Q	.	.	.	V .
20.667	0.0399	0.01	Q	.	.	.	V .
20.750	0.0400	0.01	Q	.	.	.	V .
20.833	0.0400	0.01	Q	.	.	.	V .
20.917	0.0401	0.01	Q	.	.	.	V .
21.000	0.0401	0.01	Q	.	.	.	V .
21.083	0.0401	0.00	Q	.	.	.	V .
21.167	0.0402	0.00	Q	.	.	.	V .
21.250	0.0402	0.00	Q	.	.	.	V .
21.333	0.0402	0.01	Q	.	.	.	V .
21.417	0.0403	0.01	Q	.	.	.	V .
21.500	0.0403	0.01	Q	.	.	.	V .
21.583	0.0403	0.00	Q	.	.	.	V.
21.667	0.0404	0.00	Q	.	.	.	V.
21.750	0.0404	0.00	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1305.0
10%	1050.0
20%	720.0
30%	555.0
40%	495.0
50%	420.0
60%	285.0
70%	195.0
80%	105.0
90%	45.0

****
FLOW PROCESS FROM NODE 1.00 TO NODE 1.10 IS CODE = 1

>>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 6.610 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
Warning: Watershed Area is less than 10 acres
*USER ENTERED "LAG" TIME = 0.249 HOURS
CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
VALLEY S-GRAPH SELECTED

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

UNIFORM MEAN SOIL-LOSS(INCH/HOUR) = 0.269
LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.900
MINIMUM SOIL-LOSS RATE(INCH/HOUR) = 0.134
USER-ENTERED RAINFALL = 1.70 INCHES
RCFC&WCD 24-Hour Storm (15-Minute period) SELECTED
RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 1.0000

UNIT HYDROGRAPH TIME UNIT = 15.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 100.281

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	19.092	5.087
2	67.658	12.941
3	83.372	4.187
4	90.252	1.833
5	94.274	1.072
6	96.843	0.685
7	98.288	0.385
8	99.013	0.193
9	99.605	0.158
10	99.901	0.079
11	100.000	0.026

TOTAL STORM RAINFALL(INCHES) = 1.70
TOTAL SOIL-LOSS(INCHES) = 1.53
TOTAL EFFECTIVE RAINFALL(INCHES) = 0.17

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 0.8428
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 0.0936

♀

2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.083	0.0000	0.00	Q	.	.	.	.
0.167	0.0000	0.00	Q	.	.	.	.
0.250	0.0000	0.00	Q	.	.	.	.
0.333	0.0001	0.01	Q	.	.	.	.
0.417	0.0001	0.01	Q	.	.	.	.
0.500	0.0002	0.01	Q	.	.	.	.
0.583	0.0003	0.01	Q	.	.	.	.
0.667	0.0003	0.01	Q	.	.	.	.
0.750	0.0004	0.01	Q	.	.	.	.
0.833	0.0005	0.01	Q	.	.	.	.
0.917	0.0006	0.01	Q	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

1.000	0.0007	0.01	Q	.	.	.	.
1.083	0.0008	0.01	Q	.	.	.	.
1.167	0.0009	0.01	Q	.	.	.	.
1.250	0.0010	0.01	Q	.	.	.	.
1.333	0.0011	0.01	Q	.	.	.	.
1.417	0.0012	0.01	Q	.	.	.	.
1.500	0.0013	0.01	Q	.	.	.	.
1.583	0.0013	0.01	Q	.	.	.	.
1.667	0.0014	0.01	Q	.	.	.	.
1.750	0.0015	0.01	Q	.	.	.	.
1.833	0.0016	0.01	Q	.	.	.	.
1.917	0.0017	0.01	Q	.	.	.	.
2.000	0.0018	0.01	Q	.	.	.	.
2.083	0.0020	0.02	Q	.	.	.	.
2.167	0.0021	0.02	Q	.	.	.	.
2.250	0.0022	0.02	Q	.	.	.	.
2.333	0.0023	0.02	Q	.	.	.	.
2.417	0.0024	0.02	QV	.	.	.	.
2.500	0.0025	0.02	QV	.	.	.	.
2.583	0.0027	0.02	QV	.	.	.	.
2.667	0.0028	0.02	QV	.	.	.	.
2.750	0.0029	0.02	QV	.	.	.	.
2.833	0.0031	0.02	QV	.	.	.	.
2.917	0.0032	0.02	QV	.	.	.	.
3.000	0.0034	0.02	QV	.	.	.	.
3.083	0.0035	0.02	QV	.	.	.	.
3.167	0.0037	0.02	QV	.	.	.	.
3.250	0.0038	0.02	QV	.	.	.	.
3.333	0.0040	0.02	QV	.	.	.	.
3.417	0.0041	0.02	QV	.	.	.	.
3.500	0.0043	0.02	QV	.	.	.	.
3.583	0.0044	0.02	QV	.	.	.	.
3.667	0.0046	0.02	QV	.	.	.	.
3.750	0.0047	0.02	Q V	.	.	.	.
3.833	0.0049	0.02	Q V	.	.	.	.
3.917	0.0050	0.02	Q V	.	.	.	.
4.000	0.0052	0.02	Q V	.	.	.	.
4.083	0.0054	0.03	Q V	.	.	.	.
4.167	0.0056	0.03	Q V	.	.	.	.
4.250	0.0057	0.03	Q V	.	.	.	.
4.333	0.0059	0.03	Q V	.	.	.	.
4.417	0.0061	0.03	Q V	.	.	.	.
4.500	0.0063	0.03	Q V	.	.	.	.
4.583	0.0065	0.03	Q V	.	.	.	.
4.667	0.0067	0.03	Q V	.	.	.	.
4.750	0.0069	0.03	Q V	.	.	.	.
4.833	0.0071	0.03	Q V	.	.	.	.
4.917	0.0073	0.03	Q V	.	.	.	.
5.000	0.0076	0.03	Q V	.	.	.	.
5.083	0.0078	0.03	Q V	.	.	.	.
5.167	0.0080	0.03	Q V	.	.	.	.
5.250	0.0082	0.03	Q V	.	.	.	.
5.333	0.0084	0.03	Q V	.	.	.	.
5.417	0.0086	0.03	Q V	.	.	.	.
5.500	0.0089	0.03	Q V	.	.	.	.
5.583	0.0091	0.03	Q V	.	.	.	.
5.667	0.0093	0.03	Q V	.	.	.	.
5.750	0.0095	0.03	Q V	.	.	.	.
5.833	0.0098	0.03	Q V	.	.	.	.
5.917	0.0100	0.03	Q V	.	.	.	.
6.000	0.0102	0.03	Q V	.	.	.	.
6.083	0.0105	0.04	Q V	.	.	.	.
6.167	0.0107	0.04	Q V	.	.	.	.
6.250	0.0110	0.04	Q V	.	.	.	.
6.333	0.0112	0.04	Q V	.	.	.	.
6.417	0.0115	0.04	Q V	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
 6.500      0.0118      0.04  Q     V     .           .           .           .
 6.583      0.0121      0.04  Q     V     .           .           .           .
 6.667      0.0123      0.04  Q     V     .           .           .           .
 6.750      0.0126      0.04  Q     V     .           .           .           .
 6.833      0.0129      0.04  Q     V     .           .           .           .
 6.917      0.0132      0.04  Q     V     .           .           .           .
 7.000      0.0135      0.04  Q     V     .           .           .           .
 7.083      0.0138      0.04  Q     V     .           .           .           .
 7.167      0.0141      0.04  Q      V    .           .           .           .
 7.250      0.0144      0.04  Q      V    .           .           .           .
 7.333      0.0147      0.05  Q      V    .           .           .           .
 7.417      0.0151      0.05  Q      V    .           .           .           .
 7.500      0.0154      0.05  Q      V    .           .           .           .
 7.583      0.0157      0.05  Q      V    .           .           .           .
 7.667      0.0160      0.05  Q      V    .           .           .           .
 7.750      0.0164      0.05  Q      V    .           .           .           .
 7.833      0.0167      0.05  Q       V   .           .           .           .
 7.917      0.0171      0.05  Q       V   .           .           .           .
 8.000      0.0175      0.05  Q       V   .           .           .           .
 8.083      0.0179      0.06  Q       V   .           .           .           .
 8.167      0.0183      0.06  Q       V   .           .           .           .
 8.250      0.0187      0.06  Q       V   .           .           .           .
 8.333      0.0191      0.06  Q        V  .           .           .           .
 8.417      0.0195      0.06  Q        V  .           .           .           .
 8.500      0.0200      0.06  Q        V  .           .           .           .
 8.583      0.0204      0.07  Q        V  .           .           .           .
 8.667      0.0209      0.07  Q        V  .           .           .           .
 8.750      0.0213      0.07  Q         V.           .           .           .
 8.833      0.0218      0.07  Q         V.           .           .           .
 8.917      0.0223      0.07  Q         V.           .           .           .
 9.000      0.0228      0.07  Q         V.           .           .           .
 9.083      0.0233      0.08  Q         V.           .           .           .
 9.167      0.0238      0.08  Q          V           .           .           .
 9.250      0.0244      0.08  Q          V           .           .           .
 9.333      0.0249      0.08  Q          V           .           .           .
 9.417      0.0255      0.08  Q          V           .           .           .
 9.500      0.0261      0.08  Q           V          .           .           .
 9.583      0.0267      0.09  Q           .V         .           .           .
 9.667      0.0273      0.09  Q           .V         .           .           .
 9.750      0.0279      0.09  Q           .V         .           .           .
 9.833      0.0285      0.09  Q           . V        .           .           .
 9.917      0.0292      0.09  Q           . V        .           .           .
10.000      0.0298      0.09  Q           . V        .           .           .
10.083      0.0304      0.09  Q           . V        .           .           .
10.167      0.0310      0.09  Q           .  V       .           .           .
10.250      0.0317      0.09  Q           .  V       .           .           .
10.333      0.0322      0.08  Q           .  V       .           .           .
10.417      0.0327      0.08  Q           .  V       .           .           .
10.500      0.0332      0.08  Q           .   V      .           .           .
10.583      0.0338      0.08  Q           .   V      .           .           .
10.667      0.0343      0.08  Q           .   V      .           .           .
10.750      0.0348      0.08  Q           .   V      .           .           .
10.833      0.0354      0.09  Q           .    V     .           .           .
10.917      0.0360      0.09  Q           .    V     .           .           .
11.000      0.0366      0.09  Q           .    V     .           .           .
11.083      0.0372      0.09  Q           .    V     .           .           .
11.167      0.0378      0.09  Q           .     V    .           .           .
11.250      0.0384      0.09  Q           .     V    .           .           .
11.333      0.0390      0.09  Q           .     V    .           .           .
11.417      0.0396      0.09  Q           .     V    .           .           .
11.500      0.0402      0.09  Q           .      V   .           .           .
11.583      0.0407      0.08  Q           .      V   .           .           .
11.667      0.0413      0.08  Q           .      V   .           .           .
11.750      0.0419      0.08  Q           .      V   .           .           .
11.833      0.0425      0.08  Q           .       V  .           .           .
11.917      0.0430      0.08  Q           .       V  .           .           .
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
12.000      0.0436      0.08  Q          .       V  .          .          .
12.083      0.0442      0.09  Q          .       V  .          .          .
12.167      0.0448      0.09  Q          .        V.          .          .
12.250      0.0454      0.09  Q          .        V.          .          .
12.333      0.0461      0.10  Q          .        V.          .          .
12.417      0.0468      0.10  Q          .         V          .          .
12.500      0.0475      0.10  Q          .         V          .          .
12.583      0.0483      0.11  Q          .         V          .          .
12.667      0.0491      0.11  Q          .         V          .          .
12.750      0.0499      0.11  Q          .          V         .          .
12.833      0.0507      0.12  Q          .         .V         .          .
12.917      0.0515      0.12  Q          .         . V        .          .
13.000      0.0524      0.12  Q          .         . V        .          .
13.083      0.0533      0.13  Q          .         . V        .          .
13.167      0.0542      0.13  Q          .         .  V       .          .
13.250      0.0551      0.13  Q          .         .  V       .          .
13.333      0.0561      0.14  Q          .         .  V       .          .
13.417      0.0570      0.14  Q          .         .   V      .          .
13.500      0.0580      0.14  Q          .         .   V      .          .
13.583      0.0590      0.14  Q          .         .    V     .          .
13.667      0.0600      0.14  Q          .         .    V     .          .
13.750      0.0609      0.14  Q          .         .     V    .          .
13.833      0.0617      0.12  Q          .         .     V    .          .
13.917      0.0625      0.12  Q          .         .     V    .          .
14.000      0.0633      0.12  Q          .         .      V   .          .
14.083      0.0641      0.11  Q          .         .      V   .          .
14.167      0.0649      0.11  Q          .         .      V   .          .
14.250      0.0657      0.11  Q          .         .       V  .          .
14.333      0.0665      0.12  Q          .         .       V  .          .
14.417      0.0673      0.12  Q          .         .       V  .          .
14.500      0.0682      0.12  Q          .         .        V.          .
14.583      0.0690      0.12  Q          .         .        V.          .
14.667      0.0698      0.12  Q          .         .        V.          .
14.750      0.0706      0.12  Q          .         .         V          .
14.833      0.0714      0.12  Q          .         .         V          .
14.917      0.0722      0.12  Q          .         .         V          .
15.000      0.0730      0.12  Q          .         .          V         .
15.083      0.0738      0.11  Q          .         .         .V         .
15.167      0.0746      0.11  Q          .         .         .V         .
15.250      0.0754      0.11  Q          .         .         . V        .
15.333      0.0761      0.11  Q          .         .         . V        .
15.417      0.0769      0.11  Q          .         .         . V        .
15.500      0.0777      0.11  Q          .         .         .  V       .
15.583      0.0784      0.10  Q          .         .         .  V       .
15.667      0.0791      0.10  Q          .         .         .  V       .
15.750      0.0798      0.10  Q          .         .         .   V      .
15.833      0.0804      0.09  Q          .         .         .   V      .
15.917      0.0811      0.09  Q          .         .         .   V      .
16.000      0.0817      0.09  Q          .         .         .   V      .
16.083      0.0823      0.08  Q          .         .         .    V     .
16.167      0.0828      0.08  Q          .         .         .    V     .
16.250      0.0833      0.08  Q          .         .         .    V     .
16.333      0.0836      0.04  Q          .         .         .    V     .
16.417      0.0839      0.04  Q          .         .         .    V     .
16.500      0.0842      0.04  Q          .         .         .    V     .
16.583      0.0844      0.03  Q          .         .         .     V    .
16.667      0.0846      0.03  Q          .         .         .     V    .
16.750      0.0848      0.03  Q          .         .         .     V    .
16.833      0.0850      0.02  Q          .         .         .     V    .
16.917      0.0851      0.02  Q          .         .         .     V    .
17.000      0.0853      0.02  Q          .         .         .     V    .
17.083      0.0854      0.02  Q          .         .         .     V    .
17.167      0.0856      0.02  Q          .         .         .     V    .
17.250      0.0857      0.02  Q          .         .         .     V    .
17.333      0.0858      0.02  Q          .         .         .     V    .
17.417      0.0860      0.02  Q          .         .         .     V    .
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

17.500	0.0862	0.02	Q	.	.	.	V .
17.583	0.0863	0.02	Q	.	.	.	V .
17.667	0.0865	0.02	Q	.	.	.	V .
17.750	0.0866	0.02	Q	.	.	.	V .
17.833	0.0868	0.02	Q	.	.	.	V .
17.917	0.0869	0.02	Q	.	.	.	V .
18.000	0.0871	0.02	Q	.	.	.	V .
18.083	0.0872	0.02	Q	.	.	.	V .
18.167	0.0873	0.02	Q	.	.	.	V .
18.250	0.0875	0.02	Q	.	.	.	V .
18.333	0.0876	0.02	Q	.	.	.	V .
18.417	0.0877	0.02	Q	.	.	.	V .
18.500	0.0879	0.02	Q	.	.	.	V .
18.583	0.0880	0.02	Q	.	.	.	V .
18.667	0.0881	0.02	Q	.	.	.	V .
18.750	0.0882	0.02	Q	.	.	.	V .
18.833	0.0883	0.01	Q	.	.	.	V .
18.917	0.0884	0.01	Q	.	.	.	V .
19.000	0.0885	0.01	Q	.	.	.	V .
19.083	0.0886	0.01	Q	.	.	.	V .
19.167	0.0887	0.01	Q	.	.	.	V .
19.250	0.0888	0.01	Q	.	.	.	V .
19.333	0.0889	0.01	Q	.	.	.	V .
19.417	0.0890	0.01	Q	.	.	.	V .
19.500	0.0891	0.01	Q	.	.	.	V .
19.583	0.0892	0.02	Q	.	.	.	V .
19.667	0.0893	0.02	Q	.	.	.	V .
19.750	0.0894	0.02	Q	.	.	.	V .
19.833	0.0895	0.01	Q	.	.	.	V .
19.917	0.0896	0.01	Q	.	.	.	V .
20.000	0.0897	0.01	Q	.	.	.	V .
20.083	0.0898	0.01	Q	.	.	.	V .
20.167	0.0898	0.01	Q	.	.	.	V .
20.250	0.0899	0.01	Q	.	.	.	V .
20.333	0.0900	0.01	Q	.	.	.	V .
20.417	0.0901	0.01	Q	.	.	.	V .
20.500	0.0902	0.01	Q	.	.	.	V .
20.583	0.0903	0.01	Q	.	.	.	V .
20.667	0.0904	0.01	Q	.	.	.	V .
20.750	0.0905	0.01	Q	.	.	.	V .
20.833	0.0905	0.01	Q	.	.	.	V .
20.917	0.0906	0.01	Q	.	.	.	V .
21.000	0.0907	0.01	Q	.	.	.	V .
21.083	0.0908	0.01	Q	.	.	.	V .
21.167	0.0909	0.01	Q	.	.	.	V .
21.250	0.0910	0.01	Q	.	.	.	V .
21.333	0.0910	0.01	Q	.	.	.	V .
21.417	0.0911	0.01	Q	.	.	.	V .
21.500	0.0912	0.01	Q	.	.	.	V .
21.583	0.0913	0.01	Q	.	.	.	V.
21.667	0.0914	0.01	Q	.	.	.	V.
21.750	0.0914	0.01	Q	.	.	.	V.
21.833	0.0915	0.01	Q	.	.	.	V.
21.917	0.0916	0.01	Q	.	.	.	V.
22.000	0.0917	0.01	Q	.	.	.	V.
22.083	0.0917	0.01	Q	.	.	.	V.
22.167	0.0918	0.01	Q	.	.	.	V.
22.250	0.0919	0.01	Q	.	.	.	V.
22.333	0.0920	0.01	Q	.	.	.	V.
22.417	0.0921	0.01	Q	.	.	.	V.
22.500	0.0921	0.01	Q	.	.	.	V.
22.583	0.0922	0.01	Q	.	.	.	V.
22.667	0.0923	0.01	Q	.	.	.	V.
22.750	0.0923	0.01	Q	.	.	.	V.
22.833	0.0924	0.01	Q	.	.	.	V.
22.917	0.0925	0.01	Q	.	.	.	V.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
  23.000      0.0925      0.01  Q          .          .          .        V.
  23.083      0.0926      0.01  Q          .          .          .        V.
  23.166      0.0927      0.01  Q          .          .          .        V.
  23.250      0.0927      0.01  Q          .          .          .        V.
-------------------------------------------------------------------------------
--
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                Duration
        Peak Flow Rate                     (minutes)
    ======================                 =========
               0%                           1395.0
              10%                           1050.0
              20%                            735.0
              30%                            570.0
              40%                            495.0
              50%                            435.0
              60%                            300.0
              70%                            210.0
              80%                            120.0
              90%                             45.0


 ******************************************************************************
   FLOW PROCESS FROM NODE      2.00 TO NODE      2.10 IS CODE =   1
 ------------------------------------------------------------------------------
   >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 ==============================================================================

       (UNIT-HYDROGRAPH ADDED TO STREAM #1)

          WATERSHED AREA =       7.200 ACRES
          BASEFLOW =   0.000 CFS/SQUARE-MILE
   Warning: Watershed Area is less than 10 acres
          *USER ENTERED "LAG" TIME =    0.181 HOURS
           CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
           THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
           MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
          VALLEY S-GRAPH SELECTED
          UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.211
          LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.900
          MINIMUM SOIL-LOSS RATE(INCH/HOUR) =   0.105
          USER-ENTERED RAINFALL =  1.70 INCHES
          RCFC&WCD 24-Hour Storm (15-Minute period) SELECTED
          RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 1.0000


          UNIT HYDROGRAPH TIME UNIT =  15.000 MINUTES
          UNIT INTERVAL PERCENTAGE OF LAG-TIME = 138.274



 ==============================================================================
                       UNIT HYDROGRAPH DETERMINATION

 ------------------------------------------------------------------------------
     INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
      NUMBER          MEAN VALUES          ORDINATES(CFS)
 ------------------------------------------------------------------------------
         1                30.096                8.736
         2                78.050               13.918
         3                89.881                3.434
         4                95.202                1.545
         5                97.932                0.792
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

6	99.071	0.330
7	99.628	0.162
8	99.907	0.081
9	100.000	0.027

TOTAL STORM RAINFALL(INCHES) = 1.70
TOTAL SOIL-LOSS(INCHES) = 1.52
TOTAL EFFECTIVE RAINFALL(INCHES) = 0.18

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 0.9105
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 0.1095

♀

==========

2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

==========

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.083	0.0000	0.00	Q	.	.	.	.
0.167	0.0000	0.00	Q	.	.	.	.
0.250	0.0001	0.00	Q	.	.	.	.
0.333	0.0001	0.01	Q	.	.	.	.
0.417	0.0002	0.01	Q	.	.	.	.
0.500	0.0003	0.01	Q	.	.	.	.
0.583	0.0003	0.01	Q	.	.	.	.
0.667	0.0004	0.01	Q	.	.	.	.
0.750	0.0005	0.01	Q	.	.	.	.
0.833	0.0006	0.02	Q	.	.	.	.
0.917	0.0007	0.02	Q	.	.	.	.
1.000	0.0008	0.02	Q	.	.	.	.
1.083	0.0009	0.02	Q	.	.	.	.
1.167	0.0011	0.02	Q	.	.	.	.
1.250	0.0012	0.02	Q	.	.	.	.
1.333	0.0013	0.02	Q	.	.	.	.
1.417	0.0014	0.02	Q	.	.	.	.
1.500	0.0015	0.02	Q	.	.	.	.
1.583	0.0016	0.01	Q	.	.	.	.
1.667	0.0017	0.01	Q	.	.	.	.
1.750	0.0018	0.01	Q	.	.	.	.
1.833	0.0019	0.02	Q	.	.	.	.
1.917	0.0020	0.02	Q	.	.	.	.
2.000	0.0021	0.02	Q	.	.	.	.
2.083	0.0023	0.02	Q	.	.	.	.
2.167	0.0024	0.02	Q	.	.	.	.
2.250	0.0025	0.02	Q	.	.	.	.
2.333	0.0027	0.02	Q	.	.	.	.
2.417	0.0028	0.02	QV	.	.	.	.
2.500	0.0029	0.02	QV	.	.	.	.
2.583	0.0031	0.02	QV	.	.	.	.
2.667	0.0032	0.02	QV	.	.	.	.
2.750	0.0034	0.02	QV	.	.	.	.
2.833	0.0035	0.02	QV	.	.	.	.
2.917	0.0037	0.02	QV	.	.	.	.
3.000	0.0038	0.02	QV	.	.	.	.
3.083	0.0040	0.02	QV	.	.	.	.
3.167	0.0042	0.02	QV	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3.250	0.0043	0.02	QV	.	.	.	.
3.333	0.0045	0.02	QV	.	.	.	.
3.417	0.0047	0.02	QV	.	.	.	.
3.500	0.0048	0.02	QV	.	.	.	.
3.583	0.0050	0.02	QV	.	.	.	.
3.667	0.0052	0.02	QV	.	.	.	.
3.750	0.0054	0.02	QV	.	.	.	.
3.833	0.0055	0.03	Q V	.	.	.	.
3.917	0.0057	0.03	Q V	.	.	.	.
4.000	0.0059	0.03	Q V	.	.	.	.
4.083	0.0061	0.03	Q V	.	.	.	.
4.167	0.0063	0.03	Q V	.	.	.	.
4.250	0.0065	0.03	Q V	.	.	.	.
4.333	0.0067	0.03	Q V	.	.	.	.
4.417	0.0069	0.03	Q V	.	.	.	.
4.500	0.0071	0.03	Q V	.	.	.	.
4.583	0.0073	0.03	Q V	.	.	.	.
4.667	0.0076	0.03	Q V	.	.	.	.
4.750	0.0078	0.03	Q V	.	.	.	.
4.833	0.0080	0.04	Q V	.	.	.	.
4.917	0.0083	0.04	Q V	.	.	.	.
5.000	0.0085	0.04	Q V	.	.	.	.
5.083	0.0088	0.04	Q V	.	.	.	.
5.167	0.0090	0.04	Q V	.	.	.	.
5.250	0.0093	0.04	Q V	.	.	.	.
5.333	0.0095	0.03	Q V	.	.	.	.
5.417	0.0097	0.03	Q V	.	.	.	.
5.500	0.0099	0.03	Q V	.	.	.	.
5.583	0.0102	0.04	Q V	.	.	.	.
5.667	0.0104	0.04	Q V	.	.	.	.
5.750	0.0107	0.04	Q V	.	.	.	.
5.833	0.0109	0.04	Q V	.	.	.	.
5.917	0.0112	0.04	Q V	.	.	.	.
6.000	0.0115	0.04	Q V	.	.	.	.
6.083	0.0117	0.04	Q V	.	.	.	.
6.167	0.0120	0.04	Q V	.	.	.	.
6.250	0.0123	0.04	Q V	.	.	.	.
6.333	0.0126	0.04	Q V	.	.	.	.
6.417	0.0129	0.04	Q V	.	.	.	.
6.500	0.0132	0.04	Q V	.	.	.	.
6.583	0.0135	0.05	Q V	.	.	.	.
6.667	0.0138	0.05	Q V	.	.	.	.
6.750	0.0141	0.05	Q V	.	.	.	.
6.833	0.0144	0.05	Q V	.	.	.	.
6.917	0.0148	0.05	Q V	.	.	.	.
7.000	0.0151	0.05	Q V	.	.	.	.
7.083	0.0154	0.05	Q V	.	.	.	.
7.167	0.0158	0.05	Q V	.	.	.	.
7.250	0.0161	0.05	Q V	.	.	.	.
7.333	0.0165	0.05	Q V	.	.	.	.
7.417	0.0168	0.05	Q V	.	.	.	.
7.500	0.0172	0.05	Q V	.	.	.	.
7.583	0.0175	0.05	Q V	.	.	.	.
7.667	0.0179	0.05	Q V	.	.	.	.
7.750	0.0183	0.05	Q V	.	.	.	.
7.833	0.0187	0.06	Q V	.	.	.	.
7.917	0.0191	0.06	Q V	.	.	.	.
8.000	0.0195	0.06	Q V	.	.	.	.
8.083	0.0200	0.07	Q V	.	.	.	.
8.167	0.0204	0.07	Q V	.	.	.	.
8.250	0.0209	0.07	Q V	.	.	.	.
8.333	0.0213	0.07	Q V	.	.	.	.
8.417	0.0218	0.07	Q V	.	.	.	.
8.500	0.0223	0.07	Q V	.	.	.	.
8.583	0.0228	0.07	Q V	.	.	.	.
8.667	0.0233	0.07	Q V	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
 8.750      0.0239      0.07  Q        V .          .          .          .
 8.833      0.0244      0.08  Q        V .          .          .          .
 8.917      0.0249      0.08  Q         V.          .          .          .
 9.000      0.0255      0.08  Q         V.          .          .          .
 9.083      0.0261      0.08  Q         V.          .          .          .
 9.167      0.0267      0.08  Q         V.          .          .          .
 9.250      0.0272      0.08  Q         V.          .          .          .
 9.333      0.0279      0.09  Q          V          .          .          .
 9.417      0.0285      0.09  Q          V          .          .          .
 9.500      0.0291      0.09  Q          V          .          .          .
 9.583      0.0298      0.10  Q          V          .          .          .
 9.667      0.0305      0.10  Q           V         .          .          .
 9.750      0.0312      0.10  Q           V         .          .          .
 9.833      0.0319      0.10  Q          .V         .          .          .
 9.917      0.0326      0.10  Q          .V         .          .          .
10.000      0.0333      0.10  Q           . V       .          .          .
10.083      0.0339      0.10  Q           . V       .          .          .
10.167      0.0346      0.10  Q           . V       .          .          .
10.250      0.0353      0.10  Q           . V       .          .          .
10.333      0.0358      0.08  Q           .  V      .          .          .
10.417      0.0364      0.08  Q           .  V      .          .          .
10.500      0.0369      0.08  Q           .  V      .          .          .
10.583      0.0375      0.08  Q           .  V      .          .          .
10.667      0.0381      0.08  Q           .  V      .          .          .
10.750      0.0387      0.08  Q           .   V     .          .          .
10.833      0.0393      0.09  Q           .   V     .          .          .
10.917      0.0400      0.09  Q           .   V     .          .          .
11.000      0.0406      0.09  Q           .   V     .          .          .
11.083      0.0413      0.10  Q           .    V    .          .          .
11.167      0.0420      0.10  Q           .    V    .          .          .
11.250      0.0426      0.10  Q           .    V    .          .          .
11.333      0.0433      0.09  Q           .    V    .          .          .
11.417      0.0439      0.09  Q           .     V   .          .          .
11.500      0.0446      0.09  Q           .     V   .          .          .
11.583      0.0452      0.09  Q           .     V   .          .          .
11.667      0.0458      0.09  Q           .     V   .          .          .
11.750      0.0464      0.09  Q           .     V   .          .          .
11.833      0.0470      0.09  Q           .      V  .          .          .
11.917      0.0476      0.09  Q           .      V  .          .          .
12.000      0.0482      0.09  Q           .      V  .          .          .
12.083      0.0489      0.10  Q           .      V  .          .          .
12.167      0.0496      0.10  Q           .       V .          .          .
12.250      0.0503      0.10  Q           .       V .          .          .
12.333      0.0511      0.12  Q           .       V .          .          .
12.417      0.0519      0.12  Q           .       V .          .          .
12.500      0.0527      0.12  Q           .        V.          .          .
12.583      0.0536      0.13  Q           .        V.          .          .
12.667      0.0545      0.13  Q           .        V.          .          .
12.750      0.0553      0.13  Q           .         V          .          .
12.833      0.0563      0.14  Q           .         V          .          .
12.917      0.0572      0.14  Q           .         V          .          .
13.000      0.0581      0.14  Q           .          V         .          .
13.083      0.0595      0.20  Q           .         .V         .          .
13.167      0.0609      0.20  Q           .         . V        .          .
13.250      0.0622      0.20  Q           .         . V        .          .
13.333      0.0643      0.30  .Q          .         .  V       .          .
13.417      0.0664      0.30  .Q          .         .   V      .          .
13.500      0.0685      0.30  .Q          .         .    V     .          .
13.583      0.0702      0.26  .Q          .         .    V     .          .
13.667      0.0720      0.26  .Q          .         .     V    .          .
13.750      0.0738      0.26  .Q          .         .     V    .          .
13.833      0.0749      0.16  Q           .         .      V   .          .
13.917      0.0760      0.16  Q           .         .      V   .          .
14.000      0.0771      0.16  Q           .         .       V  .          .
14.083      0.0780      0.14  Q           .         .       V  .          .
14.167      0.0790      0.14  Q           .         .       V  .          .
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

14.250	0.0799	0.14	Q	V.
14.333	0.0809	0.14	Q	V.
14.417	0.0818	0.14	Q	V.
14.500	0.0828	0.14	Q	V
14.583	0.0837	0.13	Q	V
14.667	0.0846	0.13	Q	V
14.750	0.0855	0.13	Q	V
14.833	0.0864	0.13	Q	.V
14.917	0.0872	0.13	Q	.V
15.000	0.0881	0.13	Q	. V
15.083	0.0890	0.12	Q	. V
15.167	0.0898	0.12	Q	. V
15.250	0.0907	0.12	Q	. V
15.333	0.0915	0.12	Q	. V
15.417	0.0923	0.12	Q	. V
15.500	0.0931	0.12	Q	. V
15.583	0.0939	0.11	Q	. V
15.667	0.0946	0.11	Q	. V
15.750	0.0954	0.11	Q	. V
15.833	0.0961	0.10	Q	. V
15.917	0.0968	0.10	Q	. V
16.000	0.0974	0.10	Q	. V
16.083	0.0979	0.07	Q	. V
16.167	0.0985	0.07	Q	. V
16.250	0.0990	0.07	Q	. V
16.333	0.0992	0.04	Q	. V
16.417	0.0995	0.04	Q	. V
16.500	0.0997	0.04	Q	. V
16.583	0.0999	0.03	Q	. V
16.667	0.1001	0.03	Q	. V
16.750	0.1003	0.03	Q	. V
16.833	0.1004	0.02	Q	. V
16.917	0.1005	0.02	Q	. V
17.000	0.1007	0.02	Q	. V
17.083	0.1008	0.02	Q	. V
17.167	0.1010	0.02	Q	. V
17.250	0.1011	0.02	Q	. V
17.333	0.1013	0.02	Q	. V
17.417	0.1014	0.02	Q	. V
17.500	0.1016	0.02	Q	. V
17.583	0.1017	0.02	Q	. V
17.667	0.1019	0.02	Q	. V
17.750	0.1021	0.02	Q	. V
17.833	0.1022	0.02	Q	. V
17.917	0.1024	0.02	Q	. V
18.000	0.1025	0.02	Q	. V
18.083	0.1027	0.02	Q	. V
18.167	0.1028	0.02	Q	. V
18.250	0.1030	0.02	Q	. V
18.333	0.1031	0.02	Q	. V
18.417	0.1032	0.02	Q	. V
18.500	0.1034	0.02	Q	. V
18.583	0.1035	0.02	Q	. V
18.667	0.1036	0.02	Q	. V
18.750	0.1038	0.02	Q	. V
18.833	0.1039	0.01	Q	. V
18.917	0.1040	0.01	Q	. V
19.000	0.1041	0.01	Q	. V
19.083	0.1042	0.01	Q	. V
19.167	0.1042	0.01	Q	. V
19.250	0.1043	0.01	Q	. V
19.333	0.1044	0.02	Q	. V
19.417	0.1046	0.02	Q	. V
19.500	0.1047	0.02	Q	. V
19.583	0.1048	0.02	Q	. V
19.667	0.1049	0.02	Q	. V

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

19.750	0.1050	0.02	Q	.	.	.	V .
19.833	0.1051	0.01	Q	.	.	.	V .
19.917	0.1052	0.01	Q	.	.	.	V .
20.000	0.1053	0.01	Q	.	.	.	V .
20.083	0.1054	0.01	Q	.	.	.	V .
20.167	0.1055	0.01	Q	.	.	.	V .
20.250	0.1056	0.01	Q	.	.	.	V .
20.333	0.1057	0.01	Q	.	.	.	V .
20.417	0.1058	0.01	Q	.	.	.	V .
20.500	0.1059	0.01	Q	.	.	.	V .
20.583	0.1060	0.01	Q	.	.	.	V .
20.667	0.1061	0.01	Q	.	.	.	V .
20.750	0.1062	0.01	Q	.	.	.	V .
20.833	0.1063	0.01	Q	.	.	.	V .
20.917	0.1063	0.01	Q	.	.	.	V .
21.000	0.1064	0.01	Q	.	.	.	V .
21.083	0.1065	0.01	Q	.	.	.	V .
21.167	0.1066	0.01	Q	.	.	.	V .
21.250	0.1067	0.01	Q	.	.	.	V .
21.333	0.1068	0.01	Q	.	.	.	V.
21.417	0.1069	0.01	Q	.	.	.	V.
21.500	0.1070	0.01	Q	.	.	.	V.
21.583	0.1070	0.01	Q	.	.	.	V.
21.667	0.1071	0.01	Q	.	.	.	V.
21.750	0.1072	0.01	Q	.	.	.	V.
21.833	0.1073	0.01	Q	.	.	.	V.
21.917	0.1074	0.01	Q	.	.	.	V.
22.000	0.1075	0.01	Q	.	.	.	V.
22.083	0.1075	0.01	Q	.	.	.	V.
22.167	0.1076	0.01	Q	.	.	.	V.
22.250	0.1077	0.01	Q	.	.	.	V.
22.333	0.1078	0.01	Q	.	.	.	V.
22.417	0.1079	0.01	Q	.	.	.	V.
22.500	0.1080	0.01	Q	.	.	.	V.
22.583	0.1080	0.01	Q	.	.	.	V.
22.667	0.1081	0.01	Q	.	.	.	V.
22.750	0.1082	0.01	Q	.	.	.	V.
22.833	0.1083	0.01	Q	.	.	.	V.
22.917	0.1083	0.01	Q	.	.	.	V.
23.000	0.1084	0.01	Q	.	.	.	V.
23.083	0.1085	0.01	Q	.	.	.	V.
23.166	0.1085	0.01	Q	.	.	.	V.
23.250	0.1086	0.01	Q	.	.	.	V.
23.333	0.1087	0.01	Q	.	.	.	V.
23.416	0.1087	0.01	Q	.	.	.	V.
23.500	0.1088	0.01	Q	.	.	.	V.

--

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1410.0
10%	735.0
20%	495.0
30%	360.0
40%	165.0
50%	60.0
60%	45.0
70%	30.0
80%	30.0
90%	15.0

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
**************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.10 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =       0.620 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
  Warning: Watershed Area is less than 10 acres
         *USER ENTERED "LAG" TIME =    0.158 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.097
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.900
         MINIMUM SOIL-LOSS RATE(INCH/HOUR) =   0.049
         USER-ENTERED RAINFALL =  1.70 INCHES
         RCFC&WCD 24-Hour Storm (15-Minute period) SELECTED
         RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 1.0000


         UNIT HYDROGRAPH TIME UNIT =  15.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME = 158.529


==========================================================================
                      UNIT HYDROGRAPH DETERMINATION

--------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
--------------------------------------------------------------------------
        1               35.033                0.876
        2               81.583                1.163
        3               92.184                0.265
        4               96.856                0.117
        5               98.735                0.047
        6               99.495                0.019
        7               99.798                0.008
        8               99.950                0.004
        9              100.000                0.001


--------------------------------------------------------------------------

         TOTAL STORM RAINFALL(INCHES) =  1.70
         TOTAL SOIL-LOSS(INCHES) =  1.17
         TOTAL EFFECTIVE RAINFALL(INCHES) =  0.53

--------------------------------------------------------------------------
    TOTAL SOIL-LOSS VOLUME(ACRE-FEET) =       0.0606
    TOTAL STORM RUNOFF VOLUME(ACRE-FEET) =       0.0272
--------------------------------------------------------------------------
♀
==========================================================================

                    2 4 - H O U R    S T O R M
                  R U N O F F    H Y D R O G R A P H

==========================================================================
              HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.083	0.0000	0.00	Q	.	.	.	.
0.167	0.0000	0.00	Q	.	.	.	.
0.250	0.0000	0.00	Q	.	.	.	.
0.333	0.0000	0.00	Q	.	.	.	.
0.417	0.0000	0.00	Q	.	.	.	.
0.500	0.0000	0.00	Q	.	.	.	.
0.583	0.0000	0.00	Q	.	.	.	.
0.667	0.0000	0.00	Q	.	.	.	.
0.750	0.0000	0.00	Q	.	.	.	.
0.833	0.0001	0.00	Q	.	.	.	.
0.917	0.0001	0.00	Q	.	.	.	.
1.000	0.0001	0.00	Q	.	.	.	.
1.083	0.0001	0.00	Q	.	.	.	.
1.167	0.0001	0.00	Q	.	.	.	.
1.250	0.0001	0.00	Q	.	.	.	.
1.333	0.0001	0.00	Q	.	.	.	.
1.417	0.0001	0.00	Q	.	.	.	.
1.500	0.0001	0.00	Q	.	.	.	.
1.583	0.0001	0.00	Q	.	.	.	.
1.667	0.0001	0.00	Q	.	.	.	.
1.750	0.0002	0.00	Q	.	.	.	.
1.833	0.0002	0.00	Q	.	.	.	.
1.917	0.0002	0.00	Q	.	.	.	.
2.000	0.0002	0.00	Q	.	.	.	.
2.083	0.0002	0.00	Q	.	.	.	.
2.167	0.0002	0.00	Q	.	.	.	.
2.250	0.0002	0.00	Q	.	.	.	.
2.333	0.0002	0.00	Q	.	.	.	.
2.417	0.0002	0.00	Q	.	.	.	.
2.500	0.0003	0.00	Q	.	.	.	.
2.583	0.0003	0.00	Q	.	.	.	.
2.667	0.0003	0.00	Q	.	.	.	.
2.750	0.0003	0.00	Q	.	.	.	.
2.833	0.0003	0.00	Q	.	.	.	.
2.917	0.0003	0.00	Q	.	.	.	.
3.000	0.0003	0.00	Q	.	.	.	.
3.083	0.0004	0.00	Q	.	.	.	.
3.167	0.0004	0.00	Q	.	.	.	.
3.250	0.0004	0.00	Q	.	.	.	.
3.333	0.0004	0.00	Q	.	.	.	.
3.417	0.0004	0.00	Q	.	.	.	.
3.500	0.0004	0.00	Q	.	.	.	.
3.583	0.0004	0.00	Q	.	.	.	.
3.667	0.0005	0.00	Q	.	.	.	.
3.750	0.0005	0.00	Q	.	.	.	.
3.833	0.0005	0.00	Q	.	.	.	.
3.917	0.0005	0.00	Q	.	.	.	.
4.000	0.0005	0.00	Q	.	.	.	.
4.083	0.0005	0.00	Q	.	.	.	.
4.167	0.0005	0.00	Q	.	.	.	.
4.250	0.0006	0.00	Q	.	.	.	.
4.333	0.0006	0.00	Q	.	.	.	.
4.417	0.0006	0.00	Q	.	.	.	.
4.500	0.0006	0.00	Q	.	.	.	.
4.583	0.0006	0.00	Q	.	.	.	.
4.667	0.0007	0.00	Q	.	.	.	.
4.750	0.0007	0.00	Q	.	.	.	.
4.833	0.0007	0.00	QV	.	.	.	.
4.917	0.0007	0.00	QV	.	.	.	.
5.000	0.0007	0.00	QV	.	.	.	.
5.083	0.0008	0.00	QV	.	.	.	.
5.167	0.0008	0.00	QV	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

5.250	0.0008	0.00	QV	.	.	.	.
5.333	0.0008	0.00	QV	.	.	.	.
5.417	0.0008	0.00	QV	.	.	.	.
5.500	0.0009	0.00	QV	.	.	.	.
5.583	0.0009	0.00	QV	.	.	.	.
5.667	0.0009	0.00	QV	.	.	.	.
5.750	0.0009	0.00	QV	.	.	.	.
5.833	0.0010	0.00	QV	.	.	.	.
5.917	0.0010	0.00	QV	.	.	.	.
6.000	0.0010	0.00	QV	.	.	.	.
6.083	0.0010	0.00	QV	.	.	.	.
6.167	0.0010	0.00	QV	.	.	.	.
6.250	0.0011	0.00	QV	.	.	.	.
6.333	0.0011	0.00	QV	.	.	.	.
6.417	0.0011	0.00	QV	.	.	.	.
6.500	0.0011	0.00	QV	.	.	.	.
6.583	0.0012	0.00	QV	.	.	.	.
6.667	0.0012	0.00	QV	.	.	.	.
6.750	0.0012	0.00	QV	.	.	.	.
6.833	0.0013	0.00	QV	.	.	.	.
6.917	0.0013	0.00	QV	.	.	.	.
7.000	0.0013	0.00	QV	.	.	.	.
7.083	0.0013	0.00	QV	.	.	.	.
7.167	0.0014	0.00	Q V	.	.	.	.
7.250	0.0014	0.00	Q V	.	.	.	.
7.333	0.0014	0.00	Q V	.	.	.	.
7.417	0.0015	0.00	Q V	.	.	.	.
7.500	0.0015	0.00	Q V	.	.	.	.
7.583	0.0015	0.00	Q V	.	.	.	.
7.667	0.0016	0.00	Q V	.	.	.	.
7.750	0.0016	0.00	Q V	.	.	.	.
7.833	0.0016	0.01	Q V	.	.	.	.
7.917	0.0017	0.01	Q V	.	.	.	.
8.000	0.0017	0.01	Q V	.	.	.	.
8.083	0.0017	0.01	Q V	.	.	.	.
8.167	0.0018	0.01	Q V	.	.	.	.
8.250	0.0018	0.01	Q V	.	.	.	.
8.333	0.0019	0.01	Q V	.	.	.	.
8.417	0.0019	0.01	Q V	.	.	.	.
8.500	0.0019	0.01	Q V	.	.	.	.
8.583	0.0020	0.01	Q V	.	.	.	.
8.667	0.0020	0.01	Q V	.	.	.	.
8.750	0.0021	0.01	Q V	.	.	.	.
8.833	0.0021	0.01	Q V	.	.	.	.
8.917	0.0022	0.01	Q V	.	.	.	.
9.000	0.0022	0.01	Q V	.	.	.	.
9.083	0.0023	0.01	Q V	.	.	.	.
9.167	0.0023	0.01	Q V	.	.	.	.
9.250	0.0024	0.01	Q V	.	.	.	.
9.333	0.0025	0.01	Q V	.	.	.	.
9.417	0.0026	0.01	Q V	.	.	.	.
9.500	0.0027	0.01	Q V	.	.	.	.
9.583	0.0028	0.02	Q V	.	.	.	.
9.667	0.0030	0.02	Q V	.	.	.	.
9.750	0.0031	0.02	Q V	.	.	.	.
9.833	0.0033	0.02	Q V	.	.	.	.
9.917	0.0034	0.02	Q V	.	.	.	.
10.000	0.0036	0.02	Q V	.	.	.	.
10.083	0.0037	0.02	Q V	.	.	.	.
10.167	0.0039	0.02	Q V	.	.	.	.
10.250	0.0040	0.02	Q V	.	.	.	.
10.333	0.0041	0.01	Q V	.	.	.	.
10.417	0.0041	0.01	Q V	.	.	.	.
10.500	0.0042	0.01	Q V	.	.	.	.
10.583	0.0043	0.01	Q V	.	.	.	.
10.667	0.0044	0.01	Q V	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
10.750      0.0045      0.01  Q     V   .         .         .         .
10.833      0.0046      0.02  Q     V   .         .         .         .
10.917      0.0048      0.02  Q      V  .         .         .         .
11.000      0.0049      0.02  Q      V  .         .         .         .
11.083      0.0051      0.02  Q      V  .         .         .         .
11.167      0.0052      0.02  Q      V  .         .         .         .
11.250      0.0054      0.02  Q      V  .         .         .         .
11.333      0.0055      0.02  Q       V .         .         .         .
11.417      0.0057      0.02  Q       V .         .         .         .
11.500      0.0058      0.02  Q       V .         .         .         .
11.583      0.0060      0.02  Q       V .         .         .         .
11.667      0.0061      0.02  Q       V .         .         .         .
11.750      0.0062      0.02  Q        V.         .         .         .
11.833      0.0063      0.02  Q        V.         .         .         .
11.917      0.0065      0.02  Q        V.         .         .         .
12.000      0.0066      0.02  Q        V.         .         .         .
12.083      0.0068      0.03  Q        V.         .         .         .
12.167      0.0070      0.03  Q         V         .         .         .
12.250      0.0072      0.03  Q         V         .         .         .
12.333      0.0075      0.05  Q          .V       .         .         .
12.417      0.0078      0.05  Q          .V       .         .         .
12.500      0.0081      0.05  Q          .V       .         .         .
12.583      0.0085      0.05  Q          . V      .         .         .
12.667      0.0089      0.05  Q          .  V     .         .         .
12.750      0.0093      0.05  Q          .  V     .         .         .
12.833      0.0097      0.06  Q          .   V    .         .         .
12.917      0.0101      0.06  Q          .   V    .         .         .
13.000      0.0106      0.06  Q          .    V   .         .         .
13.083      0.0111      0.07  Q          .     V  .         .         .
13.167      0.0116      0.07  Q          .      V .         .         .
13.250      0.0121      0.07  Q          .      V .         .         .
13.333      0.0127      0.09  Q          .       V.         .         .
13.417      0.0133      0.09  Q          .        V         .         .
13.500      0.0139      0.09  Q          .        V         .         .
13.583      0.0144      0.07  Q          .        .V        .         .
13.667      0.0149      0.07  Q          .        .V        .         .
13.750      0.0154      0.07  Q          .        . V       .         .
13.833      0.0158      0.05  Q          .        .  V      .         .
13.917      0.0162      0.05  Q          .        .  V      .         .
14.000      0.0166      0.05  Q          .        .   V     .         .
14.083      0.0170      0.06  Q          .        .   V     .         .
14.167      0.0173      0.06  Q          .        .    V    .         .
14.250      0.0177      0.06  Q          .        .     V   .         .
14.333      0.0182      0.06  Q          .        .     V   .         .
14.417      0.0186      0.06  Q          .        .      V  .         .
14.500      0.0190      0.06  Q          .        .      V  .         .
14.583      0.0194      0.06  Q          .        .       V .         .
14.667      0.0198      0.06  Q          .        .        V.         .
14.750      0.0203      0.06  Q          .        .        V.         .
14.833      0.0207      0.06  Q          .        .         V         .
14.917      0.0211      0.06  Q          .        .          V        .
15.000      0.0215      0.06  Q          .        .          V        .
15.083      0.0219      0.06  Q          .        .           V       .
15.167      0.0223      0.06  Q          .        .           V       .
15.250      0.0227      0.06  Q          .        .            V      .
15.333      0.0231      0.05  Q          .        .            V      .
15.417      0.0235      0.05  Q          .        .             V     .
15.500      0.0239      0.05  Q          .        .              V    .
15.583      0.0242      0.05  Q          .        .              V    .
15.667      0.0245      0.05  Q          .        .              V    .
15.750      0.0248      0.05  Q          .        .               V   .
15.833      0.0251      0.04  Q          .        .               V   .
15.917      0.0254      0.04  Q          .        .                V  .
16.000      0.0256      0.04  Q          .        .                V  .
16.083      0.0258      0.03  Q          .        .                V  .
16.167      0.0260      0.03  Q          .        .                 V .
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
  16.250      0.0262      0.03  Q          .          .          .       V .
  16.333      0.0262      0.01  Q          .          .          .       V .
  16.417      0.0263      0.01  Q          .          .          .       V .
  16.500      0.0263      0.01  Q          .          .          .       V .
--------------------------------------------------------------------------------
--
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                 Duration
        Peak Flow Rate                      (minutes)
    ======================                  =========
                0%                            990.0
               10%                            435.0
               20%                            375.0
               30%                            240.0
               40%                            225.0
               50%                            210.0
               60%                            180.0
               70%                             90.0
               80%                             45.0
               90%                             15.0


 ********************************************************************************
   FLOW PROCESS FROM NODE      4.00 TO NODE      4.10 IS CODE =   1
 --------------------------------------------------------------------------------
   >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 ================================================================================

       (UNIT-HYDROGRAPH ADDED TO STREAM #1)

          WATERSHED AREA =       0.750 ACRES
          BASEFLOW =   0.000 CFS/SQUARE-MILE
   Warning: Watershed Area is less than 10 acres
          *USER ENTERED "LAG" TIME =    0.100 HOURS
           CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
           THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
           MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
          VALLEY S-GRAPH SELECTED
          UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.211
          LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.900
          MINIMUM SOIL-LOSS RATE(INCH/HOUR) =   0.105
          USER-ENTERED RAINFALL =  1.70 INCHES
          RCFC&WCD 24-Hour Storm (15-Minute period) SELECTED
          RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 1.0000


          UNIT HYDROGRAPH TIME UNIT =  15.000 MINUTES
          UNIT INTERVAL PERCENTAGE OF LAG-TIME = 250.000



 ================================================================================
                       UNIT HYDROGRAPH DETERMINATION

 --------------------------------------------------------------------------------
     INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
      NUMBER          MEAN VALUES          ORDINATES(CFS)
 --------------------------------------------------------------------------------
         1                50.817                1.536
         2                90.903                1.212
         3                97.798                0.208
         4                99.444                0.050
         5                99.778                0.010
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

6	99.944	0.005
7	100.000	0.002

TOTAL STORM RAINFALL(INCHES) = 1.70
TOTAL SOIL-LOSS(INCHES) = 1.52
TOTAL EFFECTIVE RAINFALL(INCHES) = 0.18

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 0.0948
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 0.0114

♀

==========

2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

==========

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.083	0.0000	0.00	Q	.	.	.	.
0.167	0.0000	0.00	Q	.	.	.	.
0.250	0.0000	0.00	Q	.	.	.	.
0.333	0.0000	0.00	Q	.	.	.	.
0.417	0.0000	0.00	Q	.	.	.	.
0.500	0.0000	0.00	Q	.	.	.	.
0.583	0.0000	0.00	Q	.	.	.	.
0.667	0.0001	0.00	Q	.	.	.	.
0.750	0.0001	0.00	Q	.	.	.	.
0.833	0.0001	0.00	Q	.	.	.	.
0.917	0.0001	0.00	Q	.	.	.	.
1.000	0.0001	0.00	Q	.	.	.	.
1.083	0.0001	0.00	Q	.	.	.	.
1.167	0.0001	0.00	Q	.	.	.	.
1.250	0.0001	0.00	Q	.	.	.	.
1.333	0.0001	0.00	Q	.	.	.	.
1.417	0.0002	0.00	Q	.	.	.	.
1.500	0.0002	0.00	Q	.	.	.	.
1.583	0.0002	0.00	Q	.	.	.	.
1.667	0.0002	0.00	Q	.	.	.	.
1.750	0.0002	0.00	Q	.	.	.	.
1.833	0.0002	0.00	Q	.	.	.	.
1.917	0.0002	0.00	Q	.	.	.	.
2.000	0.0002	0.00	Q	.	.	.	.
2.083	0.0003	0.00	Q	.	.	.	.
2.167	0.0003	0.00	Q	.	.	.	.
2.250	0.0003	0.00	Q	.	.	.	.
2.333	0.0003	0.00	QV	.	.	.	.
2.417	0.0003	0.00	QV	.	.	.	.
2.500	0.0003	0.00	QV	.	.	.	.
2.583	0.0003	0.00	QV	.	.	.	.
2.667	0.0004	0.00	QV	.	.	.	.
2.750	0.0004	0.00	QV	.	.	.	.
2.833	0.0004	0.00	QV	.	.	.	.
2.917	0.0004	0.00	QV	.	.	.	.
3.000	0.0004	0.00	QV	.	.	.	.
3.083	0.0004	0.00	QV	.	.	.	.
3.167	0.0005	0.00	QV	.	.	.	.
3.250	0.0005	0.00	QV	.	.	.	.
3.333	0.0005	0.00	QV	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3.417	0.0005	0.00	QV	.	.	.	.
3.500	0.0005	0.00	QV	.	.	.	.
3.583	0.0005	0.00	QV	.	.	.	.
3.667	0.0006	0.00	QV	.	.	.	.
3.750	0.0006	0.00	Q V	.	.	.	.
3.833	0.0006	0.00	Q V	.	.	.	.
3.917	0.0006	0.00	Q V	.	.	.	.
4.000	0.0006	0.00	Q V	.	.	.	.
4.083	0.0007	0.00	Q V	.	.	.	.
4.167	0.0007	0.00	Q V	.	.	.	.
4.250	0.0007	0.00	Q V	.	.	.	.
4.333	0.0007	0.00	Q V	.	.	.	.
4.417	0.0008	0.00	Q V	.	.	.	.
4.500	0.0008	0.00	Q V	.	.	.	.
4.583	0.0008	0.00	Q V	.	.	.	.
4.667	0.0008	0.00	Q V	.	.	.	.
4.750	0.0008	0.00	Q V	.	.	.	.
4.833	0.0009	0.00	Q V	.	.	.	.
4.917	0.0009	0.00	Q V	.	.	.	.
5.000	0.0009	0.00	Q V	.	.	.	.
5.083	0.0010	0.00	Q V	.	.	.	.
5.167	0.0010	0.00	Q V	.	.	.	.
5.250	0.0010	0.00	Q V	.	.	.	.
5.333	0.0010	0.00	Q V	.	.	.	.
5.417	0.0010	0.00	Q V	.	.	.	.
5.500	0.0011	0.00	Q V	.	.	.	.
5.583	0.0011	0.00	Q V	.	.	.	.
5.667	0.0011	0.00	Q V	.	.	.	.
5.750	0.0011	0.00	Q V	.	.	.	.
5.833	0.0012	0.00	Q V	.	.	.	.
5.917	0.0012	0.00	Q V	.	.	.	.
6.000	0.0012	0.00	Q V	.	.	.	.
6.083	0.0013	0.00	Q V	.	.	.	.
6.167	0.0013	0.00	Q V	.	.	.	.
6.250	0.0013	0.00	Q V	.	.	.	.
6.333	0.0014	0.00	Q V	.	.	.	.
6.417	0.0014	0.00	Q V	.	.	.	.
6.500	0.0014	0.00	Q V	.	.	.	.
6.583	0.0015	0.00	Q V	.	.	.	.
6.667	0.0015	0.00	Q V	.	.	.	.
6.750	0.0015	0.00	Q V	.	.	.	.
6.833	0.0016	0.01	Q V	.	.	.	.
6.917	0.0016	0.01	Q V	.	.	.	.
7.000	0.0016	0.01	Q V	.	.	.	.
7.083	0.0017	0.01	Q V	.	.	.	.
7.167	0.0017	0.01	Q V	.	.	.	.
7.250	0.0017	0.01	Q V	.	.	.	.
7.333	0.0018	0.01	Q V	.	.	.	.
7.417	0.0018	0.01	Q V	.	.	.	.
7.500	0.0018	0.01	Q V	.	.	.	.
7.583	0.0019	0.01	Q V	.	.	.	.
7.667	0.0019	0.01	Q V	.	.	.	.
7.750	0.0020	0.01	Q V	.	.	.	.
7.833	0.0020	0.01	Q V	.	.	.	.
7.917	0.0021	0.01	Q V	.	.	.	.
8.000	0.0021	0.01	Q V	.	.	.	.
8.083	0.0021	0.01	Q V	.	.	.	.
8.167	0.0022	0.01	Q V	.	.	.	.
8.250	0.0022	0.01	Q V	.	.	.	.
8.333	0.0023	0.01	Q V	.	.	.	.
8.417	0.0023	0.01	Q V	.	.	.	.
8.500	0.0024	0.01	Q V	.	.	.	.
8.583	0.0025	0.01	Q V	.	.	.	.
8.667	0.0025	0.01	Q V	.	.	.	.
8.750	0.0026	0.01	Q V	.	.	.	.
8.833	0.0026	0.01	Q V	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
 8.917      0.0027      0.01  Q          V.          .          .          .
 9.000      0.0027      0.01  Q          V.          .          .          .
 9.083      0.0028      0.01  Q          V.          .          .          .
 9.167      0.0029      0.01  Q           V          .          .          .
 9.250      0.0029      0.01  Q           V          .          .          .
 9.333      0.0030      0.01  Q           V          .          .          .
 9.417      0.0031      0.01  Q           V          .          .          .
 9.500      0.0031      0.01  Q           V          .          .          .
 9.583      0.0032      0.01  Q           .V         .          .          .
 9.667      0.0033      0.01  Q           .V         .          .          .
 9.750      0.0033      0.01  Q           .V         .          .          .
 9.833      0.0034      0.01  Q           . V        .          .          .
 9.917      0.0035      0.01  Q           . V        .          .          .
10.000      0.0036      0.01  Q           . V        .          .          .
10.083      0.0036      0.01  Q           . V        .          .          .
10.167      0.0037      0.01  Q           . V        .          .          .
10.250      0.0038      0.01  Q           .  V       .          .          .
10.333      0.0038      0.01  Q           .  V       .          .          .
10.417      0.0039      0.01  Q           .  V       .          .          .
10.500      0.0039      0.01  Q           .  V       .          .          .
10.583      0.0040      0.01  Q           .   V      .          .          .
10.667      0.0041      0.01  Q           .   V      .          .          .
10.750      0.0041      0.01  Q           .   V      .          .          .
10.833      0.0042      0.01  Q           .   V      .          .          .
10.917      0.0043      0.01  Q           .   V      .          .          .
11.000      0.0043      0.01  Q           .    V     .          .          .
11.083      0.0044      0.01  Q           .    V     .          .          .
11.167      0.0045      0.01  Q           .    V     .          .          .
11.250      0.0045      0.01  Q           .    V     .          .          .
11.333      0.0046      0.01  Q           .     V    .          .          .
11.417      0.0047      0.01  Q           .     V    .          .          .
11.500      0.0047      0.01  Q           .     V    .          .          .
11.583      0.0048      0.01  Q           .     V    .          .          .
11.667      0.0049      0.01  Q           .      V   .          .          .
11.750      0.0049      0.01  Q           .      V   .          .          .
11.833      0.0050      0.01  Q           .      V   .          .          .
11.917      0.0051      0.01  Q           .      V   .          .          .
12.000      0.0051      0.01  Q           .      V   .          .          .
12.083      0.0052      0.01  Q           .       V  .          .          .
12.167      0.0053      0.01  Q           .       V  .          .          .
12.250      0.0053      0.01  Q           .       V  .          .          .
12.333      0.0054      0.01  Q           .        V.          .          .
12.417      0.0055      0.01  Q           .        V.          .          .
12.500      0.0056      0.01  Q           .        V.          .          .
12.583      0.0057      0.01  Q           .         V          .          .
12.667      0.0058      0.01  Q           .         V          .          .
12.750      0.0059      0.01  Q           .         V          .          .
12.833      0.0060      0.01  Q           .         .V         .          .
12.917      0.0061      0.01  Q           .         .V         .          .
13.000      0.0062      0.01  Q           .         .V         .          .
13.083      0.0064      0.03  Q           .         . V        .          .
13.167      0.0065      0.03  Q           .         . V        .          .
13.250      0.0067      0.03  Q           .         .  V       .          .
13.333      0.0070      0.03  Q           .         .   V      .          .
13.417      0.0072      0.03  Q           .         .    V     .          .
13.500      0.0074      0.03  Q           .         .     V    .          .
13.583      0.0076      0.02  Q           .         .     V    .          .
13.667      0.0078      0.02  Q           .         .      V   .          .
13.750      0.0079      0.02  Q           .         .      V   .          .
13.833      0.0080      0.01  Q           .         .       V  .          .
13.917      0.0081      0.01  Q           .         .       V  .          .
14.000      0.0082      0.01  Q           .         .       V  .          .
14.083      0.0083      0.01  Q           .         .        V.          .
14.167      0.0084      0.01  Q           .         .        V.          .
14.250      0.0085      0.01  Q           .         .        V.          .
14.333      0.0086      0.01  Q           .         .         V          .
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

14.417	0.0087	0.01	Q	.	.	V	.
14.500	0.0088	0.01	Q	.	.	V	.
14.583	0.0089	0.01	Q	.	.	.V	.
14.667	0.0090	0.01	Q	.	.	.V	.
14.750	0.0090	0.01	Q	.	.	.V	.
14.833	0.0091	0.01	Q	.	.	. V	.
14.917	0.0092	0.01	Q	.	.	. V	.
15.000	0.0093	0.01	Q	.	.	. V	.
15.083	0.0094	0.01	Q	.	.	. V	.
15.167	0.0095	0.01	Q	.	.	. V	.
15.250	0.0096	0.01	Q	.	.	. V	.
15.333	0.0097	0.01	Q	.	.	. V	.
15.417	0.0097	0.01	Q	.	.	. V	.
15.500	0.0098	0.01	Q	.	.	. V	.
15.583	0.0099	0.01	Q	.	.	. V	.
15.667	0.0100	0.01	Q	.	.	. V	.
15.750	0.0101	0.01	Q	.	.	. V	.
15.833	0.0101	0.01	Q	.	.	. V	.
15.917	0.0102	0.01	Q	.	.	. V	.
16.000	0.0103	0.01	Q	.	.	. V	.
16.083	0.0103	0.01	Q	.	.	. V	.
16.167	0.0103	0.01	Q	.	.	. V	.
16.250	0.0104	0.01	Q	.	.	. V	.
16.333	0.0104	0.00	Q	.	.	. V	.
16.417	0.0104	0.00	Q	.	.	. V	.
16.500	0.0104	0.00	Q	.	.	. V	.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	990.0
10%	690.0
20%	480.0
30%	255.0
40%	75.0
50%	45.0
60%	45.0
70%	30.0
80%	15.0
90%	15.0

END OF FLOODSCx ROUTING ANALYSIS

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
**************************************************************************

              F L O O D    R O U T I N G    A N A L Y S I S

ACCORDING TO RIVERSIDE COUNTY FLOOD CONTORL AND WATER CONSERVATION DISTRICT
                    (RCFC&WCD) 1978 HYDROLOGY MANUAL
          (c) Copyright 1989-2013 Advanced Engineering Software (aes)
                  (Synthetic Unit Hydrograph Version 20.0)
                  Release Date: 06/01/2013  License ID 1264

                           Analysis prepared by:

                               RBF Consulting
                            14257 Alton Parkway
                                 Irvine, CA
                                   92618

 ************************** DESCRIPTION OF STUDY **************************
* MORENO VALLEY                                                          *
* 2 YR UNIT HYDROGRAPH                                                   *
* EXISTING CONDITION                                                     *
 **************************************************************************

  FILE NAME: EX-HYD.DAT
  TIME/DATE OF STUDY: 14:10 03/26/2018


**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      1.20 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =      10.670 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.404 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.269
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.900
         MINIMUM SOIL-LOSS RATE(INCH/HOUR) =   0.134
         USER-ENTERED RAINFALL =  1.70 INCHES
         RCFC&WCD 24-Hour Storm (15-Minute period) SELECTED
         RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 1.0000


         UNIT HYDROGRAPH TIME UNIT =  15.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  61.866



==========================================================================
                      UNIT HYDROGRAPH DETERMINATION

--------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
--------------------------------------------------------------------------
        1                8.409                3.617
        2               43.879               15.257
        3               69.699               11.106
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

4	79.944	4.407
5	85.867	2.548
6	89.760	1.674
7	92.581	1.213
8	94.703	0.913
9	96.333	0.701
10	97.542	0.520
11	98.277	0.316
12	98.721	0.191
13	99.165	0.191
14	99.609	0.191
15	100.000	0.168

TOTAL STORM RAINFALL(INCHES) = 1.70
TOTAL SOIL-LOSS(INCHES) = 1.53
TOTAL EFFECTIVE RAINFALL(INCHES) = 0.17

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 1.3604
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 0.1511

♀

==========

2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

==========

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.083	0.0000	0.00	Q	.	.	.	.
0.167	0.0000	0.00	Q	.	.	.	.
0.250	0.0000	0.00	Q	.	.	.	.
0.333	0.0001	0.01	Q	.	.	.	.
0.417	0.0001	0.01	Q	.	.	.	.
0.500	0.0002	0.01	Q	.	.	.	.
0.583	0.0003	0.01	Q	.	.	.	.
0.667	0.0004	0.01	Q	.	.	.	.
0.750	0.0004	0.01	Q	.	.	.	.
0.833	0.0006	0.02	Q	.	.	.	.
0.917	0.0007	0.02	Q	.	.	.	.
1.000	0.0008	0.02	Q	.	.	.	.
1.083	0.0010	0.02	Q	.	.	.	.
1.167	0.0011	0.02	Q	.	.	.	.
1.250	0.0012	0.02	Q	.	.	.	.
1.333	0.0014	0.02	Q	.	.	.	.
1.417	0.0015	0.02	Q	.	.	.	.
1.500	0.0017	0.02	Q	.	.	.	.
1.583	0.0018	0.02	Q	.	.	.	.
1.667	0.0020	0.02	Q	.	.	.	.
1.750	0.0021	0.02	Q	.	.	.	.
1.833	0.0023	0.02	Q	.	.	.	.
1.917	0.0024	0.02	Q	.	.	.	.
2.000	0.0026	0.02	Q	.	.	.	.
2.083	0.0027	0.02	Q	.	.	.	.
2.167	0.0029	0.02	Q	.	.	.	.
2.250	0.0031	0.02	Q	.	.	.	.
2.333	0.0032	0.03	Q	.	.	.	.
2.417	0.0034	0.03	Q	.	.	.	.
2.500	0.0036	0.03	Q	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2.583	0.0038	0.03	QV	.	.	.	.
2.667	0.0040	0.03	QV	.	.	.	.
2.750	0.0042	0.03	QV	.	.	.	.
2.833	0.0044	0.03	QV	.	.	.	.
2.917	0.0046	0.03	QV	.	.	.	.
3.000	0.0048	0.03	QV	.	.	.	.
3.083	0.0051	0.03	QV	.	.	.	.
3.167	0.0053	0.03	QV	.	.	.	.
3.250	0.0055	0.03	QV	.	.	.	.
3.333	0.0058	0.03	QV	.	.	.	.
3.417	0.0060	0.03	QV	.	.	.	.
3.500	0.0062	0.03	QV	.	.	.	.
3.583	0.0065	0.04	QV	.	.	.	.
3.667	0.0067	0.04	QV	.	.	.	.
3.750	0.0070	0.04	QV	.	.	.	.
3.833	0.0072	0.04	QV	.	.	.	.
3.917	0.0075	0.04	QV	.	.	.	.
4.000	0.0077	0.04	Q V	.	.	.	.
4.083	0.0080	0.04	Q V	.	.	.	.
4.167	0.0083	0.04	Q V	.	.	.	.
4.250	0.0085	0.04	Q V	.	.	.	.
4.333	0.0088	0.04	Q V	.	.	.	.
4.417	0.0091	0.04	Q V	.	.	.	.
4.500	0.0094	0.04	Q V	.	.	.	.
4.583	0.0097	0.05	Q V	.	.	.	.
4.667	0.0100	0.05	Q V	.	.	.	.
4.750	0.0103	0.05	Q V	.	.	.	.
4.833	0.0107	0.05	Q V	.	.	.	.
4.917	0.0110	0.05	Q V	.	.	.	.
5.000	0.0113	0.05	Q V	.	.	.	.
5.083	0.0117	0.05	Q V	.	.	.	.
5.167	0.0120	0.05	Q V	.	.	.	.
5.250	0.0124	0.05	Q V	.	.	.	.
5.333	0.0127	0.05	Q V	.	.	.	.
5.417	0.0130	0.05	Q V	.	.	.	.
5.500	0.0134	0.05	Q V	.	.	.	.
5.583	0.0137	0.05	Q V	.	.	.	.
5.667	0.0141	0.05	Q V	.	.	.	.
5.750	0.0144	0.05	Q V	.	.	.	.
5.833	0.0148	0.05	Q V	.	.	.	.
5.917	0.0151	0.05	Q V	.	.	.	.
6.000	0.0155	0.05	Q V	.	.	.	.
6.083	0.0159	0.06	Q V	.	.	.	.
6.167	0.0163	0.06	Q V	.	.	.	.
6.250	0.0167	0.06	Q V	.	.	.	.
6.333	0.0171	0.06	Q V	.	.	.	.
6.417	0.0175	0.06	Q V	.	.	.	.
6.500	0.0179	0.06	Q V	.	.	.	.
6.583	0.0183	0.06	Q V	.	.	.	.
6.667	0.0188	0.06	Q V	.	.	.	.
6.750	0.0192	0.06	Q V	.	.	.	.
6.833	0.0197	0.07	Q V	.	.	.	.
6.917	0.0201	0.07	Q V	.	.	.	.
7.000	0.0206	0.07	Q V	.	.	.	.
7.083	0.0210	0.07	Q V	.	.	.	.
7.167	0.0215	0.07	Q V	.	.	.	.
7.250	0.0220	0.07	Q V	.	.	.	.
7.333	0.0225	0.07	Q V	.	.	.	.
7.417	0.0230	0.07	Q V	.	.	.	.
7.500	0.0235	0.07	Q V	.	.	.	.
7.583	0.0240	0.08	Q V	.	.	.	.
7.667	0.0245	0.08	Q V	.	.	.	.
7.750	0.0250	0.08	Q V	.	.	.	.
7.833	0.0256	0.08	Q V	.	.	.	.
7.917	0.0261	0.08	Q V	.	.	.	.
8.000	0.0267	0.08	Q V	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

8.083	0.0273	0.09	Q	V	.	.	.	.
8.167	0.0279	0.09	Q	V	.	.	.	.
8.250	0.0285	0.09	Q	V	.	.	.	.
8.333	0.0292	0.10	Q	V	.	.	.	.
8.417	0.0298	0.10	Q	V	.	.	.	.
8.500	0.0305	0.10	Q	V	.	.	.	.
8.583	0.0312	0.10	Q	V	.	.	.	.
8.667	0.0319	0.10	Q	V	.	.	.	.
8.750	0.0326	0.10	Q	V	.	.	.	.
8.833	0.0333	0.11	Q	V	.	.	.	.
8.917	0.0341	0.11	Q	V	.	.	.	.
9.000	0.0348	0.11	Q	V	.	.	.	.
9.083	0.0356	0.12	Q	V	.	.	.	.
9.167	0.0364	0.12	Q	V	.	.	.	.
9.250	0.0372	0.12	Q	V	.	.	.	.
9.333	0.0381	0.12	Q	V	.	.	.	.
9.417	0.0389	0.12	Q	V	.	.	.	.
9.500	0.0398	0.12	Q	V	.	.	.	.
9.583	0.0407	0.13	Q	V	.	.	.	.
9.667	0.0416	0.13	Q	V	.	.	.	.
9.750	0.0426	0.13	Q	V	.	.	.	.
9.833	0.0435	0.14	Q	V	.	.	.	.
9.917	0.0445	0.14	Q	V	.	.	.	.
10.000	0.0455	0.14	Q	V	.	.	.	.
10.083	0.0465	0.14	Q	V	.	.	.	.
10.167	0.0475	0.14	Q	V	.	.	.	.
10.250	0.0485	0.14	Q	V	.	.	.	.
10.333	0.0494	0.13	Q	V	.	.	.	.
10.417	0.0503	0.13	Q	V	.	.	.	.
10.500	0.0512	0.13	Q	V	.	.	.	.
10.583	0.0520	0.12	Q	V	.	.	.	.
10.667	0.0529	0.12	Q	V	.	.	.	.
10.750	0.0537	0.12	Q	V	.	.	.	.
10.833	0.0546	0.13	Q	V	.	.	.	.
10.917	0.0555	0.13	Q	V	.	.	.	.
11.000	0.0564	0.13	Q	V	.	.	.	.
11.083	0.0574	0.14	Q	V	.	.	.	.
11.167	0.0583	0.14	Q	V	.	.	.	.
11.250	0.0593	0.14	Q	V	.	.	.	.
11.333	0.0603	0.14	Q	V	.	.	.	.
11.417	0.0612	0.14	Q	V	.	.	.	.
11.500	0.0622	0.14	Q	V	.	.	.	.
11.583	0.0631	0.14	Q	V	.	.	.	.
11.667	0.0641	0.14	Q	V	.	.	.	.
11.750	0.0650	0.14	Q	V	.	.	.	.
11.833	0.0659	0.13	Q	V	.	.	.	.
11.917	0.0668	0.13	Q	V	.	.	.	.
12.000	0.0678	0.13	Q	V	.	.	.	.
12.083	0.0687	0.14	Q	V	.	.	.	.
12.167	0.0696	0.14	Q	V	.	.	.	.
12.250	0.0706	0.14	Q	V	.	.	.	.
12.333	0.0716	0.16	Q	V	.	.	.	.
12.417	0.0727	0.16	Q	V	.	.	.	.
12.500	0.0738	0.16	Q	V	.	.	.	.
12.583	0.0750	0.17	Q	V	.	.	.	.
12.667	0.0761	0.17	Q	V	.	.	.	.
12.750	0.0773	0.17	Q	V	.	.	.	.
12.833	0.0786	0.19	Q	V	.	.	.	.
12.917	0.0799	0.19	Q	V	.	.	.	.
13.000	0.0812	0.19	Q	V	.	.	.	.
13.083	0.0825	0.20	Q	V	.	.	.	.
13.167	0.0839	0.20	Q	V	.	.	.	.
13.250	0.0853	0.20	Q	V	.	.	.	.
13.333	0.0867	0.22	Q	V	.	.	.	.
13.417	0.0882	0.22	Q	V	.	.	.	.
13.500	0.0897	0.22	Q	V	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

13.583	0.0913	0.22	Q	V
13.667	0.0928	0.22	Q	V
13.750	0.0943	0.22	Q	V
13.833	0.0957	0.20	Q	V
13.917	0.0971	0.20	Q	V
14.000	0.0985	0.20	Q	V
14.083	0.0998	0.19	Q	V
14.167	0.1010	0.19	Q	V
14.250	0.1023	0.19	Q	V
14.333	0.1036	0.19	Q	V
14.417	0.1049	0.19	Q	V
14.500	0.1062	0.19	Q	V
14.583	0.1076	0.19	Q	V
14.667	0.1089	0.19	Q	V
14.750	0.1102	0.19	Q	V
14.833	0.1115	0.19	Q	V
14.917	0.1128	0.19	Q	V
15.000	0.1141	0.19	Q	V
15.083	0.1154	0.19	Q	V
15.167	0.1167	0.19	Q	V
15.250	0.1180	0.19	Q	V
15.333	0.1193	0.18	Q	V
15.417	0.1205	0.18	Q	V
15.500	0.1218	0.18	Q	V
15.583	0.1230	0.17	Q	V
15.667	0.1242	0.17	Q	V
15.750	0.1254	0.17	Q	V
15.833	0.1265	0.16	Q	V
15.917	0.1276	0.16	Q	V
16.000	0.1287	0.16	Q	V
16.083	0.1297	0.14	Q	V
16.167	0.1306	0.14	Q	V
16.250	0.1316	0.14	Q	V
16.333	0.1323	0.10	Q	V
16.417	0.1330	0.10	Q	V
16.500	0.1337	0.10	Q	V
16.583	0.1342	0.07	Q	V
16.667	0.1346	0.07	Q	V
16.750	0.1351	0.07	Q	V
16.833	0.1354	0.05	Q	V
16.917	0.1358	0.05	Q	V
17.000	0.1362	0.05	Q	V
17.083	0.1365	0.04	Q	V
17.167	0.1368	0.04	Q	V
17.250	0.1371	0.04	Q	V
17.333	0.1374	0.04	Q	V
17.417	0.1377	0.04	Q	V
17.500	0.1380	0.04	Q	V
17.583	0.1383	0.04	Q	V
17.667	0.1386	0.04	Q	V
17.750	0.1388	0.04	Q	V
17.833	0.1391	0.04	Q	V
17.917	0.1394	0.04	Q	V
18.000	0.1397	0.04	Q	V
18.083	0.1399	0.04	Q	V
18.167	0.1402	0.04	Q	V
18.250	0.1404	0.04	Q	V
18.333	0.1407	0.03	Q	V
18.417	0.1409	0.03	Q	V
18.500	0.1411	0.03	Q	V
18.583	0.1413	0.03	Q	V
18.667	0.1416	0.03	Q	V
18.750	0.1418	0.03	Q	V
18.833	0.1420	0.03	Q	V
18.917	0.1422	0.03	Q	V
19.000	0.1423	0.03	Q	V

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

19.083	0.1425	0.02	Q	.	.	.	V .
19.167	0.1427	0.02	Q	.	.	.	V .
19.250	0.1428	0.02	Q	.	.	.	V .
19.333	0.1430	0.02	Q	.	.	.	V .
19.417	0.1431	0.02	Q	.	.	.	V .
19.500	0.1433	0.02	Q	.	.	.	V .
19.583	0.1435	0.03	Q	.	.	.	V .
19.667	0.1436	0.03	Q	.	.	.	V .
19.750	0.1438	0.03	Q	.	.	.	V .
19.833	0.1440	0.02	Q	.	.	.	V .
19.917	0.1441	0.02	Q	.	.	.	V .
20.000	0.1443	0.02	Q	.	.	.	V .
20.083	0.1444	0.02	Q	.	.	.	V .
20.167	0.1446	0.02	Q	.	.	.	V .
20.250	0.1447	0.02	Q	.	.	.	V .
20.333	0.1449	0.02	Q	.	.	.	V .
20.417	0.1450	0.02	Q	.	.	.	V .
20.500	0.1451	0.02	Q	.	.	.	V .
20.583	0.1453	0.02	Q	.	.	.	V .
20.667	0.1454	0.02	Q	.	.	.	V .
20.750	0.1456	0.02	Q	.	.	.	V .
20.833	0.1457	0.02	Q	.	.	.	V .
20.917	0.1459	0.02	Q	.	.	.	V .
21.000	0.1460	0.02	Q	.	.	.	V .
21.083	0.1462	0.02	Q	.	.	.	V .
21.167	0.1463	0.02	Q	.	.	.	V .
21.250	0.1464	0.02	Q	.	.	.	V .
21.333	0.1466	0.02	Q	.	.	.	V .
21.417	0.1467	0.02	Q	.	.	.	V .
21.500	0.1468	0.02	Q	.	.	.	V .
21.583	0.1470	0.02	Q	.	.	.	V .
21.667	0.1471	0.02	Q	.	.	.	V .
21.750	0.1472	0.02	Q	.	.	.	V .
21.833	0.1473	0.02	Q	.	.	.	V.
21.917	0.1475	0.02	Q	.	.	.	V.
22.000	0.1476	0.02	Q	.	.	.	V.
22.083	0.1477	0.02	Q	.	.	.	V.
22.167	0.1479	0.02	Q	.	.	.	V.
22.250	0.1480	0.02	Q	.	.	.	V.
22.333	0.1481	0.02	Q	.	.	.	V.
22.417	0.1482	0.02	Q	.	.	.	V.
22.500	0.1484	0.02	Q	.	.	.	V.
22.583	0.1485	0.02	Q	.	.	.	V.
22.667	0.1486	0.02	Q	.	.	.	V.
22.750	0.1487	0.02	Q	.	.	.	V.
22.833	0.1488	0.02	Q	.	.	.	V.
22.917	0.1490	0.02	Q	.	.	.	V.
23.000	0.1491	0.02	Q	.	.	.	V.
23.083	0.1492	0.02	Q	.	.	.	V.
23.166	0.1493	0.02	Q	.	.	.	V.
23.250	0.1494	0.02	Q	.	.	.	V.
23.333	0.1495	0.02	Q	.	.	.	V.
23.416	0.1496	0.02	Q	.	.	.	V.
23.500	0.1497	0.02	Q	.	.	.	V.
23.583	0.1498	0.02	Q	.	.	.	V.
23.666	0.1499	0.02	Q	.	.	.	V.
23.750	0.1500	0.02	Q	.	.	.	V.
23.833	0.1501	0.01	Q	.	.	.	V.
23.916	0.1502	0.01	Q	.	.	.	V.
24.000	0.1503	0.01	Q	.	.	.	V.
24.083	0.1504	0.01	Q	.	.	.	V.
24.166	0.1505	0.01	Q	.	.	.	V.
24.250	0.1506	0.01	Q	.	.	.	V.
24.333	0.1507	0.01	Q	.	.	.	V.
24.416	0.1507	0.01	Q	.	.	.	V.
24.500	0.1508	0.01	Q	.	.	.	V.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
--------------------------------------------------------------------------------
--
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                Duration
        Peak Flow Rate                     (minutes)
    ======================                 =========
                0%                          1470.0
               10%                          1080.0
               20%                           750.0
               30%                           585.0
               40%                           495.0
               50%                           435.0
               60%                           345.0
               70%                           210.0
               80%                           165.0
               90%                            30.0


****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.20 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =       7.430 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
  Warning: Watershed Area is less than 10 acres
         *USER ENTERED "LAG" TIME =    0.379 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY S-GRAPH SELECTED
         UNIFORM MEAN SOIL-LOSS(INCH/HOUR) =  0.269
         LOW SOIL-LOSS RATE PERCENT(DECIMAL) = 0.900
         MINIMUM SOIL-LOSS RATE(INCH/HOUR) =   0.134
         USER-ENTERED RAINFALL =  1.70 INCHES
         RCFC&WCD 24-Hour Storm (15-Minute period) SELECTED
         RCFC&WCD DEPTH-AREA ADJUSTMENT FACTOR(PLATE E-5.8) = 1.0000


         UNIT HYDROGRAPH TIME UNIT =  15.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  65.998


============================================================================
                    UNIT HYDROGRAPH DETERMINATION

----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
----------------------------------------------------------------------------
        1                9.389                2.812
        2               47.479               11.409
        3               71.912                7.318
        4               81.568                2.892
        5               87.176                1.680
        6               90.907                1.117
        7               93.564                0.796
        8               95.587                0.606
        9               97.029                0.432
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

10	98.088	0.317
11	98.588	0.150
12	99.062	0.142
13	99.536	0.142
14	100.000	0.139

TOTAL STORM RAINFALL(INCHES) = 1.70
TOTAL SOIL-LOSS(INCHES) = 1.53
TOTAL EFFECTIVE RAINFALL(INCHES) = 0.17

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 0.9473
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 0.1052

♀

==========

2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

==========

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.083	0.0000	0.00	Q	.	.	.	.
0.167	0.0000	0.00	Q	.	.	.	.
0.250	0.0000	0.00	Q	.	.	.	.
0.333	0.0001	0.01	Q	.	.	.	.
0.417	0.0001	0.01	Q	.	.	.	.
0.500	0.0001	0.01	Q	.	.	.	.
0.583	0.0002	0.01	Q	.	.	.	.
0.667	0.0003	0.01	Q	.	.	.	.
0.750	0.0003	0.01	Q	.	.	.	.
0.833	0.0004	0.01	Q	.	.	.	.
0.917	0.0005	0.01	Q	.	.	.	.
1.000	0.0006	0.01	Q	.	.	.	.
1.083	0.0007	0.01	Q	.	.	.	.
1.167	0.0008	0.01	Q	.	.	.	.
1.250	0.0009	0.01	Q	.	.	.	.
1.333	0.0010	0.01	Q	.	.	.	.
1.417	0.0011	0.01	Q	.	.	.	.
1.500	0.0012	0.01	Q	.	.	.	.
1.583	0.0013	0.01	Q	.	.	.	.
1.667	0.0014	0.01	Q	.	.	.	.
1.750	0.0015	0.01	Q	.	.	.	.
1.833	0.0016	0.02	Q	.	.	.	.
1.917	0.0017	0.02	Q	.	.	.	.
2.000	0.0018	0.02	Q	.	.	.	.
2.083	0.0019	0.02	Q	.	.	.	.
2.167	0.0021	0.02	Q	.	.	.	.
2.250	0.0022	0.02	Q	.	.	.	.
2.333	0.0023	0.02	Q	.	.	.	.
2.417	0.0024	0.02	Q	.	.	.	.
2.500	0.0026	0.02	Q	.	.	.	.
2.583	0.0027	0.02	QV	.	.	.	.
2.667	0.0028	0.02	QV	.	.	.	.
2.750	0.0030	0.02	QV	.	.	.	.
2.833	0.0031	0.02	QV	.	.	.	.
2.917	0.0033	0.02	QV	.	.	.	.
3.000	0.0034	0.02	QV	.	.	.	.
3.083	0.0036	0.02	QV	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3.167	0.0038	0.02	QV	.	.	.	.
3.250	0.0039	0.02	QV	.	.	.	.
3.333	0.0041	0.02	QV	.	.	.	.
3.417	0.0043	0.02	QV	.	.	.	.
3.500	0.0044	0.02	QV	.	.	.	.
3.583	0.0046	0.02	QV	.	.	.	.
3.667	0.0048	0.02	QV	.	.	.	.
3.750	0.0049	0.02	QV	.	.	.	.
3.833	0.0051	0.03	QV	.	.	.	.
3.917	0.0053	0.03	Q V	.	.	.	.
4.000	0.0055	0.03	Q V	.	.	.	.
4.083	0.0056	0.03	Q V	.	.	.	.
4.167	0.0058	0.03	Q V	.	.	.	.
4.250	0.0060	0.03	Q V	.	.	.	.
4.333	0.0062	0.03	Q V	.	.	.	.
4.417	0.0064	0.03	Q V	.	.	.	.
4.500	0.0066	0.03	Q V	.	.	.	.
4.583	0.0068	0.03	Q V	.	.	.	.
4.667	0.0071	0.03	Q V	.	.	.	.
4.750	0.0073	0.03	Q V	.	.	.	.
4.833	0.0075	0.03	Q V	.	.	.	.
4.917	0.0077	0.03	Q V	.	.	.	.
5.000	0.0080	0.03	Q V	.	.	.	.
5.083	0.0082	0.04	Q V	.	.	.	.
5.167	0.0085	0.04	Q V	.	.	.	.
5.250	0.0087	0.04	Q V	.	.	.	.
5.333	0.0090	0.03	Q V	.	.	.	.
5.417	0.0092	0.03	Q V	.	.	.	.
5.500	0.0094	0.03	Q V	.	.	.	.
5.583	0.0097	0.03	Q V	.	.	.	.
5.667	0.0099	0.03	Q V	.	.	.	.
5.750	0.0101	0.03	Q V	.	.	.	.
5.833	0.0104	0.04	Q V	.	.	.	.
5.917	0.0107	0.04	Q V	.	.	.	.
6.000	0.0109	0.04	Q V	.	.	.	.
6.083	0.0112	0.04	Q V	.	.	.	.
6.167	0.0115	0.04	Q V	.	.	.	.
6.250	0.0117	0.04	Q V	.	.	.	.
6.333	0.0120	0.04	Q V	.	.	.	.
6.417	0.0123	0.04	Q V	.	.	.	.
6.500	0.0126	0.04	Q V	.	.	.	.
6.583	0.0129	0.04	Q V	.	.	.	.
6.667	0.0132	0.04	Q V	.	.	.	.
6.750	0.0135	0.04	Q V	.	.	.	.
6.833	0.0138	0.05	Q V	.	.	.	.
6.917	0.0141	0.05	Q V	.	.	.	.
7.000	0.0145	0.05	Q V	.	.	.	.
7.083	0.0148	0.05	Q V	.	.	.	.
7.167	0.0151	0.05	Q V	.	.	.	.
7.250	0.0155	0.05	Q V	.	.	.	.
7.333	0.0158	0.05	Q V	.	.	.	.
7.417	0.0161	0.05	Q V	.	.	.	.
7.500	0.0165	0.05	Q V	.	.	.	.
7.583	0.0169	0.05	Q V	.	.	.	.
7.667	0.0172	0.05	Q V	.	.	.	.
7.750	0.0176	0.05	Q V	.	.	.	.
7.833	0.0180	0.06	Q V	.	.	.	.
7.917	0.0184	0.06	Q V	.	.	.	.
8.000	0.0188	0.06	Q V	.	.	.	.
8.083	0.0192	0.06	Q V	.	.	.	.
8.167	0.0196	0.06	Q V	.	.	.	.
8.250	0.0200	0.06	Q V	.	.	.	.
8.333	0.0205	0.07	Q V	.	.	.	.
8.417	0.0210	0.07	Q V	.	.	.	.
8.500	0.0214	0.07	Q V	.	.	.	.
8.583	0.0219	0.07	Q V	.	.	.	.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

```
 8.667      0.0224      0.07  Q        V .          .          .          .
 8.750      0.0229      0.07  Q        V .          .          .          .
 8.833      0.0234      0.08  Q        V .          .          .          .
 8.917      0.0239      0.08  Q         V.          .          .          .
 9.000      0.0245      0.08  Q         V.          .          .          .
 9.083      0.0250      0.08  Q         V.          .          .          .
 9.167      0.0256      0.08  Q         V.          .          .          .
 9.250      0.0261      0.08  Q         V.          .          .          .
 9.333      0.0267      0.09  Q          V          .          .          .
 9.417      0.0274      0.09  Q          V          .          .          .
 9.500      0.0280      0.09  Q          V          .          .          .
 9.583      0.0286      0.09  Q          V          .          .          .
 9.667      0.0293      0.09  Q           V         .          .          .
 9.750      0.0299      0.09  Q           V         .          .          .
 9.833      0.0306      0.10  Q          .V         .          .          .
 9.917      0.0313      0.10  Q          .V         .          .          .
10.000      0.0320      0.10  Q           . V       .          .          .
10.083      0.0327      0.10  Q           . V       .          .          .
10.167      0.0333      0.10  Q           . V       .          .          .
10.250      0.0340      0.10  Q           . V       .          .          .
10.333      0.0347      0.09  Q           .  V      .          .          .
10.417      0.0353      0.09  Q           .  V      .          .          .
10.500      0.0359      0.09  Q           .  V      .          .          .
10.583      0.0365      0.09  Q           .  V      .          .          .
10.667      0.0371      0.09  Q           .   V     .          .          .
10.750      0.0377      0.09  Q           .   V     .          .          .
10.833      0.0383      0.09  Q           .   V     .          .          .
10.917      0.0390      0.09  Q           .   V     .          .          .
11.000      0.0396      0.09  Q           .    V    .          .          .
11.083      0.0403      0.10  Q           .    V    .          .          .
11.167      0.0409      0.10  Q           .    V    .          .          .
11.250      0.0416      0.10  Q           .    V    .          .          .
11.333      0.0423      0.10  Q           .     V   .          .          .
11.417      0.0429      0.10  Q           .     V   .          .          .
11.500      0.0436      0.10  Q           .     V   .          .          .
11.583      0.0443      0.10  Q           .     V   .          .          .
11.667      0.0449      0.10  Q           .      V  .          .          .
11.750      0.0456      0.10  Q           .      V  .          .          .
11.833      0.0462      0.09  Q           .      V  .          .          .
11.917      0.0468      0.09  Q           .      V  .          .          .
12.000      0.0475      0.09  Q           .       V .          .          .
12.083      0.0481      0.09  Q           .       V .          .          .
12.167      0.0488      0.09  Q           .       V .          .          .
12.250      0.0494      0.09  Q           .       V .          .          .
12.333      0.0502      0.11  Q           .        V.          .          .
12.417      0.0509      0.11  Q           .        V.          .          .
12.500      0.0517      0.11  Q           .        V.          .          .
12.583      0.0525      0.12  Q           .        V.          .          .
12.667      0.0534      0.12  Q           .         V          .          .
12.750      0.0542      0.12  Q           .         V          .          .
12.833      0.0551      0.13  Q           .         V          .          .
12.917      0.0560      0.13  Q           .          V         .          .
13.000      0.0569      0.13  Q           .          V         .          .
13.083      0.0578      0.14  Q           .         .V         .          .
13.167      0.0588      0.14  Q           .         . V        .          .
13.250      0.0598      0.14  Q           .         . V        .          .
13.333      0.0608      0.15  Q           .         .  V       .          .
13.417      0.0619      0.15  Q           .         .  V       .          .
13.500      0.0629      0.15  Q           .         .  V       .          .
13.583      0.0640      0.16  Q           .         .   V      .          .
13.667      0.0651      0.16  Q           .         .   V      .          .
13.750      0.0661      0.16  Q           .         .    V     .          .
13.833      0.0671      0.14  Q           .         .    V     .          .
13.917      0.0680      0.14  Q           .         .    V     .          .
14.000      0.0690      0.14  Q           .         .     V    .          .
14.083      0.0699      0.13  Q           .         .     V    .          .
```


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

14.167	0.0708	0.13	Q	V
14.250	0.0717	0.13	Q	V
14.333	0.0726	0.13	Q	V
14.417	0.0735	0.13	Q	V
14.500	0.0744	0.13	Q	V
14.583	0.0753	0.13	Q	V
14.667	0.0762	0.13	Q	V
14.750	0.0772	0.13	Q	V
14.833	0.0781	0.13	Q	V
14.917	0.0790	0.13	Q	V
15.000	0.0799	0.13	Q	V
15.083	0.0808	0.13	Q	V
15.167	0.0817	0.13	Q	V
15.250	0.0826	0.13	Q	V
15.333	0.0835	0.13	Q	V
15.417	0.0843	0.13	Q	V
15.500	0.0852	0.13	Q	V
15.583	0.0860	0.12	Q	V
15.667	0.0869	0.12	Q	V
15.750	0.0877	0.12	Q	V
15.833	0.0885	0.11	Q	V
15.917	0.0892	0.11	Q	V
16.000	0.0900	0.11	Q	V
16.083	0.0907	0.10	Q	V
16.167	0.0913	0.10	Q	V
16.250	0.0920	0.10	Q	V
16.333	0.0925	0.07	Q	V
16.417	0.0929	0.07	Q	V
16.500	0.0934	0.07	Q	V
16.583	0.0937	0.05	Q	V
16.667	0.0940	0.05	Q	V
16.750	0.0943	0.05	Q	V
16.833	0.0945	0.03	Q	V
16.917	0.0948	0.03	Q	V
17.000	0.0950	0.03	Q	V
17.083	0.0952	0.03	Q	V
17.167	0.0954	0.03	Q	V
17.250	0.0956	0.03	Q	V
17.333	0.0958	0.03	Q	V
17.417	0.0960	0.03	Q	V
17.500	0.0962	0.03	Q	V
17.583	0.0964	0.03	Q	V
17.667	0.0966	0.03	Q	V
17.750	0.0968	0.03	Q	V
17.833	0.0970	0.03	Q	V
17.917	0.0972	0.03	Q	V
18.000	0.0974	0.03	Q	V
18.083	0.0976	0.02	Q	V
18.167	0.0977	0.02	Q	V
18.250	0.0979	0.02	Q	V
18.333	0.0981	0.02	Q	V
18.417	0.0982	0.02	Q	V
18.500	0.0984	0.02	Q	V
18.583	0.0985	0.02	Q	V
18.667	0.0987	0.02	Q	V
18.750	0.0988	0.02	Q	V
18.833	0.0989	0.02	Q	V
18.917	0.0991	0.02	Q	V
19.000	0.0992	0.02	Q	V
19.083	0.0993	0.02	Q	V
19.167	0.0994	0.02	Q	V
19.250	0.0995	0.02	Q	V
19.333	0.0996	0.02	Q	V
19.417	0.0997	0.02	Q	V
19.500	0.0998	0.02	Q	V
19.583	0.1000	0.02	Q	V

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

19.667	0.1001	0.02	Q	.	.	.	V .
19.750	0.1002	0.02	Q	.	.	.	V .
19.833	0.1003	0.02	Q	.	.	.	V .
19.917	0.1004	0.02	Q	.	.	.	V .
20.000	0.1005	0.02	Q	.	.	.	V .
20.083	0.1006	0.01	Q	.	.	.	V .
20.167	0.1007	0.01	Q	.	.	.	V .
20.250	0.1008	0.01	Q	.	.	.	V .
20.333	0.1009	0.01	Q	.	.	.	V .
20.417	0.1010	0.01	Q	.	.	.	V .
20.500	0.1011	0.01	Q	.	.	.	V .
20.583	0.1012	0.02	Q	.	.	.	V .
20.667	0.1013	0.02	Q	.	.	.	V .
20.750	0.1014	0.02	Q	.	.	.	V .
20.833	0.1015	0.01	Q	.	.	.	V .
20.917	0.1016	0.01	Q	.	.	.	V .
21.000	0.1017	0.01	Q	.	.	.	V .
21.083	0.1018	0.01	Q	.	.	.	V .
21.167	0.1019	0.01	Q	.	.	.	V .
21.250	0.1020	0.01	Q	.	.	.	V .
21.333	0.1021	0.01	Q	.	.	.	V .
21.417	0.1022	0.01	Q	.	.	.	V .
21.500	0.1023	0.01	Q	.	.	.	V .
21.583	0.1024	0.01	Q	.	.	.	V .
21.667	0.1025	0.01	Q	.	.	.	V .
21.750	0.1026	0.01	Q	.	.	.	V .
21.833	0.1026	0.01	Q	.	.	.	V.
21.917	0.1027	0.01	Q	.	.	.	V.
22.000	0.1028	0.01	Q	.	.	.	V.
22.083	0.1029	0.01	Q	.	.	.	V.
22.167	0.1030	0.01	Q	.	.	.	V.
22.250	0.1031	0.01	Q	.	.	.	V.
22.333	0.1032	0.01	Q	.	.	.	V.
22.417	0.1033	0.01	Q	.	.	.	V.
22.500	0.1034	0.01	Q	.	.	.	V.
22.583	0.1034	0.01	Q	.	.	.	V.
22.667	0.1035	0.01	Q	.	.	.	V.
22.750	0.1036	0.01	Q	.	.	.	V.
22.833	0.1037	0.01	Q	.	.	.	V.
22.917	0.1038	0.01	Q	.	.	.	V.
23.000	0.1038	0.01	Q	.	.	.	V.
23.083	0.1039	0.01	Q	.	.	.	V.
23.166	0.1040	0.01	Q	.	.	.	V.
23.250	0.1041	0.01	Q	.	.	.	V.
23.333	0.1041	0.01	Q	.	.	.	V.
23.416	0.1042	0.01	Q	.	.	.	V.
23.500	0.1043	0.01	Q	.	.	.	V.
23.583	0.1044	0.01	Q	.	.	.	V.
23.666	0.1044	0.01	Q	.	.	.	V.
23.750	0.1045	0.01	Q	.	.	.	V.
23.833	0.1046	0.01	Q	.	.	.	V.
23.916	0.1046	0.01	Q	.	.	.	V.
24.000	0.1047	0.01	Q	.	.	.	V.
24.083	0.1048	0.01	Q	.	.	.	V.
24.166	0.1048	0.01	Q	.	.	.	V.
24.250	0.1049	0.01	Q	.	.	.	V.

--

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1455.0

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

10%	1065.0
20%	750.0
30%	570.0
40%	495.0
50%	435.0
60%	345.0
70%	225.0
80%	165.0
90%	30.0

==========

END OF FLOODSCx ROUTING ANALYSIS

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section G of the WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ A. **On-site storm drain inlets**	☒ **Locations of inlets.**	☒ **Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.**	☒ **Maintain and periodically repaint or replace inlet markings.** ☒ **Provide stormwater pollution prevention information to new site owners, lessees, or operators.** ☒ **See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** ☒ **Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."**
☐ B. **Interior floor drains and elevator shaft sump pumps**		☐ **State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.**	☐ **Inspect and maintain drains to preven blockages and overflow.**
☐ C. **Interior parking garages**		☐ **State that parking garage floor drains will be plumbed to the sanitary sewer.**	☐ **Inspect and maintain drains to preven blockages and overflow.**

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☐ D1. **Need for future indoor & structural pest control**		☐ **Note building design features that discourage entry of pests.**	☐ **Provide Integrated Pest Management information to owners, lessees, and operators.**
☒ D2. **Landscape/ Outdoor Pesticide Use**	☐ **Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.** ☐ **Show self-retaining landscape areas, if any.** ☒ **Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)**	**State that final landscape plans will accomplish all of the following.** ☒ **Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.** ☒ **Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.** ☐ **Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.** ☒ **Consider using pest-resistant plants, especially adjacent to hardscape.** **To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.**	☒ **Maintain landscaping using minimum or no pesticides.** ☒ **See applicable operational BMPs in "What you should know for…..Landscape and Gardening"** at http://rcflood.org/stormwater/**Error! Hyperlink reference not valid.** ☒ **Provide IPM information to new owners, lessees and operators.**

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ E. **Pools, spas, ponds, decorative fountains, and other water features.**	❑ **Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)**	**If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.**	❑ **See applicable operational BMPs in** "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
❑ F. **Food service**	❑ **For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment.** ❑ **On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.**	❑ **Describe the location and features of the designated cleaning area.** ❑ **Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.**	❑ **See the brochure, "**The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ **Provide this brochure to new site owners, lessees, and operators.**
☒ G. **Refuse areas**	☒ **Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas.** ☒ **If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area.** ☒ **Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.**	☒ **State how site refuse will be handled and provide supporting detail to what is shown on plans.** ☒ **State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.**	☒ **State how the following will be implemented:** **Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at** www.cabmphandbooks.com

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ H. **Industrial processes.**	❑ **Show process area.**	❑ **If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."**	❑ **See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at http://rcflood.org/stormwater/

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ I. **Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)**	☒ **Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area.** ☒ **Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults.** ☒ **Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.**	**Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.** **Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for:** ▪ **Hazardous Waste Generation** ▪ **Hazardous Materials Release Response and Inventory** ▪ **California Accidental Release (CalARP)** ▪ **Aboveground Storage Tank** ▪ **Uniform Fire Code Article 80 Section 103(b) & (c) 1991** ▪ **Underground Storage Tank** www.cchealth.org/groups/hazmat/	☒ **See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ J. **Vehicle and Equipment Cleaning**	❑ **Show on drawings as appropriate:** **(1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.** **(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use).** **(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.** **(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.**	❑ **If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.**	**Describe operational measures to implement the following (if applicable):** ❑ **Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system.** Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ ❑ **Car dealerships and similar may rinse cars with water only.**

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ K. **Vehicle/Equipment Repair and Maintenance**	❑ **Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater.** ❑ **Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas.** ❑ **Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.**	❑ **State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.** ❑ **State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.** ❑ **State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.**	**In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:** ❑ **No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains.** ❑ **No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately.** ❑ **No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.** Refer to "Automotive Maintenance & Ca Care Best Management Practices for Aut Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ L. **Fuel Dispensing Areas**	❑ **Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable.** ❑ **Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.**		❑ **The property owner shall dry sweep the fueling area routinely.** ❑ **See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

[6] **The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.**

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ M. **Loading Docks**	❑ **Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer.** ❑ **Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation.** ❑ **Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.**		❑ **Move loaded and unloaded items indoors as soon as possible.** ❑ **See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☐ N. **Fire Sprinkler Test Water**		☐ **Provide a means to drain fire sprinkler test water to the sanitary sewer.**	☐ **See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**
O. **Miscellaneous Drain or Wash Water or Other Sources** ☐ **Boiler drain lines** ☐ **Condensate drain lines** ☐ **Rooftop equipment** ☐ **Drainage sumps** ☒ **Roofing, gutters, and trim.** ☐ **Other sources**		☐ **Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.** ☐ **Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.** ☐ **Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.** ☐ **Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.** ☒ **Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.** **Include controls for other sources as specified by local reviewer.**	

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ P. **Plazas, sidewalks, and parking lots.**			☒ **Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain**

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

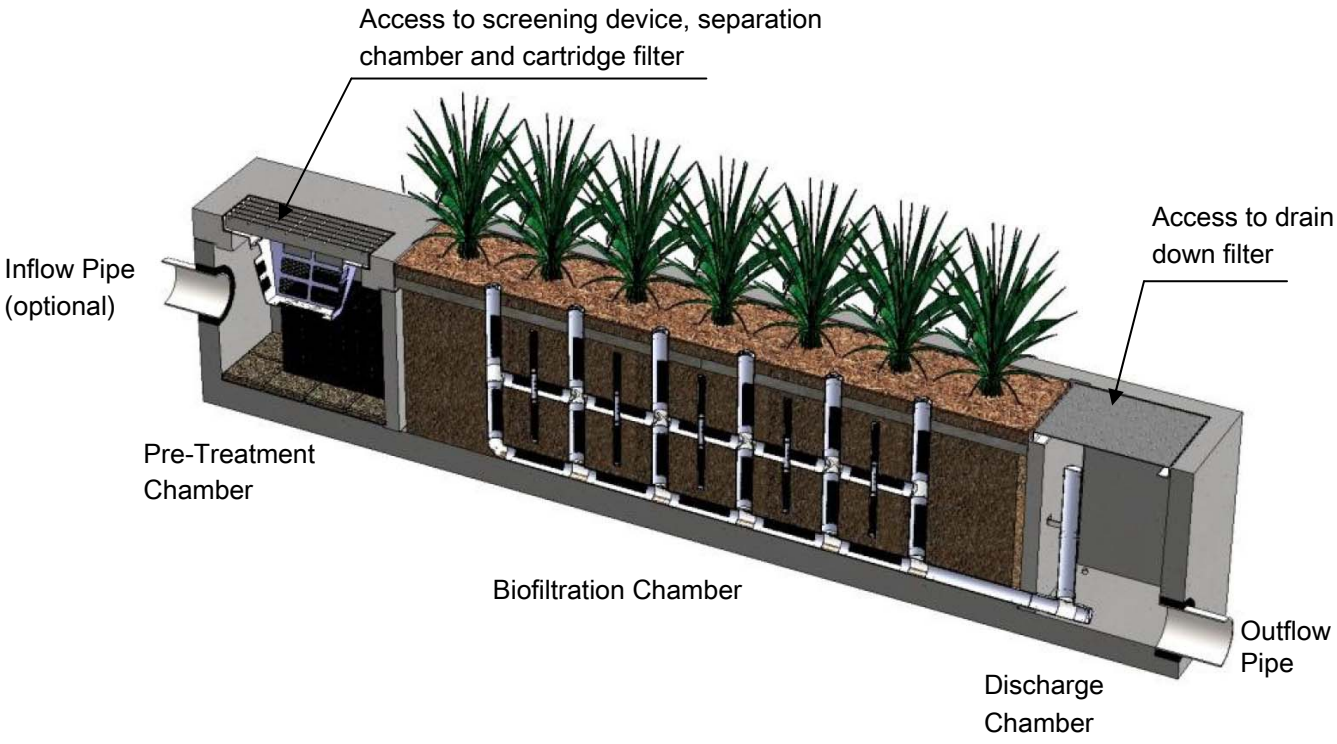
Maintenance Guidelines for Modular Wetland System - Linear

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Maintenance Summary

- Remove Trash from Screening Device – average maintenance interval is 6 to 12 months.
  - (*5 minute average service time*).
- Remove Sediment from Separation Chamber – average maintenance interval is 12 to 24 months.
  - (*10 minute average service time*).
- Replace Cartridge Filter Media – average maintenance interval 12 to 24 months.
  - (*10-15 minute per cartridge average service time*).
- Replace Drain Down Filter Media – average maintenance interval is 12 to 24 months.
  - (*5 minute average service time*).
- Trim Vegetation – average maintenance interval is 6 to 12 months.
  - (*Service time varies*).

System Diagram



Maintenance Procedures

Screening Device

1. Remove grate or manhole cover to gain access to the screening device in the Pre-Treatment Chamber. Vault type units do not have screening device. Maintenance can be performed without entry.
2. Remove all pollutants collected by the screening device. Removal can be done manually or with the use of a vacuum truck. The hose of the vacuum truck will not damage the screening device.
3. Screening device can easily be removed from the Pre-Treatment Chamber to gain access to separation chamber and media filters below. Replace grate or manhole cover when completed.

Separation Chamber

1. Perform maintenance procedures of screening device listed above before maintaining the separation chamber.
2. With a pressure washer spray down pollutants accumulated on walls and cartridge filters.
3. Vacuum out Separation Chamber and remove all accumulated pollutants. Replace screening device, grate or manhole cover when completed.

Cartridge Filters

1. Perform maintenance procedures on screening device and separation chamber before maintaining cartridge filters.
2. Enter separation chamber.
3. Unscrew the two bolts holding the lid on each cartridge filter and remove lid.
4. Remove each of 4 to 8 media cages holding the media in place.
5. Spray down the cartridge filter to remove any accumulated pollutants.
6. Vacuum out old media and accumulated pollutants.
7. Reinstall media cages and fill with new media from manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase.
8. Replace the lid and tighten down bolts. Replace screening device, grate or manhole cover when completed.

Drain Down Filter

1. Remove hatch or manhole cover over discharge chamber and enter chamber.
2. Unlock and lift drain down filter housing and remove old media block. Replace with new media block. Lower drain down filter housing and lock into place.
3. Exit chamber and replace hatch or manhole cover.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Maintenance Notes

1. Following maintenance and/or inspection, it is recommended the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.

2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.

3. Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.

4. Entry into chambers may require confined space training based on state and local regulations.

5. No fertilizer shall be used in the Biofiltration Chamber.

6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may require irrigation.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Maintenance Procedure Illustration

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Screening Device

The screening device is located directly under the manhole or grate over the Pre-Treatment Chamber. It's mounted directly underneath for easy access and cleaning. Device can be cleaned by hand or with a vacuum truck.

Separation Chamber

The separation chamber is located directly beneath the screening device. It can be quickly cleaned using a vacuum truck or by hand. A pressure washer is useful to assist in the cleaning process.

Cartridge Filters

The cartridge filters are located in the Pre-Treatment chamber connected to the wall adjacent to the biofiltration chamber. The cartridges have removable tops to access the individual media filters. Once the cartridge is open media can be easily removed and replaced by hand or a vacuum truck.

Drain Down Filter

The drain down filter is located in the Discharge Chamber. The drain filter unlocks from the wall mount and hinges up. Remove filter block and replace with new block.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

MODULAR WETLANDS

Trim Vegetation

Vegetation should be maintained in the same manner as surrounding vegetation and trimmed as needed. No fertilizer shall be used on the plants. Irrigation per the recommendation of the manufacturer and or landscape architect. Different types of vegetation requires different amounts of irrigation.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Inspection Form

Modular Wetland System, Inc.
P. 760.433-7640
F. 760-433-3176
E. Info@modularwetlands.com

www.modularwetlands.com

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

BIO CLEAN ENVIRONMENTAL SERVICES, INC.

Inspection Report
Modular Wetlands System

MODULAR WETLANDS

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section the left.

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Inspection Checklist

Modular Wetland System Type (Curb, Grate or UG Vault): _____ Size (22', 14' or etc.): _____

Structural Integrity:	**Yes**	**No**	**Comments**
Damage to pre-treatment access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Damage to discharge chamber access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Does the MWS unit show signs of structural deterioration (cracks in the wall, damage to frame)?			
Is the inlet/outlet pipe or drain down pipe damaged or otherwise not functioning properly?			
Working Condition:			
Is there evidence of illicit discharge or excessive oil, grease, or other automobile fluids entering and clogging the unit?			
Is there standing water in inappropriate areas after a dry period?			
Is the filter insert (if applicable) at capacity and/or is there an accumulation of debris/trash on the shelf system?			
Does the depth of sediment/trash/debris suggest a blockage of the inflow pipe, bypass or cartridge filter? If yes, specify which one in the comments section. Note depth of accumulation in in pre-treatment chamber.			Depth:
Does the cartridge filter media need replacement in pre-treatment chamber and/or discharge chamber?			Chamber:
Any signs of improper functioning in the discharge chamber? Note issues in comments section.			
Other Inspection Items:			
Is there an accumulation of sediment/trash/debris in the wetland media (if applicable)?			
Is it evident that the plants are alive and healthy (if applicable)? Please note Plant Information below.			
Is there a septic or foul odor coming from inside the system?			

Waste:	**Yes**	**No**
Sediment / Silt / Clay		
Trash / Bags / Bottles		
Green Waste / Leaves / Foliage		

Recommended Maintenance	
No Cleaning Needed	
Schedule Maintenance as Planned	
Needs Immediate Maintenance	

Plant Information	
Damage to Plants	
Plant Replacement	
Plant Trimming	

Additional Notes:

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Maintenance Report

Modular Wetland System, Inc.
P. 760.433-7640
F. 760-433-3176
E. Info@modularwetlands.com

www.modularwetlands.com

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

BIO CLEAN ENVIRONMENTAL SERVICES, INC.

Cleaning and Maintenance Report
Modular Wetlands System

MODULAR WETLANDS

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Site Map #	GPS Coordinates of Insert	Manufacturer / Description / Sizing	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Total Debris Accumulation	Condition of Media 25/50/75/100 (will be changed @ 75%)	Operational Per Manufactures' Specifications (If not, why?)
	Lat: Long:	MWS Catch Basins						
		MWS Sedimentation Basin						
		Media Filter Condition						
		Plant Condition						
		Drain Down Media Condition						
		Discharge Chamber Condition						
		Drain Down Pipe Condition						
		Inlet and Outlet Pipe Condition						

Comments:

2972 San Luis Rey Road, Oceanside, CA 92058 P. 760.433.7640 F. 760.433.3176

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

StormTech®
Detention • Retention • Water Quality
A division of ADS

Save Valuable Land and Protect Water Resources

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Isolator® Row O&M Manual

StormTech® Chamber System for Stormwater Management

1.0 The Isolator® Row

1.1 INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a patented technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.

Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.

1.2 THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC-310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

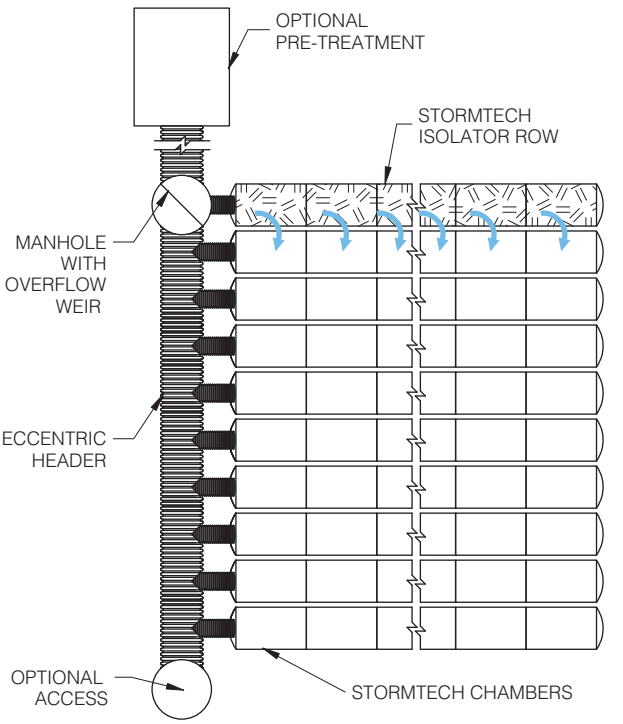
Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

The Isolator Row is typically designed to capture the "first flush" and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.

StormTech Isolator Row with Overflow Spillway
(not to scale)



Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

2.0 Isolator Row Inspection/Maintenance

2.1 INSPECTION

The frequency of Inspection and Maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

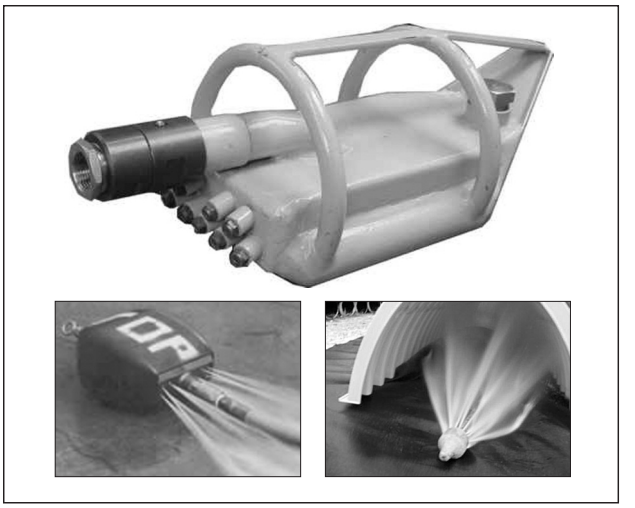
At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

2.2 MAINTENANCE

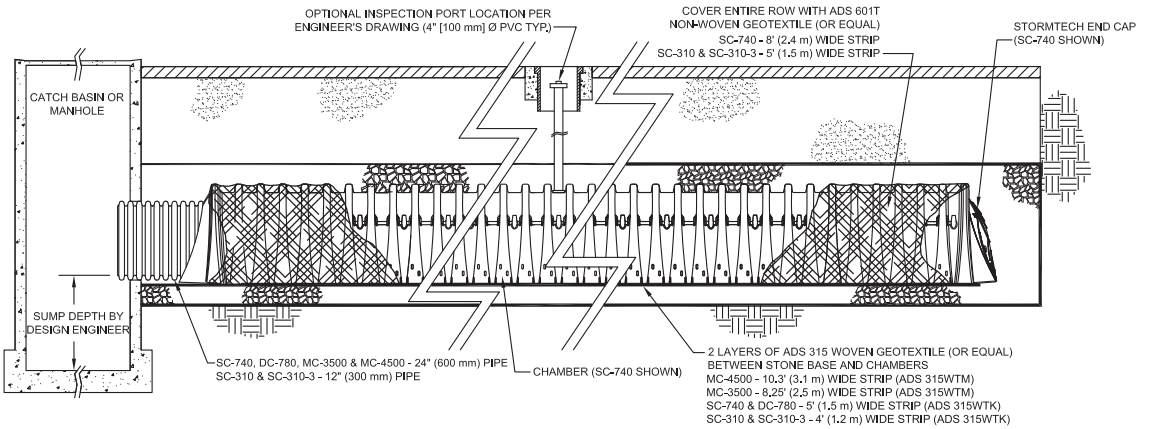
The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.



Examples of culvert cleaning nozzles appropriate for Isolator Row maintenance. (These are not StormTech products.)

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)



NOTE: NON-WOVEN FABRIC IS ONLY REQUIRED OVER THE INLET PIPE CONNECTION INTO THE END CAP FOR DC-780, MC-3500 AND MC-4500 CHAMBER MODELS AND IS NOT REQUIRED OVER THE ENTIRE ISOLATOR ROW.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

3.0 Isolator Row Step By Step Maintenance Procedures

Step 1) Inspect Isolator Row for sediment

A) Inspection ports (if present)

i. Remove lid from floor box frame

ii. Remove cap from inspection riser

iii. Using a flashlight and stadia rod, measure depth of sediment and record results on maintenance log.

iv. If sediment is at, or above, 3 inch depth proceed to Step 2. If not proceed to step 3.

B) All Isolator Rows

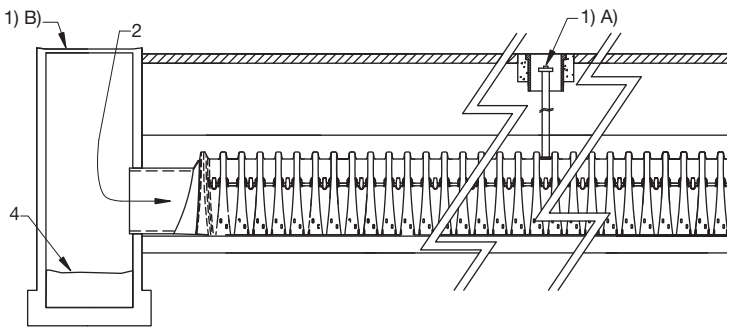
i. Remove cover from manhole at upstream end of Isolator Row

ii. Using a flashlight, inspect down Isolator Row through outlet pipe

1. Mirrors on poles or cameras may be used to avoid a confined space entry
2. Follow OSHA regulations for confined space entry if entering manhole

iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches) proceed to Step 2. If not proceed to Step 3.

StormTech Isolator Row (not to scale)



Step 2) Clean out Isolator Row using the JetVac process

A) A fixed culvert cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable

B) Apply multiple passes of JetVac until backflush water is clean

C) Vacuum manhole sump as required

Step 3) Replace all caps, lids and covers, record observations and actions

Step 4) Inspect & clean catch basins and manholes upstream of the StormTech system

Sample Maintenance Log

Date	Stadia Rod Readings		Sediment Depth (1) - (2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/01	6.3 ft.	none		New installation. Fixed point is CI frame at grade	djm
9/24/01		6.2	0.1 ft.	Some grit felt	sm
6/20/03		5.8	0.5 ft.	Mucky feel, debris visible in manhole and in Isolator row, maintenance due	rv
7/7/03	6.3 ft.		0	System jetted and vacuumed	djm

StormTech®
Detention • Retention • Water Quality
A division of ADS

70 Inwood Road, Suite 3 | Rocky Hill | Connecticut | 06067
860.529.8188 | 888.892.2694 | fax 866.328.8401 | www.stormtech.com

ADS "Terms and Conditions of Sale" are available on the ADS website, www.ads-pipe.com
Advanced Drainage Systems, the ADS logo, and the green stripe are registered trademarks of Advanced Drainage Systems.
Stormtech® and the Isolator® Row are registered trademarks of StormTech, Inc.
Green Building Council Member logo is a registered trademark of the U.S. Green Building Council.

© 2013 Advanced Drainage Systems, Inc. SO90809 02/13

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

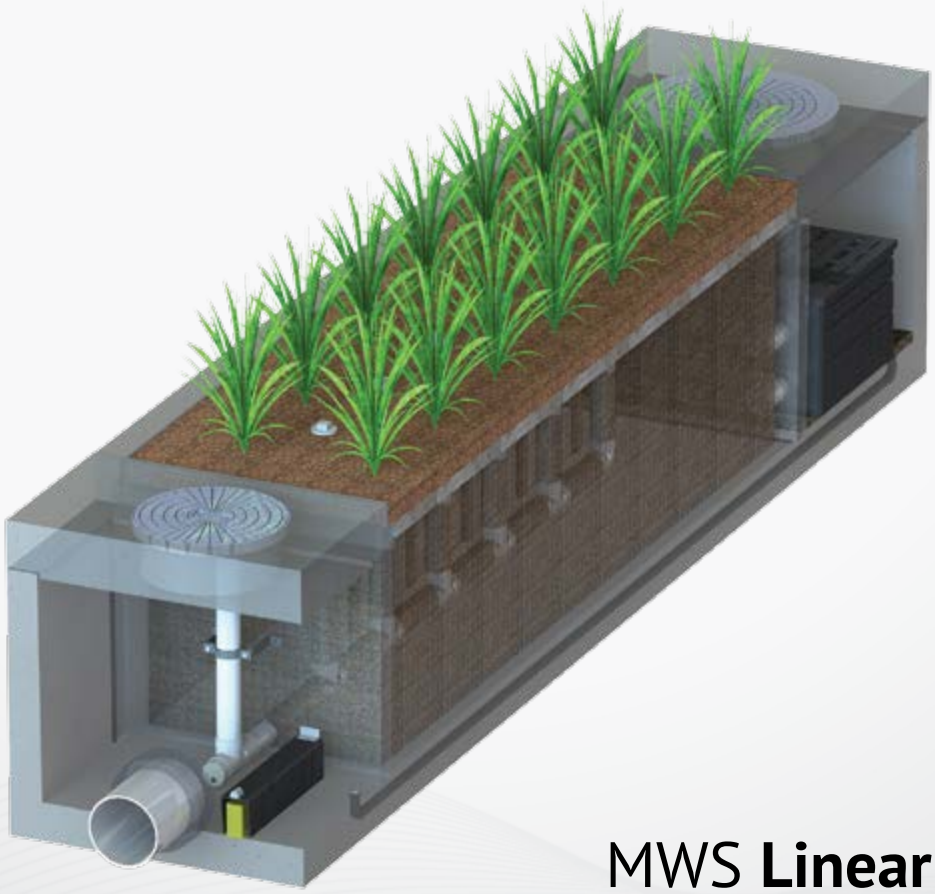
Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

MODULAR WETLANDS™

*Advanced **Stormwater** Biofiltration*



MWS **Linear**

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Contents

1 Introduction
2 Applications
3 Configurations
4 Advantages
5 Operation
6 Orientations | Bypass
7 Performance | Approvals
8 Sizing
9 Installation | Maintenance | Plants

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

The Urban Impact

For hundreds of years natural wetlands surrounding our shores have played an integral role as nature's stormwater treatment system. But as our cities grow and develop, these natural wetlands have perished under countless roads, rooftops, and parking lots.

Plant A Wetland

Without natural wetlands our cities are deprived of water purification, flood control, and land stability. Modular Wetlands and the MWS Linear re-establish nature's presence and rejuvenate water ways in urban areas.

MWS **Linear**

The Modular Wetland System Linear represents a pioneering breakthrough in stormwater technology as the only biofiltration system to utilize patented horizontal flow, allowing for a smaller footprint and higher treatment capacity. While most biofilters use little or no pre-treatment, the MWS Linear incorporates an advanced pre-treatment chamber that includes separation and pre-filter cartridges. In this chamber sediment and hydrocarbons are removed from runoff before it enters the biofiltration chamber, in turn reducing maintenance costs and improving performance.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Applications

The MWS Linear has been successfully used on numerous new construction and retrofit projects. The system's superior versatility makes it beneficial for a wide range of stormwater and waste water applications - treating rooftops, streetscapes, parking lots, and industrial sites.

Industrial

Many states enforce strict regulations for discharges from industrial sites. The MWS Linear has helped various sites meet difficult EPA mandated effluent limits for dissolved metals and other pollutants.

Residential

Low to high density developments can benefit from the versatile design of the MWS Linear. The system can be used in both decentralized LID design and cost-effective end-of-the-line configurations.

Streets

Street applications can be challenging due to limited space. The MWS Linear is very adaptable, and offers the smallest footprint to work around the constraints of existing utilities on retrofit projects.

Parking Lots

Parking lots are designed to maximize space and the MWS Linear's 4 ft. standard planter width allows for easy integration into parking lot islands and other landscape medians.

Commercial

Compared to bioretention systems, the MWS Linear can treat far more area in less space - meeting treatment and volume control requirements.

Mixed Use

The MWS Linear can be installed as a raised planter to treat runoff from rooftops or patios, making it perfect for sustainable "live-work" spaces.

More applications are available on our website: www.ModularWetlands.com/Applications

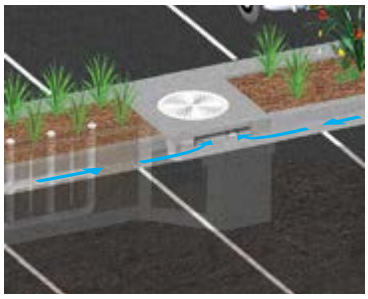
- Agriculture
- Reuse
- Low Impact Development
- Waste Water

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

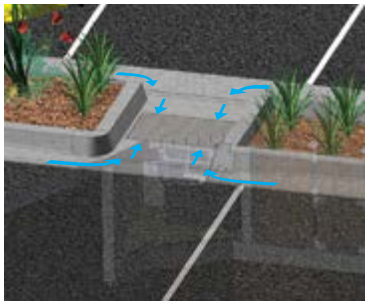
Configurations

The MWS Linear is the preferred biofiltration system of Civil Engineers across the country due to its versatile design. This highly versatile system has available "pipe-in" options on most models, along with built-in curb or grated inlets for simple integration into your stormdrain design.



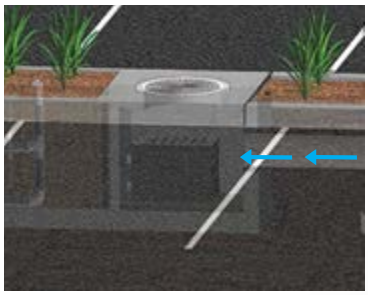
Curb Type

The *Curb Type* configuration accepts sheet flow through a curb opening and is commonly used along road ways and parking lots. It can be used in sump or flow by conditions. Length of curb opening varies based on model and size.



Grate Type

The *Grate Type* configuration offers the same features and benefits as the *Curb Type* but with a grated/drop inlet above the systems pre-treatment chamber. It has the added benefit of allowing for pedestrian access over the inlet. ADA compliant grates are available to assure easy and safe access. The *Grate Type* can also be used in scenarios where runoff needs to be intercepted on both sides of landscape islands.



Vault Type

The system's patented horizontal flow biofilter is able to accept inflow pipes directly into the pre-treatment chamber, meaning the MWS Linear can be used in end-of-the-line installations. This greatly improves feasibility over typical decentralized designs that are required with other biofiltration/bioretention systems. Another benefit of the "pipe in" design is the ability to install the system downstream of underground detention systems to meet water quality volume requirements.

Downspout Type

The *Downspout Type* is a variation of the *Vault Type* and is designed to accept a vertical downspout pipe from roof top and podium areas. Some models have the option of utilizing an internal bypass, simplifying the overall design. The system can be installed as a raised planter and the exterior can be stuccoed or covered with other finishes to match the look of adjacent buildings.

Advantages & Operation

The MWS Linear is the most efficient and versatile biofiltration system on the market, and the only system with horizontal flow which improves performance, reduces footprint, and minimizes maintenance. Figure-1 and Figure-2 illustrate the invaluable benefits of horizontal flow and the multiple treatment stages.

Featured Advantages

- Horizontal Flow Biofiltration
- Greater Filter Surface Area
- Pre-Treatment Chamber
- Patented Perimeter Void Area
- Flow Control
- No Depressed Planter Area

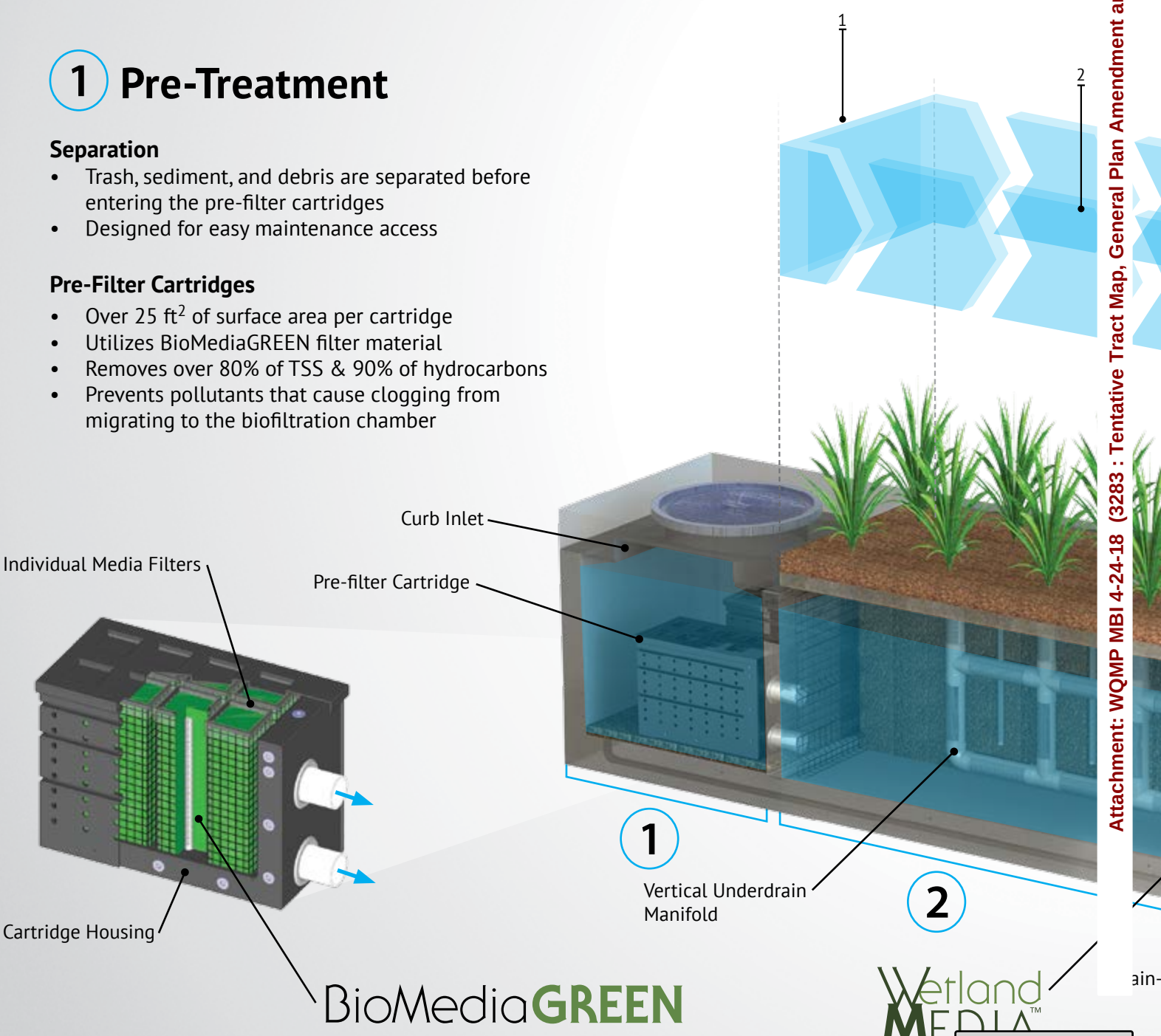
1 Pre-Treatment

Separation

- Trash, sediment, and debris are separated before entering the pre-filter cartridges
- Designed for easy maintenance access

Pre-Filter Cartridges

- Over 25 ft^2 of surface area per cartridge
- Utilizes BioMediaGREEN filter material
- Removes over 80% of TSS & 90% of hydrocarbons
- Prevents pollutants that cause clogging from migrating to the biofiltration chamber



Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

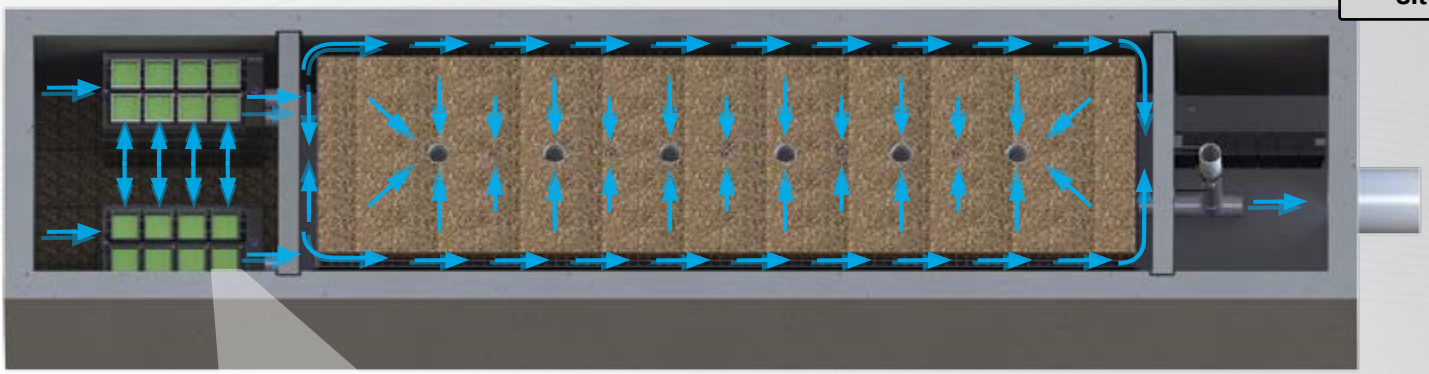


Fig. 2 - Top View

2x to 3x More Surface Area Than Traditional Downward Flow Bioretention Systems.

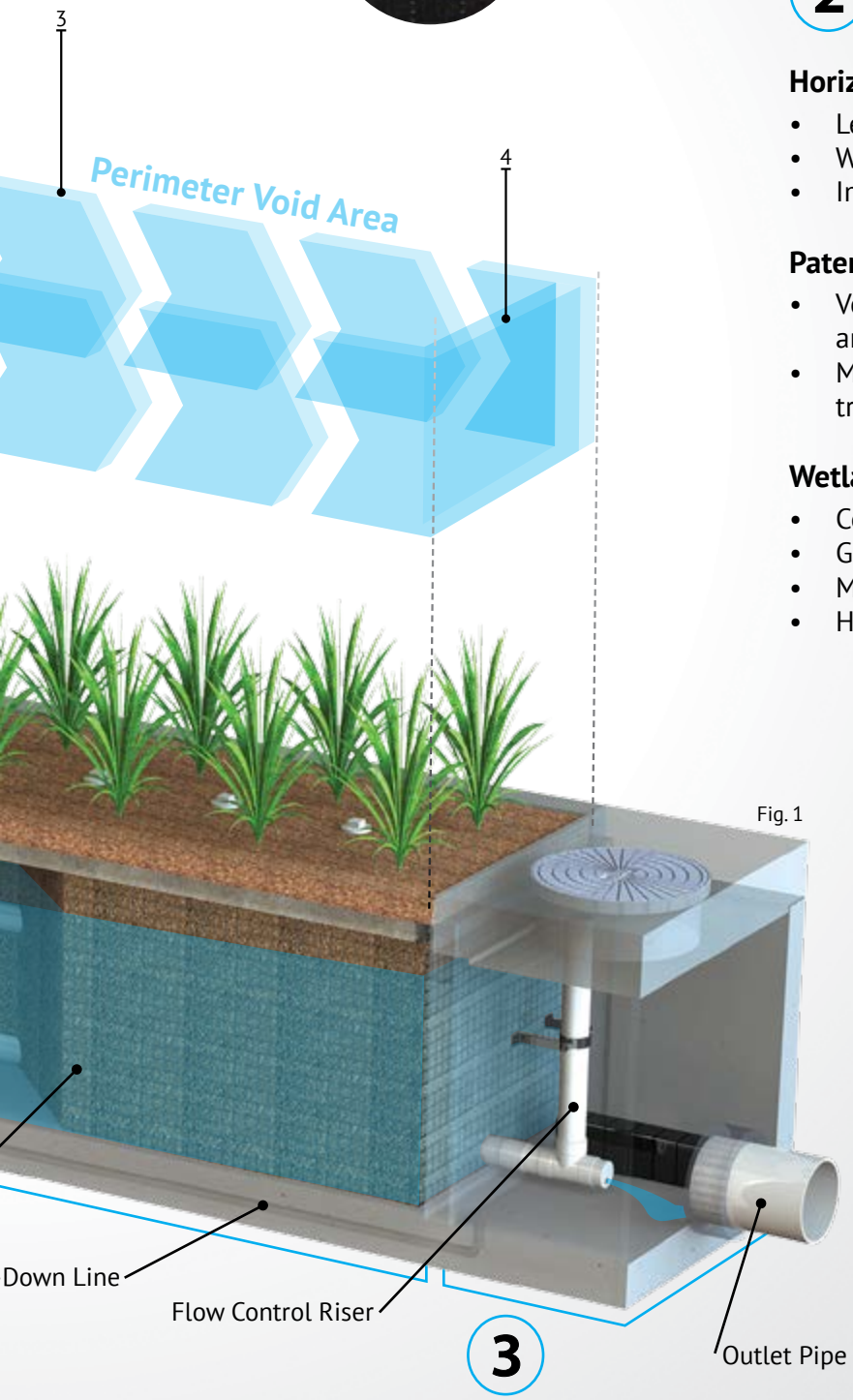


Fig. 1

2 Biofiltration

Horizontal Flow

- Less clogging than downward flow biofilters
- Water flow is subsurface
- Improves biological filtration

Patented Perimeter Void Area

- Vertically extends void area between the walls and the WetlandMEDIA on all four sides.
- Maximizes surface area of the media for higher treatment capacity

WetlandMEDIA

- Contains no organics and removes phosphorus
- Greater surface area and 48% void space
- Maximum evapotranspiration
- High ion exchange capacity and light weight

3 Discharge

Flow Control

- Orifice plate controls flow of water through WetlandMEDIA to a level lower than the media's capacity.
- Extends the life of the media and improves performance

Drain-Down Filter

- The Drain-Down is an optional feature that completely drains the pre-treatment chamber
- Water that drains from the pre-treatment chamber between storm events will be treated

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Orientations

Side-By-Side

The *Side-By-Side* orientation places the pre-treatment and discharge chamber adjacent to one another with the biofiltration chamber running parallel on either side. This minimizes the system length, providing a highly compact footprint. It has been proven useful in situations such as streets with directly adjacent sidewalks, as half of the system can be placed under that sidewalk. This orientation also offers internal bypass options as discussed below.

End-To-End

The *End-To-End* orientation places the pre-treatment and discharge chambers on opposite ends of the biofiltration chamber therefore minimizing the width of the system to 5 ft (outside dimension). This orientation is perfect for linear projects and street retrofits where existing utilities and sidewalks limit the amount of space available for installation. One limitation of this orientation is bypass must be external.

Bypass

Internal Bypass Weir (Side-by-Side Only)

The *Side-By-Side* orientation places the pre-treatment and discharge chambers adjacent to one another allowing for integration of internal bypass. The wall between these chambers can act as a bypass weir when flows exceed the system's treatment capacity, thus allowing bypass from the pre-treatment chamber directly to the discharge chamber.

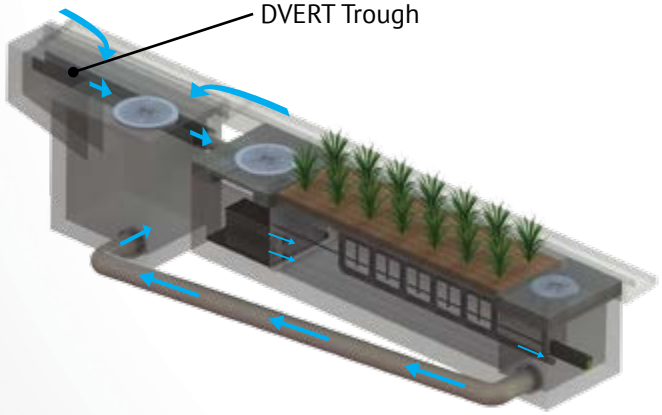
External Diversion Weir Structure

This traditional offline diversion method can be used with the MWS Linear in scenarios where runoff is being piped to the system. These simple and effective structures are generally configured with two outflow pipes. The first is a smaller pipe on the upstream side of the diversion weir - to divert low flows over to the MWS Linear for treatment. The second is the main pipe that receives water once the system has exceeded treatment capacity and water flows over the weir.

Flow By Design

This method is one in which the system is placed just upstream of a standard curb or grate inlet to intercept the first flush. Higher flows simply pass by the MWS Linear and into the standard inlet downstream.

DVERT Low Flow Diversion



This simple yet innovative diversion trough can be installed in existing or new curb and grate inlets to divert the first flush to the MWS Linear via pipe. It works similar to a rain gutter and is installed just below the opening into the inlet. It captures the low flows and channels them over to a connecting pipe exiting out the wall of the inlet and leading to the MWS Linear. The DVERT is perfect for retrofit and green street applications that allows the MWS Linear to be installed anywhere space is available.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Performance

The MWS Linear continues to outperform other treatment methods with superior pollutant removal for TSS, heavy metals, nutrients, hydrocarbons and bacteria. Since 2007 the MWS Linear has been field tested on numerous sites across the country. With it's advanced pre-treatment chamber and innovative horizontal flow biofilter, the system is able to effectively remove pollutants through a combination of physical, chemical, and biological filtration processes. With the same biological processes found in natural wetlands, the MWS Linear harnesses natures ability to process, transform, and remove even the most harmful pollutants.

Approvals

The MWS Linear has successfully met years of challenging technical reviews and testing from some of the most prestigious and demanding agencies in the nation, and perhaps the world.

Washington State TAPE Approved

The MWS Linear is approved for General Use Level Designation (GULD) for Basic, Enhanced, and Phosphorus treatment at 1 gpm/ft^2 loading rate. The highest performing BMP on the market for all main pollutant categories.

TSS	Total Phosphorus	Ortho Phosphorus	Nitrogen	Dissolved Zinc	Dissolved Copper	Total Zinc	Total Copper	Motor Oil
85%	64%	67%	45%	66%	38%	69%	50%	95%

DEQ Assignment

The Virginia Department of Environmental Quality assigned the MWS Linear, the highest phosphorus removal rating for manufactured treatment devices to meet the new Virginia Stormwater Management Program (VSMP) Technical Criteria.

Maryland Department Of The Environment Approved

Granted ESD (Environmental Site Design) status for new construction, redevelopment and retrofitting when designed in accordance with the Design Manual.

MASTEP Evaluation

The University of Massachusetts at Amherst – Water Resources Research Center, issued a technical evaluation report noting removal rates up to 84% TSS, 70% Total Phosphorus, 68.5% Total Zinc, and more.

Rhode Island DEM Approved

Approved as an authorized BMP and noted to achieve the following minimum removal efficiencies: 85% TSS, 60% Pathogens, 30% Total Phosphorus, and 30% Total Nitrogen.

Flow Based Sizing

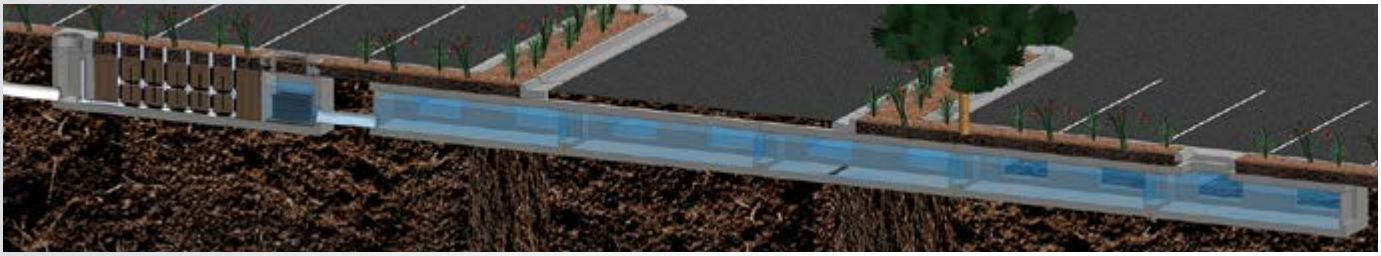
The MWS Linear can be used in stand alone applications to meet treatment flow requirements. Since the MWS Linear is the only biofiltration system that can accept inflow pipes several feet below the surface it can be used not only in decentralized design applications but also as a large central end-of-the-line application for maximum feasibility.

Treatment Flow Sizing Table

Model #	Dimensions	WetlandMedia Surface Area	Treatment Flow Rate (cfs)
MWS-L-4-4	4' x 4'	23 ft^2	0.052
MWS-L-4-6	4' x 6'	32 ft^2	0.073
MWS-L-4-8	4' x 8'	50 ft^2	0.115
MWS-L-4-13	4' x 13'	63 ft^2	0.144
MWS-L-4-15	4' x 15'	76 ft^2	0.175
MWS-L-4-17	4' x 17'	90 ft^2	0.206
MWS-L-4-19	4' x 19'	103 ft^2	0.237
MWS-L-4-21	4' x 21'	117 ft^2	0.268
MWS-L-8-8	8' x 8'	100 ft^2	0.230
MWS-L-8-12	8' x 12'	151 ft^2	0.346
MWS-L-8-16	8' x 16'	201 ft^2	0.462

Volume Based Sizing

Many states require treatment of a water quality volume and do not offer the option of flow based design. The MWS Linear and its unique horizontal flow makes it the only biofilter that can be used in volume based design installed downstream of ponds, detention basins, and underground storage systems.



Treatment Volume Sizing Table

Model #	Treatment Capacity (cu. ft.) @ 24-Hour Drain Down	Treatment Capacity (cu. ft.) @ 48-Hour Drain Down
MWS-L-4-4	1140	2280
MWS-L-4-6	1600	3200
MWS-L-4-8	2518	5036
MWS-L-4-13	3131	6261
MWS-L-4-15	3811	7623
MWS-L-4-17	4492	8984
MWS-L-4-19	5172	10345
MWS-L-4-21	5853	11706
MWS-L-8-8	5036	10072
MWS-L-8-12	7554	15109
MWS-L-8-16	10073	20145

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Installation

The MWS Linear is simple, easy to install, and has a space efficient design that offers lower excavation and installation costs compared to traditional tree-box type systems. The structure of the system resembles pre-cast catch basin or utility vaults and is installed in a similar fashion.

The system is delivered fully assembled for quick installation. Generally, the structure can be unloaded and set in place in 15 minutes. Our experienced team of field technicians are available to supervise installations and provide technical support.

Maintenance

Reduce your maintenance costs, man hours, and materials with the MWS Linear. Unlike other biofiltration systems that provide no pre-treatment, the MWS Linear is a self-contained treatment train which incorporates simple and effective pre-treatment.

Maintenance requirements for the biofilter itself are almost completely eliminated, as the pre-treatment chamber removes and isolates trash, sediments, and hydrocarbons. What's left is the simple maintenance of an easily accessible pre-treatment chamber that can be cleaned by hand or with a standard vac truck. Only periodic replacement of low-cost media in the pre-filter cartridges is required for long term operation and there is absolutely no need to replace expensive biofiltration media.

Plant Selection

Abundant plants, trees, and grasses bring value and an aesthetic benefit to any urban setting, but those in the MWS Linear do even more - they increase pollutant removal. What's not seen, but very important, is that below grade the stormwater runoff/flow is being subjected to nature's secret weapon: a dynamic physical, chemical, and biological process working to break down and remove non-point source pollutants. The flow rate is controlled in the MWS Linear, giving the plants more "contact time" so that pollutants are more successfully decomposed, volatilized and incorporated into the biomass of The MWS Linear's micro/macro flora and fauna.

A wide range of plants are suitable for use in the MWS Linear, but selections vary by location and climate. View suitable plants by selecting the list relative to your project location's hardy zone.

Please visit **www.ModularWetlands.com/Plants** for more information and various plant lists.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

© Modular Wetland Systems, Inc.

StormTech
Detention • Retention • Water Quality
An ADS company

PRODUCT CATALOG

THE MOST **ADVANCED** NAME IN WATER MANAGEMENT SOLUTIONS™

ADS

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMTECH SUBSURFACE STORMWATER MANAGEMENT

TABLE OF CONTENTS

Product Features and Benefits 5

SC-160LP 6

SC-310 8

SC-310-3 10

SC-740 12

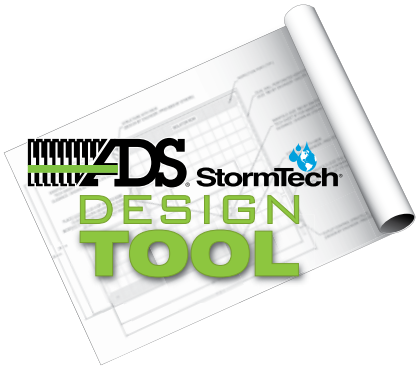
DC-780 14

MC-3500 16

MC-4500 18

Isolator® Row 20

Products and Services 22



The ADS StormTech Design Tool will help designers, owners and contactors design conceptual layouts and cost estimates.

Now available at www.stormtech.com/designtool.html.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMTECH SUBSURFACE STORMWATER MANAGEMENT

StormTech has thousands of chamber systems in service throughout the world. All StormTech chambers are designed to meet the most stringent industry performance standards for superior structural integrity. The StormTech system is designed primarily to be used under parking lots, roadways and heavy earth loads saving valuable land and protecting water resources for commercial and municipal applications. In our continuing desire to answer designers' challenges, StormTech has expanded the family of products providing engineers, developers, regulators and contractors with additional site specifice flexibility.

ADVANCED STRUCTURAL PERFORMANCE FOR GREATER LONG-TERM RELIABILITY

StormTech developed a state of the art chamber design through:

- Collaboration with world-renowned experts of buried drainage structures to develop and evaluate the structural testing program and product design
- Designing chambers to exceed American Association of State Highway and Transportation Officials (AASHTO) LRFD design specifications for HS-20 live loads and deep burial earth loads
- Subjecting the chambers to rigorous full scale testing, under severe loading conditions to verify the AASHTO safety factors for live load and deep burial applications
- Designing chambers to conform to the product requirements of ASTM F2418 and ASTM F2922 and design requirements of ASTM F2787 ensuring both the assurance of product quality and safe structural design

OUR CHAMBERS PROVIDE

- Large capacity that **fits very tight footprints** providing developers with more usable land for development
- A proven attenuation alternative to cumbersome large diameter metal pipe or snap together plastic crates and unreliable multi-layer systems
- Provides the strength of concrete vaults at a very competitive price
- The **robust continuous true elliptical arch design**, which effectively transfers loads to the surrounding backfill providing the long-term safety factors required by AASHTO. Offers developers a cost-effective underground system that will perform as designed for decades.
- **Designed in accordance with the AASHTO LRFD Bridge Design Specifications** providing engineers with a structural performance standard for live and long-term dead loads
- **Polypropylene and polyethylene** resins tested using ASTM standards to ensure long and short-term structural properties
- **Injection molded** for uniform wall thickness and repeatable quality
- Third-party **tested and patented Isolator Row** for less frequent maintenance, water quality and long-term performance
- Incorporates **traditional manifold/header designs** using conventional hydraulic equations that can easily verify flow equalization and scour velocity
- **Open chamber design** requiring only one chamber model to construct each row assuring ease of construction and no repeating end walls to obstruct access or flow.

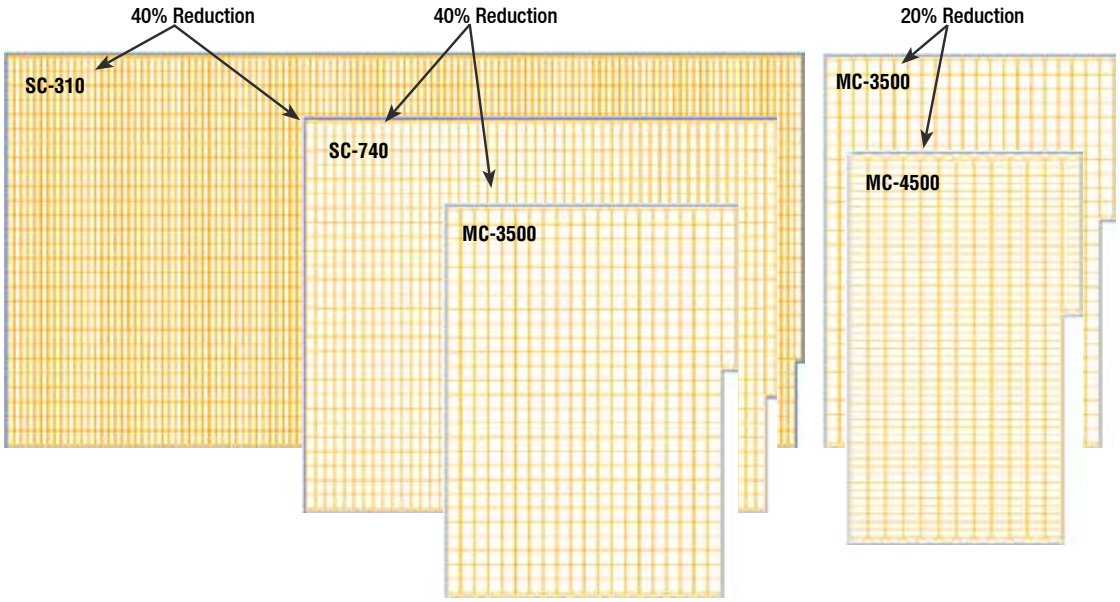
StormTech offers a variety of chamber sizes (**SC-160LP, SC-310, SC-740, DC-780, MC-3500 and MC-4500**) so the consulting design engineer can choose the chamber that is best suited for the site conditions and regulatory requirements. StormTech has thousands of chamber systems in service worldwide. We provide plan layout and cost estimate services at no charge for consulting engineers and developers.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMTECH SUBSURFACE STORMWATER MANAGEMENT

Product Specifications	MC-4500	MC-3500	DC-780	SC-740	SC-310	SC-160LP
Height, in. (mm)	60 (1524)	45 (1143)	30 (762)	30 (762)	16 (406)	12 (305)
Width, in. (mm)	100 (2540)	77 (1956)	51 (1295)(51)	51 (1295)	34 (864)	25 (635)
Lenth, in. (mm)	52 (1321)	90 (2286)	90.7 (2300)	90.7 (2300)	90.7 (2300)	90.7 (2300)
Installed length, in. (mm)	48.3 (1227)	86.0 (2184)	85.4 (2170)	85.4 (2170)	85.4 (2170)	85.4 (2170)
Bare Chamber Storage, cf (cm)	106.5 (3.01)	109.9 (3.11)	46.2 (1.30)	45.9 (1.30)	14.7 (0.42)	6.85 (0.19)
Stone above, in. (mm)	12 (305)	12 (305)	6 (152)	6 (152)	6 (152)	6 (152)
Minimum stone below, in. (mm)	9 (229)	9 (229)	9 (229)	6 (152)	6 (152)	4 (100)
Row spacing, in. (mm)	9 (229)	9 (229)	6 (152)	6 (152)	6 (152)	N/A
Minimum installed storage, cf (cm)	**162.6 (4.60)**	**178.9 (5.06)**	**78.4 (2.22)**	**74.9 (2.12)**	**31.0 (0.39)**	**15.0 (0.42)**
Storage per unit area, cf/sf (cm/sm)	4.45 (1.35)	3.48 (1.06)	2.32 (0.70)	2.21 (0.67)	1.31 (0.39)	1.01 (0.30)

Example: Footprint Comparison-100,000 CF Project



Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMTECH SC-160LP CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots thus maximizing land usage for commercial and municipal activities.

The SC-160LP chamber was developed for infiltration and detention in shallow cover applications

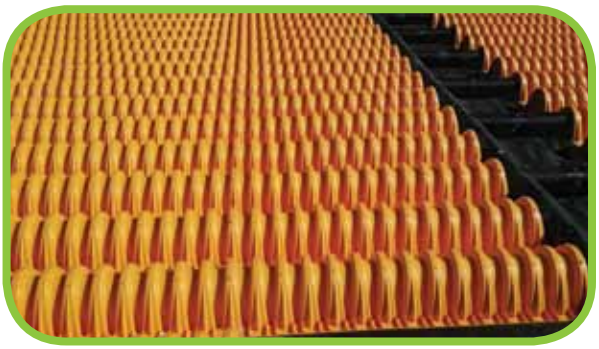
- Only 14" (350 mm) required from top of chamber to bottom of pavement
- Only 12" (300 mm) tall
- Installs toe to toe - no additional spacing between rows

StormTech SC-160LP (not to scale)

Nominal Chamber Specifications

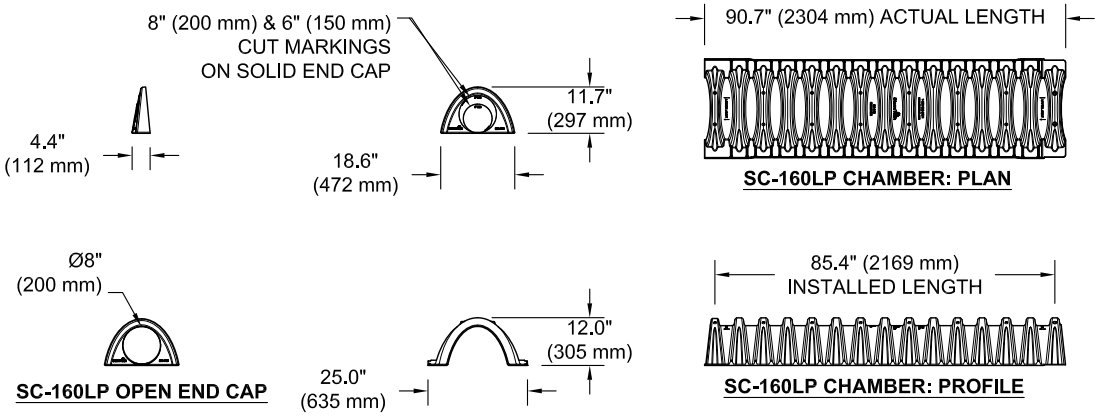
Size (LxWxH)	85.4" x 25.0" x 12.0" (2170 x 635 x 305 mm)
Chamber Storage	6.85 ft³ (0.19 m³)
Min. Installed Storage*	15.0 ft³ (0.42 m³)
Weight	24.0 lbs. (10.9 kg)

*Assumes 6" (150 mm) stone above, 4" (100 mm) below and stone between chambers with 40% stone porosity



Shipping

132 chambers/pallet
144 end caps/pallet
12 pallets/truck



Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

SC-160LP CUMULATIVE STORAGE VOLUMES PER CHAMBER

Assumes 40% Stone Porosity. Calculations are Based Upon a 4" (100 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
22 (559)	6.85 (0.194)	14.98 (0.424)
21 (533)	6.85 (0.194)	14.49 (0.410)
20 (508)	6.85 (0.194)	14.00 (0.396)
19 (483)	6.85 (0.194)	13.50 (0.382)
18 (457)	6.85 (0.194)	13.01 (0.368)
17 (432)	6.85 (0.194)	12.51 (0.354)
16 (406)	6.85 (0.194)	12.02 (0.340)
15 (381)	6.80 (0.193)	11.49 (0.325)
14 (356)	6.67 (0.189)	10.92 (0.309)
13 (330)	6.38 (0.181)	10.25 (0.290)
12 (305)	5.94 (0.168)	9.49 (0.269)
11 (279)	5.40 (0.153)	8.67 (0.246)
10 (254)	4.78 (0.135)	7.81 (0.221)
9 (229)	4.10 (0.116)	6.91 (0.196)
8 (203)	3.36 (0.095)	5.97 (0.169)
7 (178)	2.58 (0.073)	5.01 (0.142)
6 (152)	1.76 (0.050)	4.02 (0.114)
5 (127)	0.89 (0.025)	3.01 (0.085)
4(102)	0	1.98 (0.056)
3 (76)	0	1.48 (0.042)
2 (51)	0	0.99 (0.028)
1 (25)	0	0.49 (0.014)

Stone Cover

Stone Foundation

Note: Add 0.49 ft³ (0.014 m³) of storage for each additional inch (25 mm) of stone foundation.

AMOUNT OF STONE PER CHAMBER

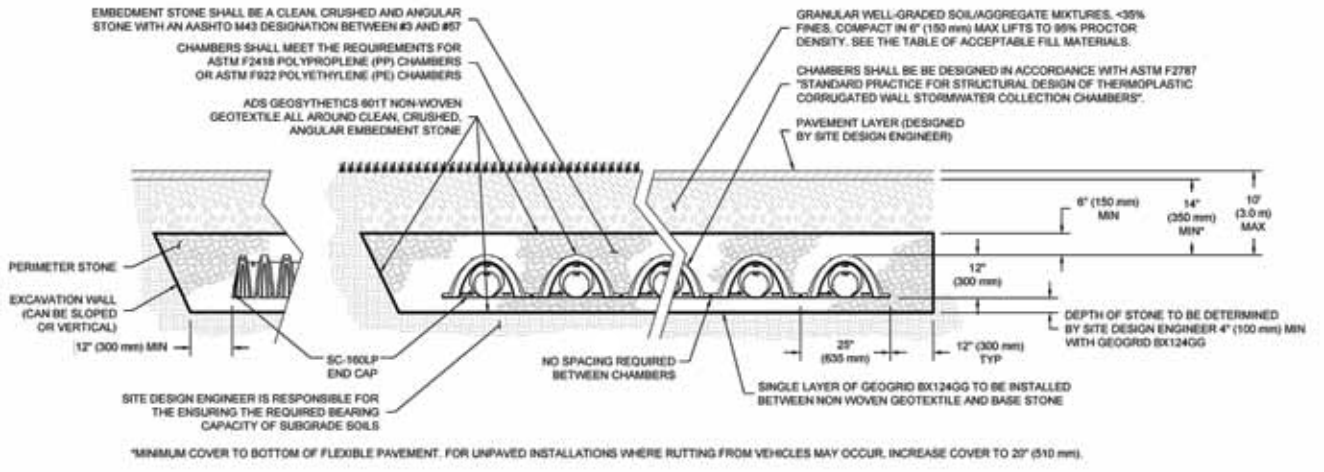
ENGLISH TONS (yds³)	Stone Foundation Depth		
	4"	6"	8"
StormTech SC-160LP	1.1 (0.8 yd³)	1.2 (0.9 yd³)	1.3 (0.9 yd³)
METRIC KILOGRAMS (m³)	100 mm	150 mm	200 mm
StormTech SC-160LP	952 (0.7 m³)	1074 (0.8 m³)	1197 (0.8 m³)

Note: Assumes 6" (150 mm) of stone above, and only embedment stone between chambers.

VOLUME EXCAVATION PER CHAMBER YD³ (M³)

	Stone Foundation Depth		
	4" (100 mm)	8" (200 mm)	12" (300 mm)
StormTech SC-160LP	1.4 (1.1)	1.6 (1.2)	1.8 (1.3)

Note: Assumes no row separation and 14" (350 mm) of cover. The volume of excavation will vary as the depth of the cover increases.



THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS, WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMTECH SC-310 CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots thus maximizing land usage for private (commercial) and public applications.

StormTech SC-310 Chamber (not to scale)

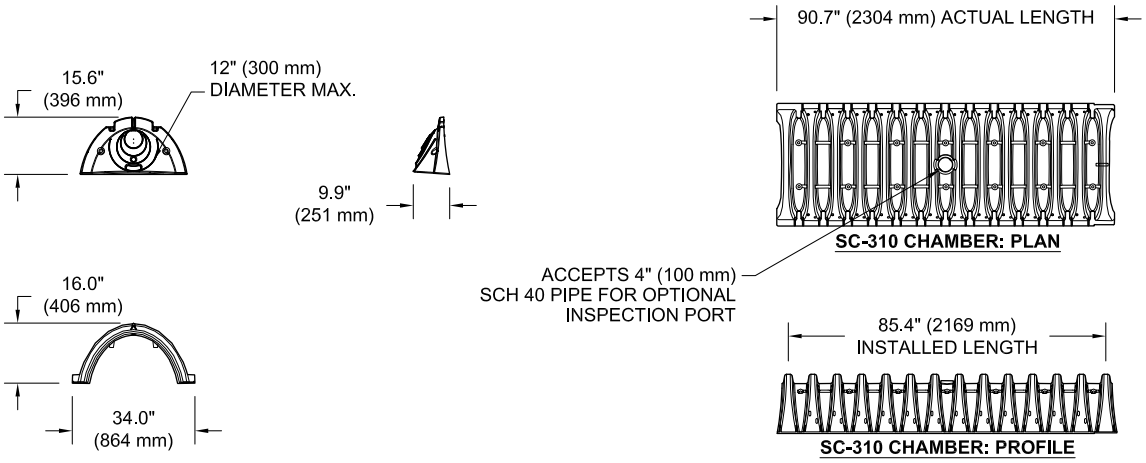
Nominal Chamber Specifications

Size (Lx W x H)	85.4” x 34.0” x 16.0” (2170 x 864 x 406 mm)
Chamber Storage	14.7 ft³ (0.42 m³)
Min. Installed Storage*	31.0 ft³ (0.88 m³)
Weight	37.0 lbs (16.8 kg)

*Assumes 6” (150 mm) stone above, below and between chambers and 40% stone porosity.

Shipping

41 chambers/pallet
108 end caps/pallet
18 pallets/truck



Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

SC-310 CUMULATIVE STORAGE VOLUMES PER CHAMBER

Assumes 40% Stone Porosity. Calculations are Based Upon a 6" (150 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
28 (711)	14.70 (0.416)	31.00 (0.878)
27 (686)	14.70 (0.416)	30.21 (0.855)
26 (680)	14.70 (0.416)	29.42 (0.833)
25 (610)	14.70 (0.416)	28.63 (0.811)
24 (609)	14.70 (0.416)	27.84 (0.788)
23 (584)	14.70 (0.416)	27.05 (0.766)
22 (559)	14.70 (0.416)	26.26 (0.748)
21 (533)	14.64 (0.415)	25.43 (0.720)
20 (508)	14.49 (0.410)	24.54 (0.695)
19 (483)	14.22 (0.403)	23.58 (0.668)
18 (457)	13.68 (0.387)	22.47 (0.636)
17 (432)	12.99 (0.368)	21.25 (0.602)
16 (406)	12.17 (0.345)	19.97 (0.566)
15 (381)	11.25 (0.319)	18.62 (0.528)

Stone Cover

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
14 (356)	10.23 (0.290)	17.22 (0.488)
13 (330)	9.15 (0.260)	15.78 (0.447)
12 (305)	7.99 (0.227)	14.29 (0.425)
11 (279)	6.78 (0.192)	12.77 (0.362)
10 (254)	5.51 (0.156)	11.22 (0.318)
9 (229)	4.19 (0.119)	9.64 (0.278)
8 (203)	2.83 (0.081)	8.03 (0.227)
7 (178)	1.43 (0.041)	6.40 (0.181)
6 (152)	0	4.74 (0.134)
5 (127)	0	3.95 (0.112)
4(102)	0	3.16 (0.090)
3 (76)	0	2.37 (0.067)
2 (51)	0	1.58 (0.046)
1 (25)	0	0.79 (0.022)

Stone Foundation

Note: Add 0.79 ft³ (0.022 m³) of storage for each additional inch. (25 mm) of stone foundation.

STORAGE VOLUME PER CHAMBER FT³ (M³)

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm)		
		6 (150)	12 (300)	18 (450)
StormTech SC-310	14.7 (0.4)	31.0 (0.9)	35.7 (1.0)	40.4 (1.1)

Note: Assumes 6" (150 mm) of stone above chambers, 6" (150 mm) row spacing and 40% stone porosity.

AMOUNT OF STONE PER CHAMBER

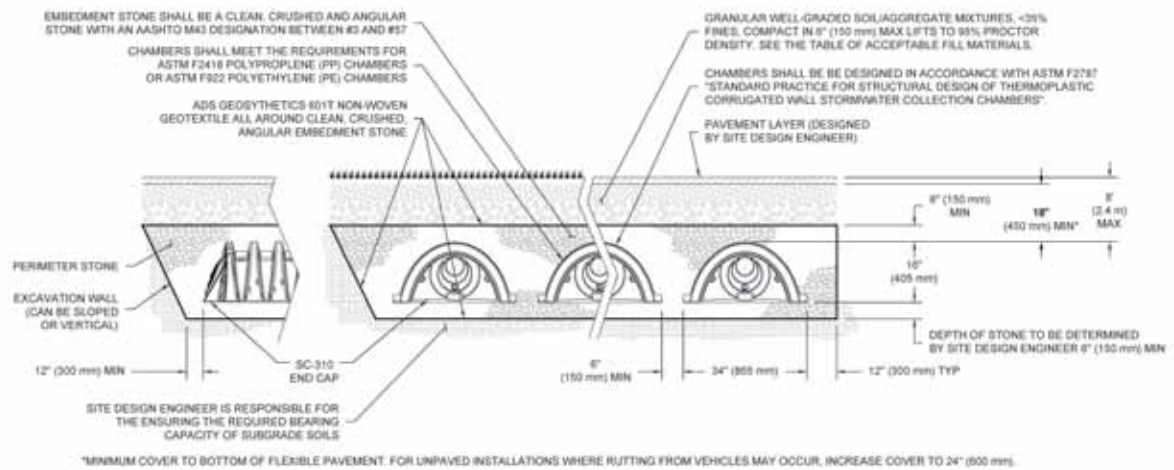
ENGLISH TONS (yds³)	Stone Foundation Depth		
	6"	12"	18"
StormTech SC-310	2.1 (1.5 yd³)	2.7 (1.9 yd³)	3.4 (2.4 yd³)
METRIC KILOGRAMS (m³)	150 mm	300 mm	450 mm
StormTech SC-310	1830 (1.1 m³)	2490 (1.5 m³)	2990 (1.8 m³)

Note: Assumes 6" (150 mm) of stone above, and between chambers.

VOLUME EXCAVATION PER CHAMBER YD³ (M³)

	Stone Foundation Depth		
	6" (150 mm)	12" (300 mm)	18" (450 mm)
StormTech SC-310	2.9 (2.2)	3.4 (2.6)	3.8 (2.9)

Note: Assumes 6" (150 mm) of row separation and 18" (450 mm) of cover. The volume of excavation will vary as the depth of the cover increases.



THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS, WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMTECH SC-310-3 CHAMBER

The proven strength and durability of the SC-310-3 Chamber allows for a design option for sites where limited cover, limited space, high water table and escalated aggregate cost are a factor. The SC-310-3 has a minimum cover requirement of 16" (400 mm) to bottom of pavement and reduces the spacing requirement between chambers by 50% to 3" (76 mm). This provides a reduced footprint overall, reduces aggregate needed, and allows the designer to offer a traffic bearing application yet comply with water table separation regulations.

StormTech SC-310-3 Chamber (not to scale)

Nominal Chamber Specifications

Size (Lx W x H)	85.4" x 34.0" x 16.0" (2170 x 864 x 406 mm)
Chamber Storage	14.7ft³ (0.42 m³)
Min. Installed Storage*	29.3 ft³ (0.83 m³)
Weight	37.0 lbs (16.8 kg)

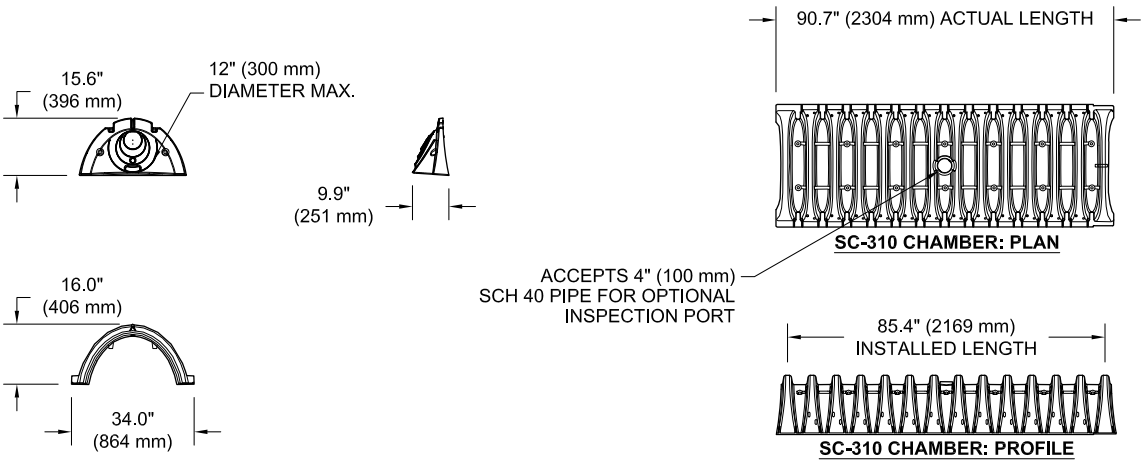
*Assumes 6" (150 mm) stone above and below chambers, 3" (76 mm) row spacing and 40% stone porosity.

Shipping

41 chambers/pallet

108 end caps/pallet

18 pallets/truck



Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

SC-310-3 CUMULATIVE STORAGE VOLUMES PER CHAMBER

Assumes 40% Stone Porosity. Calculations are Based Upon a 6" (150 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft^3 (m^3)	Total System Cumulative Storage ft^3 (m^3)
28 (711)	14.70 (0.416)	29.34 (0.831)
27 (686)	14.70 (0.416)	28.60 (0.810)
26 (660)	14.70 (0.416)	27.87 (0.789)
25 (635)	14.70 (0.416)	27.14 (0.769)
24 (610)	14.70 (0.416)	26.41 (0.748)
23 (584)	14.70 (0.416)	25.68 (0.727)
22 (559)	14.70 (0.416)	24.95 (0.707)
21 (533)	14.64 (0.415)	24.18 (0.685)
20 (508)	14.49 (0.410)	23.36 (0.661)
19 (483)	14.22 (0.403)	22.47 (0.636)
18 (457)	13.68 (0.387)	21.41 (0.606)
17 (432)	12.99 (0.368)	20.25 (0.573)
16 (406)	12.17 (0.345)	19.03 (0.539)
15 (381)	11.25 (0.319)	17.74 (0.502)

Stone Cover

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft^3 (m^3)	Total System Cumulative Storage ft^3 (m^3)
14 (356)	10.23 (0.290)	16.40 (0.464)
13 (330)	9.15 (0.260)	15.01 (0.425)
12 (305)	7.99 (0.226)	13.59 (0.385)
11 (279)	6.78 (0.192)	12.13 (0.343)
10 (254)	5.51 (0.156)	10.63 (0.301)
9 (229)	4.19 (0.119)	9.11 (0.258)
8 (203)	2.83 (0.080)	7.56 (0.214)
7 (178)	1.43 (0.041)	5.98 (0.169)
6 (152)	0	4.39 (0.124)
5 (127)	0	3.66 (0.104)
4(102)	0	2.93 (0.083)
3 (76)	0	2.19 (0.062)
2 (51)	0	1.46 (0.041)
1 (25)	0	0.73 (0.021)

Stone Foundation

Note: Add 0.73 ft^3 (0.021 m^3) of storage for each additional inch (25 mm) of stone foundation.

STORAGE VOLUME PER CHAMBER FT^3 (M^3)

	Bare Chamber Storage ft^3 (m^3)	Chamber and Stone Foundation Depth in. (mm)		
		6 (150)	12 (300)	18 (450)
StormTech SC-310-3	14.7 (0.42)	29.3 (0.83)	33.7 (0.95)	38.1 (1.08)

Note: Assumes 6" (150 mm) of stone above chambers, 3" (76 mm) row spacing and 40% stone porosity.

AMOUNT OF STONE PER CHAMBER

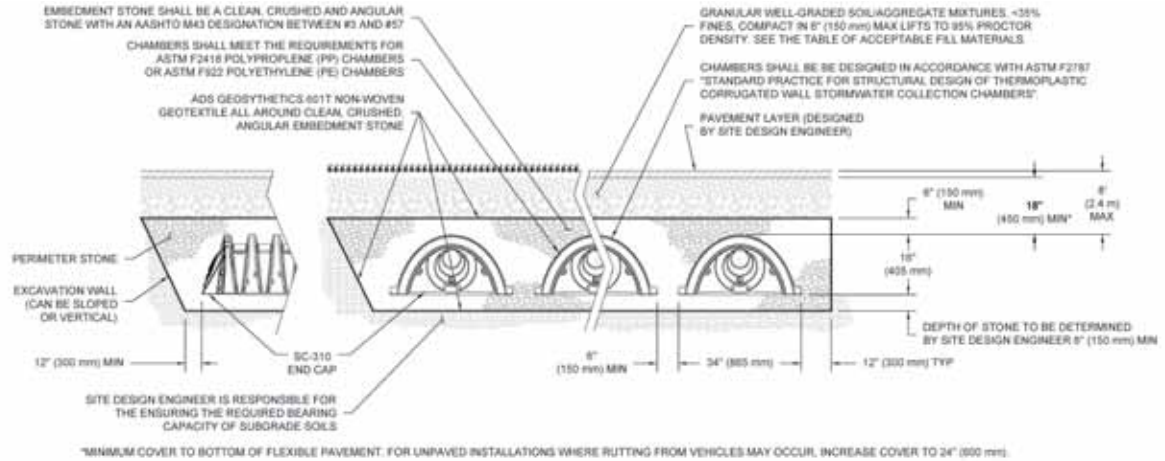
ENGLISH TONS (yds^3)	Stone Foundation Depth		
	6"	12"	18"
StormTech SC-310-3	1.9 (1.4)	2.5 (1.8)	3.1 (2.2)
METRIC KILOGRAMS (m^3)	150 mm	300 mm	450 mm
StormTech SC-310-3	1724 (1.0)	2268 (1.3)	2812 (1.7)

Note: Assumes 6" (150 mm) of stone above chambers and 3" (76 mm) row spacing.

VOLUME EXCAVATION PER CHAMBER YD^3 (M^3)

	Stone Foundation Depth		
	6" (150 mm)	12" (300 mm)	18" (450 mm)
StormTech SC-310-3	2.6 (2.0)	3.0 (2.0)	3.4 (2.6)

Note: Assumes 3" (76 mm) of row separation and 6" (150 mm) of stone above the chambers and 16" (400 mm) of cover. The volume of excavation will vary as depth of cover increases.

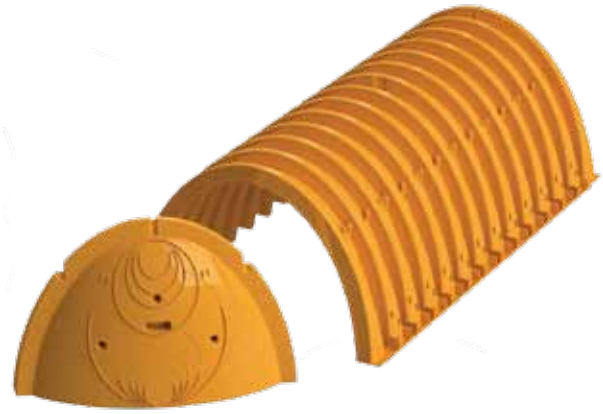


THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS, WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMTECH SC-740 CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots thus maximizing land usage for private (commercial) and public applications.



StormTech SC-740 Chamber (not to scale)

Nominal Chamber Specifications

Size (Lx W x H)	85.4” x 51.0” x 30.0” (2170 x 1295 x 762 mm)
Chamber Storage	45.9 ft³ (1.30 m³)
Min. Installed Storage*	74.9 ft³ (2.12 m³)
Weight	74.0 lbs (33.6 kg)

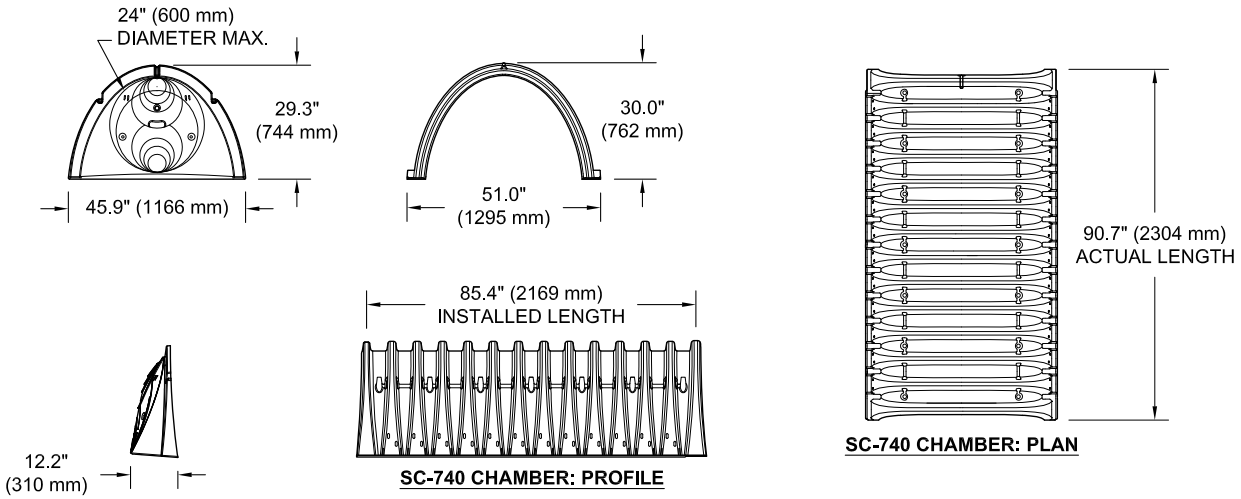
*Assumes 6” (150 mm) stone above, below and between chambers and 40% stone porosity.

Shipping

30 chambers/pallet

60 end caps/pallet

12 pallets/truck



SC-740 CHAMBER: PROFILE

SC-740 CHAMBER: PLAN

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

SC-740 CUMULATIVE STORAGE VOLUMES PER CHAMBER

Assumes 40% Stone Porosity. Calculations are Based Upon a 6" (150 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
42 (1067)	45.90 (1.300)	74.90 (2.121)
41 (1041)	45.90 (1.300)	73.77 (2.089)
40 (1016)	45.90 (1.300)	72.64 (2.057)
39 (991)	45.90 (1.300)	71.52 (2.025)
38 (965)	45.90 (1.300)	70.39 (1.993)
37 (948)	45.90 (1.300)	69.26 (1.961)
36 (914)	45.90 (1.300)	68.14 (1.929)
35 (889)	45.85 (1.298)	66.98 (1.897)
34 (864)	45.69 (1.294)	65.75 (1.862)
33 (838)	45.41 (1.286)	64.46 (1.825)
32 (813)	44.81 (1.269)	62.97 (1.783)
31 (787)	44.01 (1.246)	61.36 (1.737)
30 (762)	43.06 (1.219)	59.66 (1.689)
29 (737)	41.98 (1.189)	57.89 (1.639)
28 (711)	40.80 (1.155)	56.05 (1.587)
27 (686)	39.54 (1.120)	54.17 (1.534)
26 (660)	38.18 (1.081)	52.23 (1.479)
25 (635)	36.74 (1.040)	50.23 (1.422)
24 (610)	35.22 (0.977)	48.19 (1.365)
23 (584)	33.64 (0.953)	46.11 (1.306)
22 (559)	31.99 (0.906)	44.00 (1.246)

Stone Cover

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
21 (533)	30.29 (0.858)	41.85 (1.185)
20 (508)	28.54 (0.808)	39.67 (1.123)
19 (483)	26.74 (0.757)	37.47 (1.061)
18 (457)	24.89 (0.705)	35.23 (0.997)
17 (432)	23.00 (0.651)	32.96 (0.939)
16 (406)	21.06 (0.596)	30.68 (0.869)
15 (381)	19.09 (0.541)	28.36 (0.803)
14 (356)	17.08 (0.484)	26.03 (0.737)
13 (330)	15.04 (0.426)	23.68 (0.670)
12 (305)	12.97 (0.367)	21.31 (0.608)
11 (279)	10.87 (0.309)	18.92 (0.535)
10 (254)	8.74 (0.247)	16.51 (0.468)
9 (229)	6.58 (0.186)	14.09 (0.399)
8 (203)	4.41 (0.125)	11.66 (0.330)
7 (178)	2.21 (0.063)	9.21 (0.264)
6 (152)	0	6.76 (0.191)
5 (127)	0	5.63 (0.160)
4 (102)	0	4.51 (0.125)
3 (76)	0	3.38 (0.095)
2 (51)	0	2.25 (0.064)
1 (25)	0	1.13 (0.032)

Stone Foundation

Note: Add 1.13 ft³ (0.032 m³) of storage for each additional inch (25 mm) of stone foundation.

STORAGE VOLUME PER CHAMBER FT³ (M³)

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm)		
		6 (150)	12 (300)	18 (450)
StormTech SC-740	45.9 (1.3)	74.9 (2.1)	81.7 (2.3)	88.4 (2.5)

Note: Assumes 6" (150 mm) of stone above chambers, 6" (150 mm) row spacing and 40% stone porosity.

VOLUME EXCAVATION PER CHAMBER YD³ (M³)

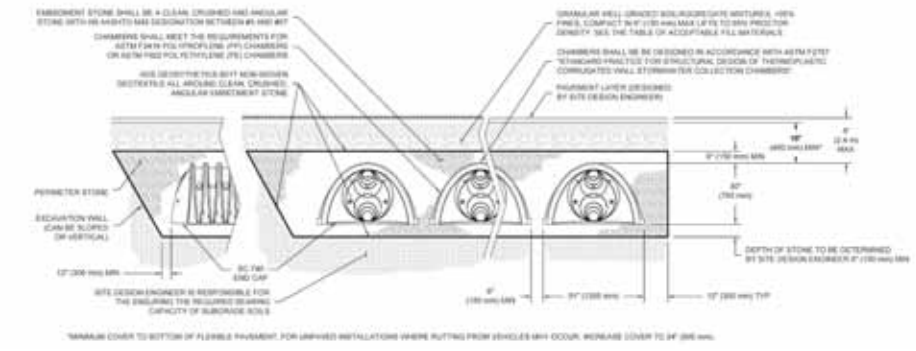
	Stone Foundation Depth		
	6" (150 mm)	12" (300 mm)	18" (450 mm)
StormTech SC-740	5.5 (4.2)	6.2 (4.7)	6.8 (5.2)

Note: Assumes 6" (150 mm) of row separation and 18" (450 mm) of cover. Volume of excavation will vary as the depth cover increases.

AMOUNT OF STONE PER CHAMBER

ENGLISH TONS (yds³)	Stone Foundation Depth		
	6"	12"	18"
StormTech SC-740	3.8 (2.8 yd³)	4.6 (3.3 yd³)	5.5 (3.9 yd³)
METRIC KILOGRAMS (m³)	150 mm	300 mm	450 mm
StormTech SC-740	3450 (2.1 m³)	4170 (2.5 m³)	4490 (3.0 m³)

Note: Assumes 6" (150 mm) of stone above, and between chambers.



THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS, WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMTECH DC-780 CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots thus maximizing land usage for private (commercial) and public applications.

- 12' Deep Cover applications.
- Designed in accordance with ASTM F 2787 and produced to meet the ASTM 2418 product standard.
- AASHTO safety factors provided for AASHTO Design Truck (H20) and deep cover conditions

StormTech DC-780 Chamber (not to scale)

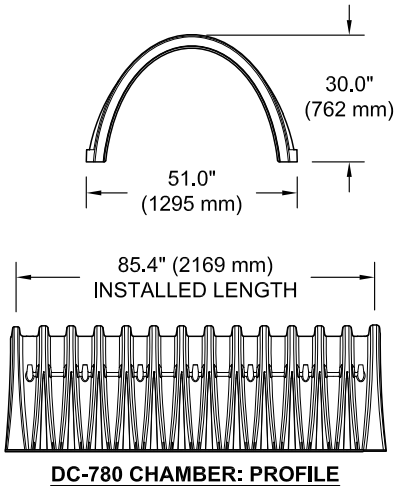
Nominal Chamber Specifications

Size (Lx W x H)	85.4" x 51.0" x 30.0" (2169 x 1295 x 762 mm)
Chamber Storage	46.2 ft3 (1.30 m3)
Min. Installed Storage*	78.4 ft3 (2.2 m3)

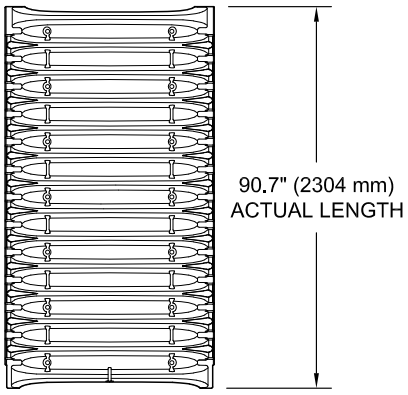
*Assumes 9" (230 mm) stone below, 6" (150 mm) stone above, 6" (150 mm) row spacing and 40% stone porosity.

Shipping

24 chambers/pallet
60 end caps/pallet
12 pallets/truck



DC-780 CHAMBER: PROFILE



DC-780 CHAMBER: PLAN

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

DC-780 CUMULATIVE STORAGE VOLUMES PER CHAMBER

Assumes 40% Stone Porosity. Calculations are Based Upon a 9" (230 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
45 (1143)	46.27 (1.310)	78.47 (2.222)
44 (1118)	46.27 (1.310)	77.34 (2.190)
43 (1092)	46.27 (1.310)	76.21 (2.158)
42 (1067)	46.27 (1.310)	75.09 (2.126)
41 (1041)	46.27 (1.310)	73.96 (2.094)
40 (1016)	46.27 (1.310)	72.83 (2.062)
39 (991)	46.27 (1.310)	71.71 (2.030)
38 (965)	46.21 (1.309)	70.54 (1.998)
37 (940)	46.04 (1.304)	69.32 (1.963)
36 (914)	45.76 (1.296)	68.02 (1.926)
35 (889)	45.15 (1.278)	66.53 (1.884)
34 (864)	44.34 (1.255)	64.91 (1.838)
33 (838)	43.38 (1.228)	63.21 (1.790)
32 (813)	42.29 (1.198)	61.43 (1.740)
31 (787)	41.11 (1.164)	59.59 (1.688)
30 (762)	39.83 (1.128)	57.70 (1.634)
29 (737)	38.47 (1.089)	55.76 (1.579)
28 (711)	37.01 (1.048)	53.76 (1.522)
27 (686)	35.49 (1.005)	51.72 (1.464)
26 (660)	33.90 (0.960)	49.63 (1.405)
25 (635)	32.24 (0.913)	47.52 (1.346)
24 (610)	30.54 (0.865)	45.36 (1.285)

Stone Cover

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
23 (584)	28.77 (0.815)	43.18 (1.223)
22 (559)	26.96 (0.763)	40.97 (1.160)
21 (533)	25.10 (0.711)	38.72 (1.096)
20 (508)	23.19 (0.657)	36.45 (1.032)
19 (483)	21.25 (0.602)	34.16 (0.967)
18 (457)	19.26 (0.545)	31.84 (0.902)
17 (432)	17.24 (0.488)	29.50 (0.835)
16 (406)	15.19 (0.430)	27.14 (0.769)
15 (381)	13.10 (0.371)	24.76 (0.701)
14 (356)	10.98 (0.311)	22.36 (0.633)
13 (330)	8.83 (0.250)	19.95 (0.565)
12 (305)	6.66 (0.189)	17.52 (0.496)
11 (279)	4.46 (0.126)	15.07 (0.427)
10 (254)	2.24 (0.064)	12.61 (0.357)
9 (229)	0	10.14 (0.287)
8 (203)	0	9.01 (0.255)
7 (178)	0	7.89 (0.223)
6 (152)	0	6.76 (0.191)
5 (127)	0	5.63 (0.160)
4 (102)	0	4.51 (0.128)
3 (76)	0	3.38 (0.096)
2 (51)	0	2.25 (0.064)
1 (25)	0	1.13 (0.032)

Stone Foundation

Note: Add 1.13 ft³ (0.032 m3) of storage for each additional inch (25 mm) of stone foundation.

STORAGE VOLUME PER CHAMBER FT³ (M³)

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm)		
		9 (230)	12 (300)	18 (450)
StormTech DC-780	46.2 (1.3)	78.4 (2.2)	81.8 (2.3)	88.6 (2.5)

Note: Assumes 40% porosity for the stone, the bare chamber volume, 6" (150 mm) stone above, and 6" (150 mm) row spacing.

VOLUME EXCAVATION PER CHAMBER YD³ (M³)

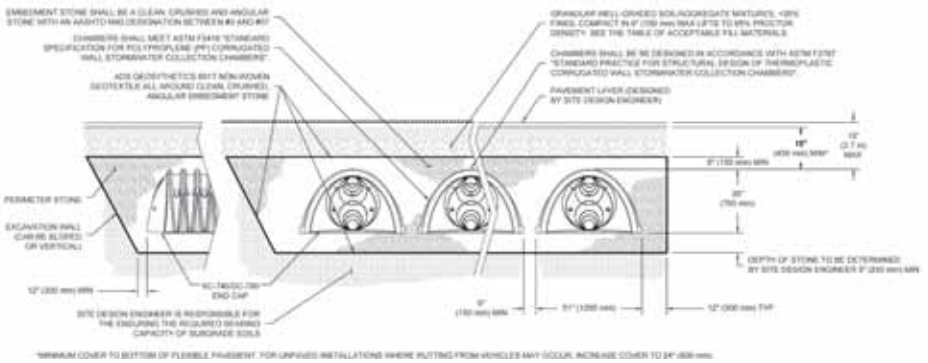
	Stone Foundation Depth		
	9" (230 mm)	12" (300 mm)	18" (450 mm)
StormTech DC-780	5.9 (4.5)	6.3 (4.8)	6.9 (5.3)

Note: Assumes 6" (150 mm) of separation between chamber rows and 18" (450 mm) of cover. The volume of excavation will vary as the depth of the cover increases.

AMOUNT OF STONE PER CHAMBER

ENGLISH TONS (yds³)	Stone Foundation Depth		
	9"	12"	18"
StormTech DC-780	4.2 (3.0 yd³)	4.7 (3.3 yd³)	5.6 (3.9 yd³)
METRIC KILOGRAMS (m³)	230 mm	300 mm	450 mm
StormTech SC-740	3810 (2.3 m³)	4264 (2.5 m³)	5080 (3.0 m³)

Note: Assumes 6" (150 mm) of stone above, and between chambers.



THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS, WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMTECH MC-3500 CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots thus maximizing land usage for private (commercial) and public applications.

StormTech MC-3500 Chamber (not to scale)

Nominal Chamber Specifications

Size (Lx W x H)	90” (2286 mm) x 77” (1956 mm) x 45” (1143 mm)
Chamber Storage	109.9 ft³ (3.11 m³)
Min. Installed Storage*	178.9 ft³ (5.1 m³)
Weight	134 lbs (60.8 kg)

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below chambers, 9” (230 mm) of stone between chambers/end caps and 40% stone porosity.

StormTech MC-3500 End Cap (not to scale)

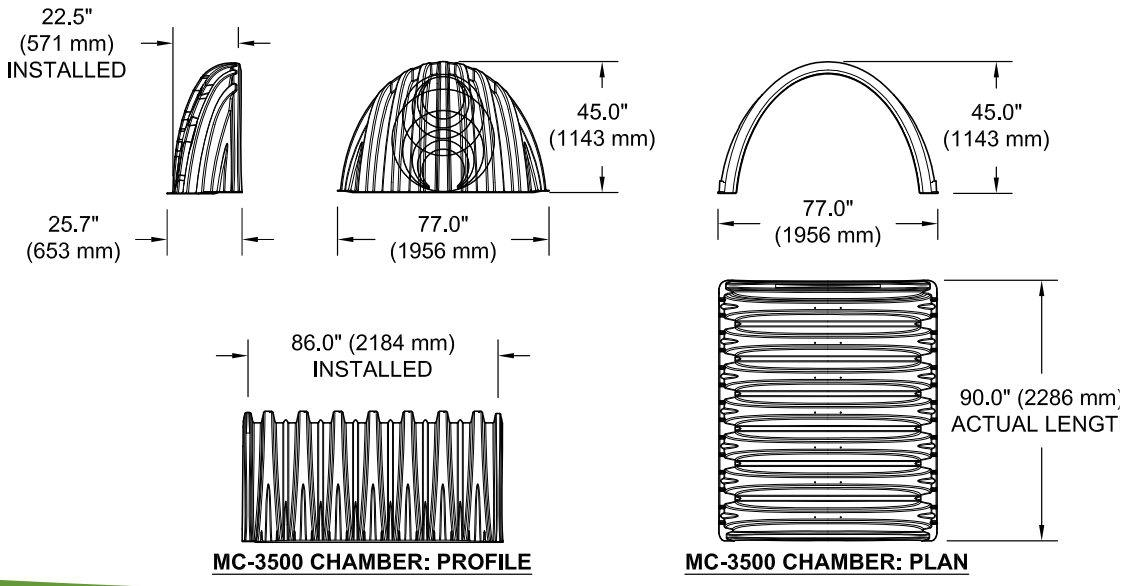
Nominal Chamber Specifications

Size (Lx W x H)	26.5” (673 mm) x 71” (1803 mm) x 45.1” (1145 mm)
End Cap Storage	14.9 ft³ (0.42 m³)
Min. Installed Storage*	46.0 ft³ (1.30 m³)
Weight	49 lbs (22.2 kg)

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below, 6” (150 mm) of stone perimeter, 9” (230 mm) of stone between chambers/end caps and 40% stone porosity.

Shipping

15 chambers/pallet
7 end caps/pallet
7 pallets/truck



Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORAGE VOLUME PER CHAMBER/END CAP FT³ (M³)

	Bare Unit Storage ft³ (m³)	Chamber/End Cap and Stone Unit Volume Stone Foundation Storage Depth in. (mm)			
		9 (230)	12 (300)	15 (375)	18 (450)
MC-3500 Chamber	109.9 (3.11)	178.9 (5.06)	184.0 (5.21)	189.2 (5.36)	194.3 (5.5)
MC-3500 End Cap	14.9 (0.42)	46.0 (1.33)	47.7 (1.35)	49.4 (1.40)	51.1 (1.45)

Note: Assumes 9" (230 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume.

AMOUNT OF STONE PER CHAMBER

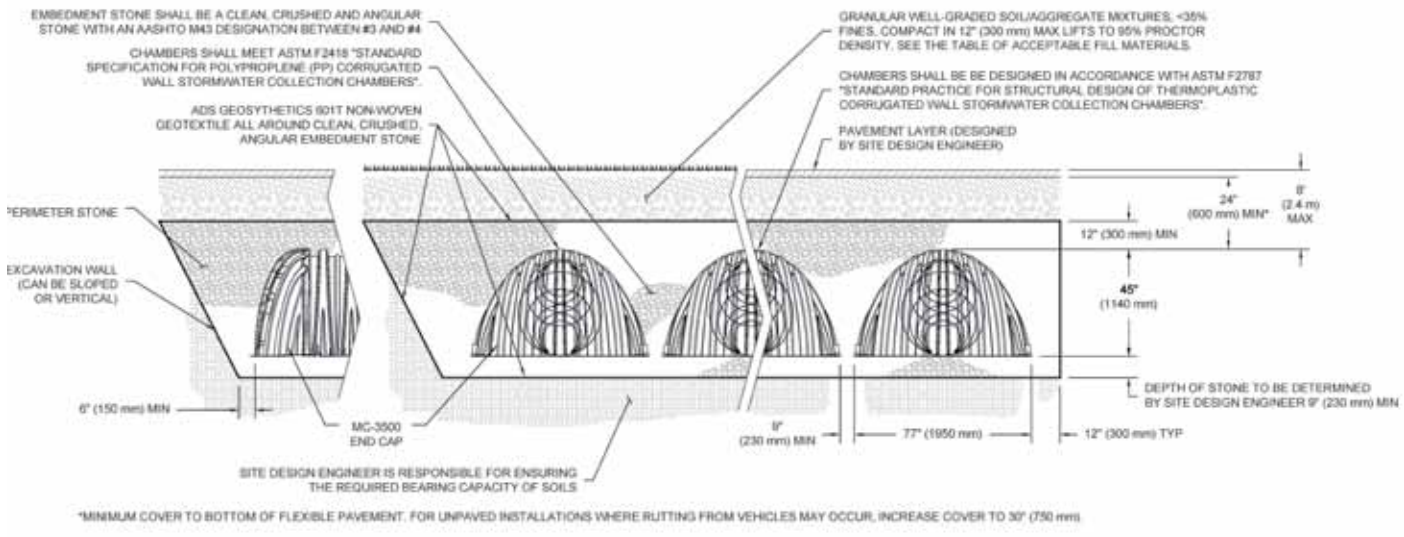
ENGLISH TONS (yds³)	Stone Foundation Depth			
	9"	12"	15"	18"
MC-3500	9.1 (6.4 yd³)	9.7 (6.9 yd³)	10.4 (7.3 yd³)	11.1 (7.8 yd³)
End Cap	4.1 (2.9 yd³)	4.3 (3.0 yd³)	4.5 (3.2 yd³)	4.5 (3.2 yd³)
Metric kg (m³)	230 mm	300 mm	375 mm	450 mm
MC-3500	8220 (4.9 m³)	8831 (5.3 m³)	9443 (5.6 m³)	10054 (6.0 m³)
End Cap	3699 (2.2 m³)	3900 (2.3 m³)	4100 (2.5 m³)	4301 (2.6 m³)

Note: Assumes 12" (300 mm) of stone above, and 9" (230 mm) row spacing, and 6" (150 mm) of perimeter stone in front of end caps.

VOLUME EXCAVATION PER CHAMBER/END CAP YD³ (M³)

	Stone Foundation Depth			
	9" (230 mm)	12" (300 mm)	15" (375 mm)	18" (450 mm)
MC-3500	12.4 (9.5)	12.8 (9.8)	13.3 (10.2)	13.8 (10.5)
End Cap	4.1 (3.1)	4.2 (3.2)	4.4 (3.3)	4.5 (3.5)

Note: Assumes 9" (230 mm) of separation between chamber rows and 24" (600 mm) of cover. The volume of excavation will vary as the depth of cover increases.



THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS, WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMTECH MC-4500 CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots thus maximizing land usage for private (commercial) and public applications.

StormTech MC-4500 Chamber (not to scale)

Nominal Chamber Specifications

Size (Lx W x H)	52” (1321 mm) x 100” (2540 mm) x 60” (1524 mm)
Chamber Storage	106.5 ft³ (3.01 m³)
Min. Installed Storage*	162.6 ft³ (4.60 m³)
Weight	120 lbs (54.4 kg)

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below chambers, 9” (230 mm) of stone between chambers/end caps and 40% stone porosity.

StormTech MC-4500 End Cap (not to scale)

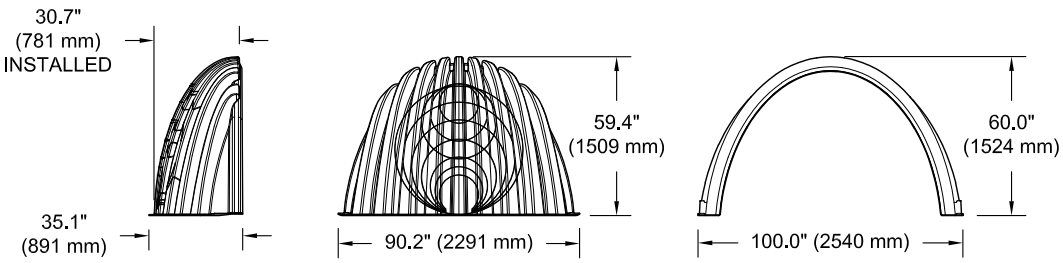
Nominal Chamber Specifications

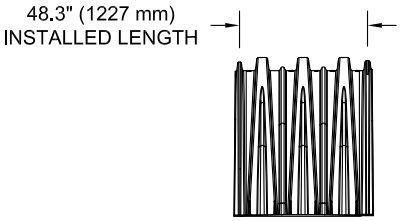
Size (Lx W x H)	35.1” (891 mm) x 90.2” (2291 mm) x 59.4” (1509 mm)
End Cap Storage	35.7 ft³ (1.01 m³)
Min. Installed Storage*	108.7 ft³ (3.08 m³)
Weight	120 lbs (54.4 kg)

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below, 12” (300 mm) of stone perimeter, 9” (230 mm) of stone between chambers/end caps and 40% stone porosity.

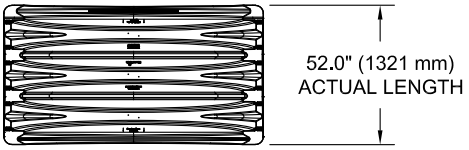
Shipping

7 chambers/pallet
7 end caps/pallet
11 pallets/truck





MC-4500 CHAMBER: PROFILE



MC-4500 CHAMBER: PLAN

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORAGE VOLUME PER CHAMBER/END CAP FT³ (M³)

	Bare Unit Storage ft³ (m³)	Chamber/End Cap and Stone Unit Volume Stone Foundation Storage Depth in. (mm)			
		9 (230)	12 (300)	15 (375)	18 (450)
MC-4500 Chamber	106.5 (3.02)	162.6 (4.60)	166.3 (4.71)	169.9 (4.81)	173.6 (4.91)
MC-4500 End Cap	35.7 (1.0)	108.7 (3.08)	111.9 (3.17)	115.2 (3.26)	118.4 (3.35)

Note: Assumes 9" (230 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume. End cap volume assumes 12" (300 mm) stone perimeter.

AMOUNT OF STONE PER CHAMBER

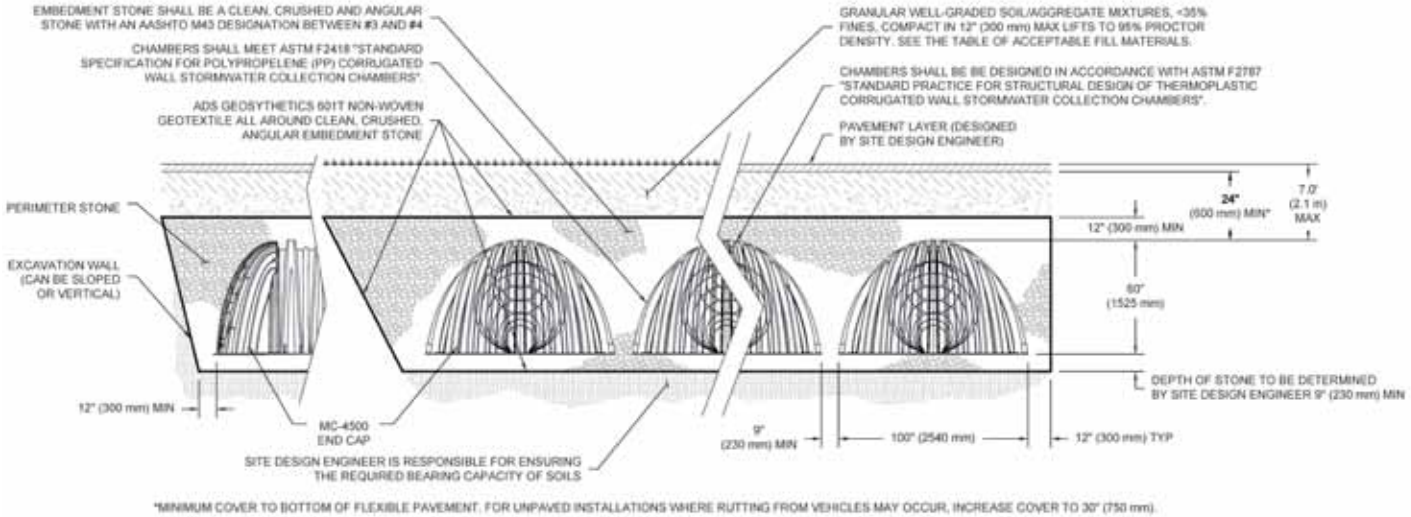
ENGLISH TONS (yds³)	Stone Foundation Depth			
	9"	12"	15"	18"
MC-4500	7.4 (5.2)	7.8 (5.5)	8.3 (5.9)	8.8 (6.2)
End Cap	9.6 (6.8)	10.0 (7.1)	10.4 (7.4)	10.9 (7.7)
Metric kg (m³)	230 mm	300 mm	375 mm	450 mm
MC-4500	6681 (4.0)	7117 (4.2)	7552 (4.5)	7987 (4.7)
End Cap	8691 (5.2)	9075 (5.4)	9460 (5.6)	9845 (5.9)

Note: Assumes 12" (300 mm) of stone above, 9" (230 mm) row spacing, and 12" (300 mm) of perimeter stone in front of end caps.

VOLUME EXCAVATION PER CHAMBER/END CAP YD³ (M³)

	Stone Foundation Depth			
	9" (230 mm)	12" (300 mm)	15" (375 mm)	18" (450 mm)
MC-4500	10.5 (8.0)	10.8 (8.3)	11.2 (8.5)	11.5 (8.8)
End Cap	9.3 (7.1)	9.6 (7.3)	9.9 (7.6)	10.2 (7.8)

Note: Assumes 9" (230 mm) of separation between chamber rows, 12" (300 mm) of perimeter in front of end caps, and 24" (600 mm) of cover. The volume of excavation will vary as the depth of cover increases.



*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 30" (750 mm).

THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS, WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

STORMTECH ISOLATOR ROW

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.

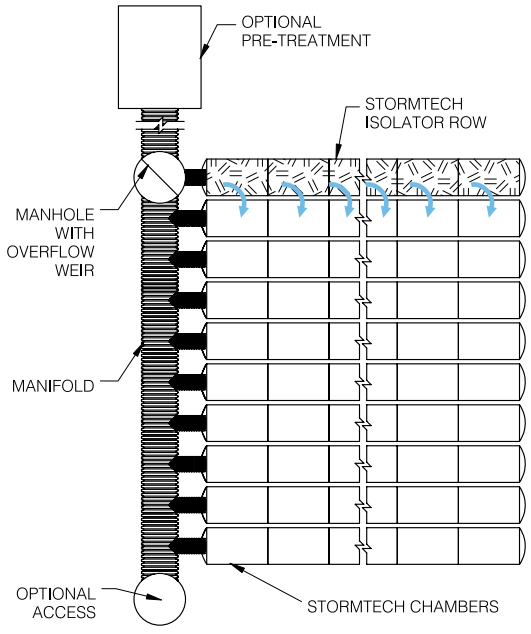
The Isolator Row is a row of StormTech chambers that is typically surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as stormwater rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC-310-3, and SC-740 models) allow stormwater to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row, protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for stormwater filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

The Isolator Row is typically designed to capture the “first flush” and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row, but typically includes a high flow weir such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row crest the weir and discharge through a manifold to the other chambers. An alternative design using a “high/low” concept is an acceptable method. This creates a differential between the Isolator Row and the manifold thus allowing for settlement time in the Isolator Row.

The Isolator Row may also be part of a treatment train. By treating stormwater prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins and oil-water separators or can be innovative stormwater treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.



StormTech Isolator Row with Overflow Spillway (not to scale)

Note: Non-woven fabric is only required over the inlet pipe connection into the end cap for DC-780, MC-3500 and MC-4500 chamber models and is not required over the entire Isolator Row.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

INSPECTION

The frequency of Inspection and Maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, public, residential) anticipated pollutant load, percent imperviousness, climate, rain fall data, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

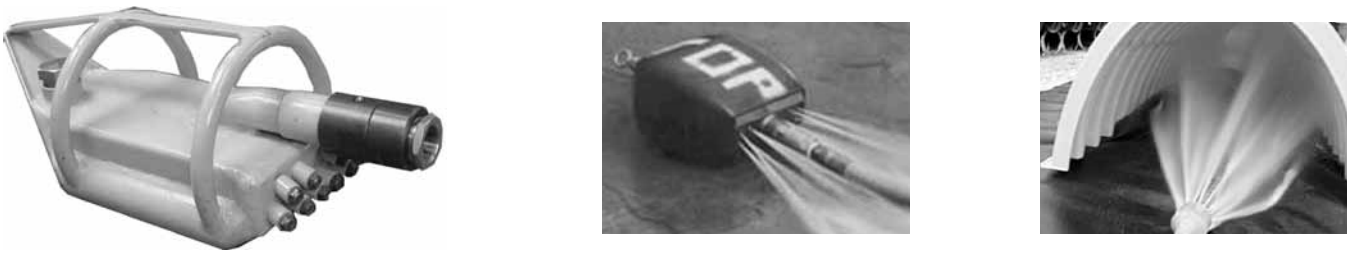
The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If, upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

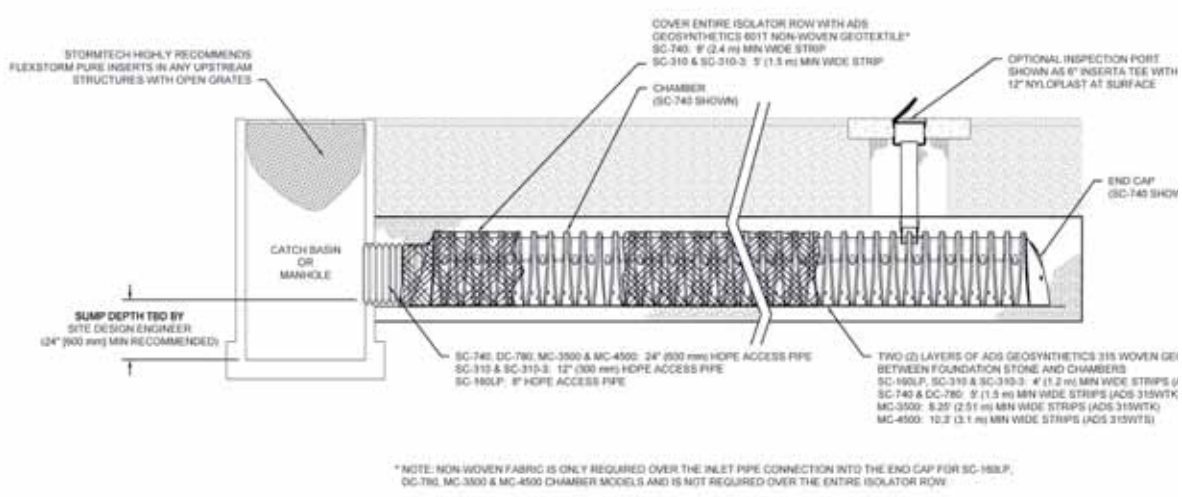
MAINTENANCE

The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the jetvac process. The jetvac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/jetvac combination vehicles. Selection of an appropriate jetvac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most jetvac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. The jetvac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.



Examples of culvert cleaning nozzles appropriate for Isolator Row maintenance. (These are not StormTech products.)

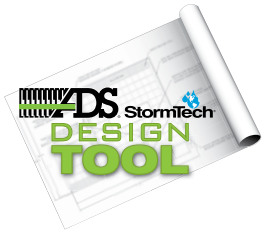


Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

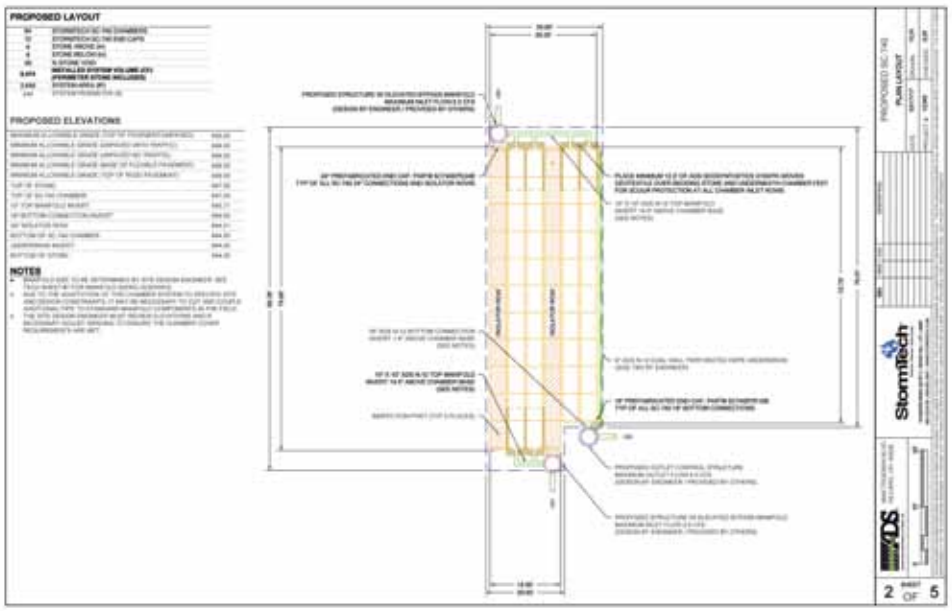
A FAMILY OF PRODUCTS AND SERVICES

- MC-4500 Chambers and End Caps
- MC-3500 Chambers and End Caps
- SC-310 Chambers and End Caps
- SC-310-3 Chambers and End Caps
- DC-780 Chambers and End Caps
- SC-740 Chambers and End Caps
- SC-160LP Chambers and End Caps
- SC, DC and MC Fabricated End Caps
- Fabricated Manifold Fittings
- Patented Isolator™ Row for Maintenance and Water Quality
- Inserta Tee® Connections
- Nyloplast® Basins and Inline Drains
- Flexstorm® Inserts
- In-House System Layout Assistance
- On-Site Educational Seminars
- Worldwide Technical Sales Group
- Centralized Product Applications Department
- Research and Development Team
- Technical Literature, O&M Manuals and Detailed CAD drawings all downloadable via our Web Site
- StormTech Design Tool

StormTech provides state-of-the-art products and services that meet or exceed industry performance standards and expectations. We offer designers,regulators, owners and contractors the highest quality products and services for stormwater management that "Saves Valuable Land and Protects Water Resources."



Please contact one of our inside Technical Service professionals or Engineered Product Managers (EPMs) to discuss your particular application.
A wide variety of technical support material is available from our website at ***www.stormtech.com***.
For any questions, please call StormTech at **888-892-2694**.



Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

ADS "Terms and Conditions of Sale" are available on the ADS website, www.ads-pipe.com
Advanced Drainage Systems, the ADS logo and the Green Stripe are registered trademarks of Advanced Drainage Systems, Inc. StormTech® and the Isolator® Row are a registered trademarks of StormTech, Inc. LEED® and the Green Building Council Member logo are registered trademarks of the U.S. Green Building Council.
© 2017 Advanced Drainage Systems, Inc. #10818 04/17

Save Valuable Land and Protect Water Resources

This catalog is not intended to provide requirements for design or installation of StormTech chambers. Refer to the appropriate "StormTech Design Manual" and "StormTech Construction Guide" for design and installation specifications.

StormTech®
Detention • Retention • Water Quality
An ADS company

Advanced Drainage Systems, Inc.
4640 Trueman Blvd. Hilliard, OH 43026
1-800-821-6710
www.ads-pipe.com

*THE MOST **ADVANCED** NAME IN WATER MANAGEMENT SOLUTIONS™*

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Biotreatment MP-20

General Description

Biotreatment systems are manufactured BMPs that mimic treatment provided by natural systems with a smaller footprint. Physical straining, biological and chemical reactions in the mulch, root zone, and soil matrix, and infiltration into the underlying subsoil are the main treatment processes. Biotreatment cells reduce peak discharge and runoff volume by detaining water through surface ponding, storage in soil and gravel layers, and evapotranspiration. They can be designed to incorporate infiltration to underlying soils and/or an underdrain system that collects treated stormwater and directs it to the storm drain.

Examples of biotreatment systems include manufactured wetlands and planter box biofilters that can incorporate a wide range of vegetation from grasses to trees.

Inspection/Maintenance Considerations

To maintain treatment performance longevity, pretreatment systems should be installed at sites with high loads of sediment, trash, and floatables. If pretreatment is provided then maintenance consideration must be given to remove accumulated materials.

Biotreatment systems require frequent landscaping maintenance, including harvesting of wetland vegetation and planter box irrigation in dry climates. Maintenance tasks may be conducted by a landscaping contractor, who may already be hired at the site. Refer to TC-21, Constructed Wetland, TC-32, Bioretention, and specific manufacturer recommendations for more information.

Advanced BMPs Covered

Maintenance Concerns

- *Vegetation/Landscape Maintenance*
- *Mulch and Planting Media Replacement*
- *Clogged Soil or Outlet Structures*
- *Invasive/Exotic Plant Species*
- *Vector Control*

Targeted Constituents*	
Sediment	✓
Nutrients	✓
Trash	✓
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

**Removal Effectiveness varies for different manufacturer designs. See New Development and Redevelopment Handbook-Section 5 for more information.*

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION®

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Biotreatment MP-20

Inspection Activities	Suggested Frequency
☐ Inspect during the dry season to determine if irrigation of plants is necessary.	As needed
☐ Inspect to ensure vegetation is well established. If not, either prepare soil and reseed or replace with alternative species. Install erosion control blanket if necessary. ☐ Check for debris and litter, and areas of sediment accumulation. ☐ Inspect health of trees and shrubs.	Semi-annual
☐ Inspect to verify that invasive species of wetland plants is not occurring.	Annual

Maintenance Activities	Suggested Frequency
☐ Water plants daily for at least 2 weeks.	At project completion
☐ Remove litter and debris.	Monthly
☐ Remove sediment. ☐ Remulch void areas. ☐ Treat diseased trees and shrubs. ☐ Mow turf areas. ☐ Repair erosion at inflow points. ☐ Repair outflow structures. ☐ Unclog underdrain. ☐ Regulate soil pH regulation. ☐ Repair undercut areas, erosion to banks, and bottom as required. ☐ Make structural changes or repairs as needed to eliminate pools of water that stand longer than 96 hrs to prevent mosquito production, particularly during the warmer months of the year. Identify and eliminate sources of non-stormwater runoff that feed standing water pools. Contact the local mosquito and vector control agency if mosquito breeding is observed or suspected.	As needed
☐ Remove and replace dead and diseased vegetation.	Semi-annual
☐ Add mulch. ☐ Replace tree stakes and wires. ☐ Supplement wetland plants if a significant portion have not established (at least 50% of the surface area). ☐ Remove nuisance plant species.	Annual
☐ Mulch should be replaced every 2 to 3 years or when bare spots appear or infiltration rates are reduced. Remulch prior to the wet season.	Every 2-3 years, or as needed
☐ Harvest plant species if vegetation becomes too thick causing flow backup and flooding. More frequent plant harvesting may be required by local vector control agencies.	5- to 7-year maintenance (or more frequently as required)

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Biotreatment MP-20

References

California Department of Transportation. *Treatment BMP Technology Report (CTSW-RT-09-239.06),* April, 2010. http://www.dot.ca.gov/hq/env/stormwater/pdf/CTSW-RT-09-239-06.pdf.

California Stormwater Quality Association. *Stormwater Best Management Practice Handbook, New Development and Redevelopment*, 2003. https://www.casqa.org/resources/bmp-handbooks/new-development-redevelopment-bmp-handbook.

Orange County Stormwater Program. Technical Guidance Document BMP Fact Sheets. http://media.ocgov.com/gov/pw/watersheds/documents/wqmp/tgd/technical_guidance_document_bmp_fact_sheets.asp.

Ventura Countywide Stormwater Quality Management Program. *Technical Guidance Manual for Stormwater Quality Control Measures*, May, 2010. http://www.vcstormwater.org/documents/workproducts/technicalguidancemanual/201orevisions/Ventura%20Technical%20Guidance%20Document_5-6-10.pdf.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

BG-40 Landscape Maintenance

Photo Credit: Geoff Brosseau

Description

This category includes businesses that provide landscaping and landscape maintenance/gardening services.

Pollutant Sources

The following are sources of pollutants:

- Selecting plants or landscape design,
- Installing new landscaping,
- Maintaining landscapes,
- Using pesticides and fertilizers, and
- Using gas-powered equipment.

Pollutants can include:

- Nutrients (fertilizers, yard wastes),
- Pesticides,
- Heavy metals (copper, lead, and zinc),
- Hydrocarbons (fuels, oils and grease), and
- Sediments.

Approach

Minimize the potential for stormwater pollution and the need for resources/controls (water, pesticides, fertilizers) by creating and maintaining landscapes in a way that is compatible with the local soils, climate, and amount of rain and sun. Make stormwater pollution prevention BMPs a part of standard operating procedures and the employee training program.

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION®

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

BG-40 Landscape Maintenance

Provide employee education materials in the first language of employees, as necessary.

Source Control BMPs

The best management practices are listed by activity or area.

Landscape Design	☐ Specify native, low maintenance, and insectary (attract beneficial insects) plants and landscape designs. ☐ Design zoned, water-efficient irrigation systems using technologies such drip irrigation, soaker hoses, or microspray systems. Landscape design should be consistent with the local Water Efficient Landscape Ordinance. See the following website for a list of local ordinances: ftp://ftp.water.ca.gov/Model-Water-Efficient-Landscape-Ordinance/Local-Ordinances/ ☐ Do not landscape riparian areas, except to remove non-native plants and replace them with native riparian landscaping. ☐ Replant with native species where possible when landscaping or building an ornamental pond. Do not assume something is native because you have seen it in your area. Contact the local nursery for information or visit the California Exotic Pest Plant Council website (www.caleppc.org).
Landscape Installation	☐ Protect stockpiles and landscaping materials from wind and rain by storing them under tarps or secured plastic sheeting. ☐ Schedule grading and excavation projects during dry weather. ☐ Divert runoff from exposed soils or lower its velocity by leveling and terracing. ☐ Use temporary check dams or ditches to divert runoff away from storm drains. ☐ Protect storm drains with sandbags or other sediment controls. ☐ Revegetation is an excellent form of erosion control for any site. Keep soils covered with vegetation or temporary cover material (mulch) to control erosion. ☐ Check plant roots before buying a plant. Do not buy plants with roots are that kinked or circling around the container. Do not buy plants with soft, rotten, or deformed root crowns. ☐ Do not pile soil around the plant any higher than the root crown.
Landscape Maintenance	Yard Waste ☐ Allow leaf drop to become part of the mulch layer in tree, shrub, and groundcover areas. ☐ Keep lawn mower blades sharp, and grasscycle.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

BG-40 Landscape Maintenance

- Grasscycle – leave grass clippings on the lawn when mowing. Once cut, grass clippings first dehydrate, and then decompose, quickly disappearing from view. Proper mowing is required for successful grasscycling. Cut grass when the surface is dry, and keep mower blades sharp. Follow the "1/3 Rule": mow the lawn often enough so that no more than 1/3 of the length of the grass blade is cut in any one mowing. Frequent mowing will produce short clippings that will not cover up the grass surface. The lawn may have to be cut every seven days when the lawn is growing fast but only every 7 to 14 days when the lawn is growing slowly.
- Do not leave clippings on pavement or sidewalks where they can wash off into the street, gutter, or storm drain.
- Collect lawn and garden clippings, pruning waste, and tree trimmings. Chip if necessary, and compost or take to the local municipal yard waste recycling/composting facility.
- In communities with curbside pick-up of yard waste, place clippings and pruning waste at the curb in approved bags or containers. No curbside pickup of yard waste is available for commercial properties.
- Do not blow or rake leaves or other yard waste into the street, or place yard waste in gutters or on dirt shoulders, unless it is being piled up for recycling (allowed by some municipalities). After pick-up, sweep up any leaves, litter, or residue in gutters or on street.

Fertilizing and Pruning

- Perform soil analysis seasonally to determine actual fertilization need and application rates.
- Fertilize garden areas with a mulch of leaves, bark, or composted manure and/or garden waste.
- Apply chemical fertilizer only as needed, when plants can best use it, and when the potential for it being carried away by runoff is low. Make sure the fertilizer spreader is calibrated.
- Prune plants sparingly, if at all. A healthy plant – one that is native to the area and growing under the right conditions – should not need pruning, except when it is not in the right location (where safety or liability is a concern).

Watering

- Use soil probes to determine soil moisture depth, overall moisture levels, and the need to adjust irrigation schedules.
- Check sprinklers regularly. Adjust as needed to minimize or eliminate overspray onto impervious surfaces. Replace broken sprinklers or lines.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

BG-40 Landscape Maintenance

Pest and Weed Control

- Obtain appropriate licenses for pest control and pesticides. Contact the Department of Pesticide Regulation for more information.
- Become trained in and offer customers less-toxic pest control or Integrated Pest Management (IPM).
- The label on a pesticide container is a legal document. Use a pesticide only as instructed on the label.
- Store pesticides, fertilizers, and other chemicals indoors or in a shed or storage cabinet.
- Use pesticides sparingly, according to instructions on the label. Rinse empty containers, and use rinsewater as product.
- Dispose of rinsed, empty containers in the trash. Dispose of unused pesticides as hazardous waste.
- To control weeds, use drip irrigation and mulch. Hand-pull weeds including roots or cut down to ground. Repeat cutting before they flower, grow new leaves, or go to seed. Use herbicides containing pelargonic acid or herbicidal soap as a last resort.

Handling Gasoline

- Use only containers approved by a nationally recognized testing lab, such as Underwriters Laboratories (UL). Keep the container tightly sealed. Containers should be fitted with a spout to allow pouring without spilling and to minimize the generation of vapors.
- Fill cautiously. Always use a funnel and/or spout to prevent spilling or splashing when fueling power mowers, blowers, and all other gas-powered equipment.
- Avoid spilling gasoline on the ground, especially near wells. If a spill occurs use kitty litter, saw dust, or an absorbent towel to soak up the spill, then dispose of it properly.
- Store carefully. Gasoline moves quickly through soil and into groundwater, therefore, store and use gasoline and fuel equipment as far away from your drinking water well as possible. Be certain to keep a closed cap on the gasoline container. Store at ground level, not on a shelf to minimize the danger of falling and spilling.
- Do not dispose of gasoline down the drain, into surface water, onto the ground, or in the trash. Contact the local municipality for directions on proper disposal of excess or old gasoline. Transport old gas in an approved gasoline container.

Working Near Waterbodies

- Do not dump lawn clippings, other yard waste, or soil along creek banks or in creeks.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

BG-40 Landscape Maintenance

	☐ Do not store stockpiles of materials (soil, mulch) along creek banks. These piles can erode over time into a creek. ☐ Do not spray pesticides or fertilizers by creeks. ☐ Do not over water near streams. The excess water may carry pesticides, fertilizers, sediments, and anything else in its path directly into the creek.

Treatment Control BMPs

Not applicable.

More Information

Bay Area Stormwater Management Agencies Association, 1999. Start at the Source – Design Guidance Manual for Stormwater Quality Protection. Available on-line at: http://www.scvurppp-w2k.com/pdfs/0910/StartAtTheSource.pdf.

Bay Area Stormwater Management Agencies Association, Undated. *Landscape designs for Stormwater Management - Stormwater Control for Small Projects*. Available at: http://www.acterra.org/programs/stewardship/_doc/landscape_dispersion.pdf.

Bay Area Water Pollution Prevention Agencies, 2001. Less-Toxic Pest Management- Problem Pesticides. Available on-line at: http://www.sccgov.org/sites/iwm/hhw/Documents/505018Problem%20Pesticides.pdf.

California Invasive Plant Council, Undated Website. *Prevention BMPs for Land Managers*. Available on-line at: http://www.cal-ipc.org/ip/prevention/landmanagers.php.

California Department of Resources Recycling and Recovery (CalRecycle), 1999. *Grasscycle! Make the Most of Your Lawn. Make the Most of Your Time*. Available on-line at: http://www.calrecycle.ca.gov/publications/Documents/Organics/44399011.pdf .

California Department of Resources Recycling and Recovery (CalRecycle). *Capitol Park Training Manual Description and Guidelines for Horticultural Practices*. Available on-line at: http://www.calrecycle.ca.gov/organics/landscaping/Demos/Manual.pdf.

Southern Sonoma County Resource Conservation District, Undated pamphlet. *A Guide for Rural Landowners and Residents of Petaluma and Sonoma Creek Watersheds*. Available on-line at: http://www.conservation.ca.gov/dlrp/watershedportal/Documents/SSCRCD%20Creek%20Care%20Guide%20(southern%20sonoma%20rcd).pdf .

USEPA, Office of Water National Pollution Discharge Elimination System, Undated website. *Stormwater Menu of BMPs Municipal Landscaping*. Available on-line at: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=1.

References

Bay Area Stormwater Management Agencies Association, 1999. Start at the Source – Design Guidance Manual for Stormwater Quality Protection. Available on-line at: http://www.scvurppp-w2k.com/pdfs/0910/StartAtTheSource.pdf.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

BG-40 Landscape Maintenance

Bay Area Stormwater Management Agencies Association, Undated. *Landscape designs for Stormwater Management - Stormwater Control for Small Projects*. Available at: http://www.acterra.org/programs/stewardship/_doc/landscape_dispersion.pdf.

City of San Diego, 2012. *Storm Water Standards*. Available on-line at: http://www.sandiego.gov/development-services/news/pdf/stormwatermanual.pdf.

City of San Francisco, 2009. *San Francisco Stormwater Design Guidelines*. Available on-line at: http://www.sfwater.org/modules/showdocument.aspx?documentid=2779.

County of Los Angeles Department of Public Works, 2009. *Stormwater Best Management Practice Design and Maintenance Manual For Publicly Maintained Storm Drain Systems*. Available on-line at: http://dpw.lacounty.gov/ldd/publications/Stormwater%20BMP%20Design%20and%20Maintenance%20Manual.pdf.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Non-Stormwater Discharges SC-10

Description

Non-stormwater discharges (NSWDs) are flows that do not consist entirely of stormwater. Some non-stormwater discharges do not include pollutants and may be discharged to the storm drain if local regulations allow. These include uncontaminated groundwater and natural springs. There are also some non-stormwater discharges that typically do not contain pollutants and may be discharged to the storm drain with conditions. These include: potable water sources, fire hydrant flushing, air conditioner condensate, landscape irrigation drainage and landscape watering, emergency firefighting, etc. as discussed in Section 2.

However there are certain non-stormwater discharges that pose an environmental concern. These discharges may originate from illegal dumping of industrial material or wastes and illegal connections such as internal floor drains, appliances, industrial processes, sinks, and toilets that are illegally connected to the nearby storm drainage system through on-site drainage and piping. These unauthorized discharges (examples of which may include: process waste waters, cooling waters, wash waters, and sanitary wastewater) can carry substances such as paint, oil, fuel and other automotive fluids, chemicals and other pollutants into storm drains.

Non-stormwater discharges will need to be addressed through a combination of detection and elimination. The ultimate goal is to effectively eliminate unauthorized non-stormwater discharges to the stormwater drainage system through implementation of measures to detect, correct, and enforce against illicit connections and illegal discharges of

Objectives
■ *Cover*
■ *Contain*
■ *Educate*
■ *Reduce/Minimize*
■ *Product Substitution*

Targeted Constituents	
Sediment	
Nutrients	✓
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

Minimum BMPs Covered	
Good Housekeeping	✓
Preventative Maintenance	
Spill and Leak Prevention and Response	✓
Material Handling & Waste Management	
Erosion and Sediment Controls	
Employee Training Program	✓
Quality Assurance Record Keeping	✓

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION®

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Non-Stormwater Discharges SC-10

pollutants on streets and into the storm drain system and downstream water bodies.

Approach

Initially the Discharger must make an assessment of non-stormwater discharges to determine which types must be eliminated or addressed through BMPs. The focus of the following approach is the elimination of unauthorized non-stormwater discharges. See other BMP Fact Sheets for activity-specific pollution prevention procedures.

General Pollution Prevention Protocols

- Implement waste management controls described in SC-34 Waste Handling and Disposal.
- Develop clear protocols and lines of communication for effectively prohibiting non-stormwater discharges, especially those that are not classified as hazardous. These are often not responded to as effectively as they need to be.
- Stencil or demarcate storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" or similar stenciled or demarcated next to them to warn against ignorant or unintentional dumping of pollutants into the storm drainage system.
- Manage and control sources of water such as hose bibs, faucets, wash racks, irrigation heads, etc. Identify hoses and faucets in the SWPPP, and post signage for appropriate use.

Non-Stormwater Discharge Investigation Protocols

Identifying the sources of non-stormwater discharges requires the Discharger to conduct an investigation of the facility at regular intervals. There are several categories of non-stormwater discharges:

- Visible, easily identifiable discharges, typically generated as surface runoff, such as uncontained surface runoff from vehicle or equipment washing; and
- Non-visible, (e.g., subsurface) discharges into the site drainage system through a variety of pathways that are not obvious.

The approach to detecting and eliminating non-stormwater discharges will vary considerably, as discussed below:

Visible and identifiable discharges

- Conduct routine inspections of the facilities and of each major activity area and identify visible evidence of unauthorized non-stormwater discharges. This may include:
  - ✓ Visual observations of actual discharges occurring;

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Non-Stormwater Discharges SC-10

- ✓ Evidence of surface staining, discoloring etc. that indicates that discharges have occurred;
- ✓ Pools of water in low lying areas when a rain event has not occurred; and
- ✓ Discussions with operations personnel to understand practices that may lead to unauthorized discharges.

- ☐ If evidence of non-stormwater discharges is discovered:
  - ✓ Document the location and circumstances using Worksheets 5 and 6 (Section 2 of the manual), including digital photos;
  - ✓ Identify and implement any quick remedy or corrective action (e.g., moving uncovered containers inside or to a proper location); and
  - ✓ Develop a plan to eliminate the discharge. Consult the appropriate activity-specific BMP Fact Sheet for alternative approaches to manage and eliminate the discharge.
- ☐ Consult the appropriate activity-specific BMP Fact Sheet for alternative approaches to manage and eliminate the discharge. Make sure the facility SWPPP is up-to-date and includes applicable BMPs to address the non-stormwater discharge.

Other Illegal Discharges (Non visible)

Illicit Connections

- ☐ Locate discharges from the industrial storm drainage system to the municipal storm drain system through review of "as-built" piping schematics.
- ☐ Isolate problem areas and plug illicit discharge points.
- ☐ Locate and evaluate discharges to the storm drain system.
- ☐ Visual Inspection and Inventory:
  - ✓ Inventory and inspect each discharge point during dry weather.
  - ✓ Keep in mind that drainage from a storm event can continue for a day or two following the end of a storm and groundwater may infiltrate the underground stormwater collection system.
  - ✓ Non-stormwater discharges are often intermittent and may require periodic inspections.

Review Infield Piping

- ☐ A review of the "as-built" piping schematic is a way to determine if there are any connections to the stormwater collection system.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Non-Stormwater Discharges SC-10

- Inspect the path of loading/unloading area drain inlets and floor drains in older buildings.

- Never assume storm drains are connected to the sanitary sewer system.

Monitoring for investigation/detection of illegal discharges

- If a suspected illegal or unknown discharge is detected, monitoring of the discharge may help identify the content and/or suggest the source. This may be done with a field screening analysis, flow meter measurements, or by collecting a sample for laboratory analysis. Section 5 and Appendix D describe the necessary field equipment and procedures for field investigations.

- Investigative monitoring may be conducted over time. For example if, a discharge is intermittent, then monitoring might be conducted to determine the timing of the discharge to determine the source.

- Investigative monitoring may be conducted over a spatial area. For example, if a discharge is observed in a pipe, then monitoring might be conducted at accessible upstream locations in order to pinpoint the source of the discharge.

- Generally, investigative monitoring requiring collection of samples and submittal for lab analysis requires proper planning and specially trained staff.

Smoke Testing

Smoke testing of wastewater and stormwater collection systems is used to detect connections between the two piping systems. Smoke testing is generally performed at a downstream location and the smoke is forced upstream using blowers to create positive pressure. The advantage to smoke testing is that it can potentially identify multiple potential discharge sources at once.

- Smoke testing uses a harmless, non-toxic smoke cartridges developed specifically for this purpose.

- Smoke testing requires specialized equipment (e.g., cartridges, blowers) and is generally only appropriate for specially trained staff.

- A Standard Operating Procedure (SOP) for smoke testing is highly desirable. The SOP should address the following elements:

  - ✓ Proper planning and notification of nearby residents and emergency services is necessary since introducing smoke into the system may result in false alarms;

  - ✓ During dry weather, the stormwater collection system is filled with smoke and then traced back to sources;

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Non-Stormwater Discharges SC-10

- ✓ Temporary isolation of segments of pipe using sand bags is often needed to force the smoke into leaking pipes; and

- ✓ The appearance of smoke in a waste vent pipe, at a sewer manhole, or even the base of a toilet indicates that there may be a connection between the sanitary and storm water systems.

- Most municipal wastewater agencies will have necessary staff and equipment to conduct smoke testing and they should be contacted if cross connections with the sanitary sewer are suspected. See SC-44 Drainage System Maintenance for more information.

Dye Testing

- Dye testing is typically performed when there is a suspected specific pollutant source and location (i.e., leaking sanitary sewer) and there is evidence of dry weather flows in the stormwater collection system.

- Dye is released at a probable upstream source location, either the facility's sanitary or process wastewater system. The dye must be released with a sufficient volume of water to flush the system.

- Operators then visually examine the downstream discharge points from the stormwater collection system for the presence of the dye.

- Dye testing can be performed informally using commercially available products in order to conduct an initial investigation for fairly obvious cross-connections.

- More detailed dye testing should be performed by properly trained staff and follow SOPs. Specialized equipment such as fluorometers may be necessary to detect low concentrations of dye.

- Most municipal wastewater agencies will have necessary staff and equipment to conduct dye testing and they should be contacted if cross connections with the sanitary sewer are suspected.

TV Inspection of Drainage System

- Closed Circuit Television (CCTV) can be employed to visually identify illicit connections to the industrial storm drainage system. Two types of CCTV systems are available: (1) a small specially designed camera that can be manually pushed on a stiff cable through storm drains to observe the interior of the piping, or (2) a larger remote operated video camera on treads or wheels that can be guided through storm drains to view the interior of the pipe.

- CCTV systems often include a high-pressure water jet and camera on a flexible cable. The water jet cleans debris and biofilm off the inside of pipes so the camera can take video images of the pipe condition.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Non-Stormwater Discharges SC-10

- CCTV units can detect large cracks and other defects such as offsets in pipe ends caused by root intrusions or shifting substrate.
- CCTV can also be used to detect dye introduced into the sanitary sewer.
- CCTV inspections require specialized equipment and properly trained staff and are generally best left to specialized contractors or municipal public works staff.

Illegal Dumping

- Substances illegally dumped on streets and into the storm drain systems and creeks may include paints, used oil and other automotive fluids, construction debris, chemicals, fresh concrete, leaves, grass clippings, and pet wastes. These wastes can cause stormwater and receiving water quality problems as well as clog the storm drain system itself.
- Establish a system for tracking incidents. The system should be designed to identify the following:
  - ✓ Illegal dumping hot spots;
  - ✓ Types and quantities (in some cases) of wastes;
  - ✓ Patterns in time of occurrence (time of day/night, month, or year);
  - ✓ Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills);
  - ✓ An anonymous tip/reporting mechanism; and
  - ✓ Evidence of responsible parties (e.g., tagging, encampments, etc.).
- One of the keys to success of reducing or eliminating illegal dumping is increasing the number of people at the facility who are aware of the problem and who have the tools to at least identify the incident, if not correct it. Therefore, train field staff to recognize and report the incidents.

Once a site has been cleaned:

- Post "No Dumping" signs with a phone number for reporting dumping and disposal.
- Landscaping and beautification efforts of hot spots may also discourage future dumping, as well as provide open space and increase property values.
- Lighting or barriers may also be needed to discourage future dumping.
- See fact sheet SC-11 Spill Prevention, Control, and Cleanup.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Non-Stormwater Discharges SC-10

Inspection

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Conduct field investigations of the industrial storm drain system for potential sources of non-stormwater discharges.
- Pro-actively conduct investigations of high priority areas. Based on historical data, prioritize specific geographic areas and/or incident type for pro-active investigations.

Spill and Leak Prevention and Response

- On paved surfaces, clean up spills with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste.
- Never hose down or bury dry material spills. Sweep up the material and dispose of properly.
- Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.
- For larger spills, a private spill cleanup company or Hazmat team may be necessary.
- See SC-11 Spill Prevention Control and Cleanup.

Employee Training Program

- Training of technical staff in identifying and documenting illegal dumping incidents is required. The frequency of training must be presented in the SWPPP, and depends on site-specific industrial materials and activities.
- Consider posting a quick reference table near storm drains to reinforce training.
- Train employees to identify non-stormwater discharges and report discharges to the appropriate departments.
- Educate employees about spill prevention and cleanup.
- Well-trained employees can reduce human errors that lead to accidental releases or spills. The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur. Employees should be familiar with the Spill Prevention Control and Countermeasure Plan. Employees should be able to identify work/jobs with high potential for spills and suggest methods to reduce possibility.
- Determine and implement appropriate outreach efforts to reduce non-permissible non-stormwater discharges.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Non-Stormwater Discharges SC-10

- Conduct spill response drills annually (if no events occurred) in order to evaluate the effectiveness of the plan.
- When a responsible party is identified, educate the party on the impacts of his or her actions.

Quality Assurance and Record Keeping

Performance Evaluation

- Annually review internal investigation results; assess whether goals were met and what changes or improvements are necessary.
- Obtain feedback from personnel assigned to respond to, or inspect for, illicit connections and illegal dumping incidents.
- Develop document and data management procedures.
- A database is useful for defining and tracking the magnitude and location of the problem.
- Report prohibited non-stormwater discharges observed during the course of normal daily activities so they can be investigated, contained, and cleaned up or eliminated.
- Document that non-stormwater discharges have been eliminated by recording tests performed, methods used, dates of testing, and any on-site drainage points observed.
- Annually document and report the results of the program.
- Maintain documentation of illicit connection and illegal dumping incidents, including significant conditionally exempt discharges that are not properly managed.
- Document training activities.

Potential Limitations and Work-Arounds

Some facilities may have space constraints, limited staffing and time limitations that may preclude implementation of BMPs. Provided below are typical limitations and recommended "work-arounds."

- Many facilities do not have accurate, up-to-date 'as-built' plans or drawings which may be necessary in order to conduct non-stormwater discharge assessments.
  - ✓ Online tools such as Google Earth™ can provide an aerial view of the facility and may be useful in understanding drainage patterns and potential sources of non-stormwater discharges
  - ✓ Local municipal jurisdictions may have useful drainage systems maps.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Non-Stormwater Discharges SC-10

- Video surveillance cameras are commonly used to secure the perimeter of industrial facilities against break-ins and theft. These surveillance systems may also be useful for capturing illegal dumping activities. Minor, temporary adjustments to the field of view of existing surveillance camera systems to target known or suspected problem areas may be a cost-effective way of capturing illegal dumping activities and identifying the perpetrators.

Potential Capital Facility Costs and Operation & Maintenance Requirements

Facilities

- Capital facility cost requirements may be minimal unless cross-connections to storm drains are detected.
- Indoor floor drains may require re-plumbing if cross-connections are detected.
- Leaky sanitary sewers will require repair or replacement which can have significant costs depending on the size and industrial activity at the facility.

Maintenance (including administrative and staffing)

- The primary effort is for staff time and depends on how aggressively a program is implemented.
- Costs for containment, and disposal of any leak or discharge is borne by the Discharger.
- Illicit connections can be difficult to locate especially if there is groundwater infiltration.
- Illegal dumping and illicit connection violations requires technical staff to detect and investigate them.

Supplemental Information

Permit Requirements

The IGP authorizes certain Non-Storm Water Discharges (NSWDs) provided BMPs are included in the SWPPP and implemented to:

- Reduce or prevent the contact of authorized NSWDs with materials or equipment that are potential sources of pollutants;
- Reduce, to the extent practicable, the flow or volume of authorized NSWDs;
- Ensure that authorized NSWDs do not contain quantities of pollutants that cause or contribute to an exceedance of a water quality standards (WQS); and,

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

- Reduce or prevent discharges of pollutants in authorized NSWDs in a manner that reflects best industry practice considering technological availability and economic practicability and achievability."

References and Resources

Center for Watershed Protection, 2004. *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, EPA Cooperative Agreement X-82907801-0.

Dublin San Ramon Sanitation District. http://www.dsrsd.com/wwrw/smoketest.html.

Orange County Stormwater Program, Best Management Practices for Industrial/Commercial Business Activities. Available online at: http://ocwatersheds.com/documents/bmp/industrialcommercialbusinessesactivities.

Sacramento Stormwater Management Program, *Best Management Practices for Industrial Storm Water Pollution Control*, Available online at: http://www.msa.saccounty.net/sactostormwater/documents/guides/industrial-BMP-manual.pdf.

Santa Clara Valley Urban Runoff Pollution Prevention Program. http://www.scvurppp.org.

Southern California Coastal Water Research Project, 2013. *The California Microbial Source Identification Manual: A Tiered Approach to Identifying Fecal Pollution Sources to Beaches,* Technical Report 804.

The Storm Water Managers Resource Center, http://www.stormwatercenter.net/.

US EPA. National Pollutant Discharge Elimination System. Available online at: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=111.

WEF Press Alexandria, Virginia, 2009.Existing Sewer Evaluation and Rehabilitation: *WEF Manual of Practice No. FD-6 ASCE/EWRI Manuals and Reports on Engineering Practice No. 62, Third Edition.*

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Waste Handling & Disposal SC-34

Description

Improper storage and handling of solid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants to enter stormwater runoff. The discharge of pollutants to stormwater from waste handling and disposal can be prevented and reduced by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction, reuse, and recycling; and preventing run-on and runoff.

Approach

Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

General Pollution Prevention Protocols

- ☐ Accomplish reduction in the amount of waste generated using the following source controls:
  - ✓ Production planning and sequencing;
  - ✓ Process or equipment modification;
  - ✓ Raw material substitution or elimination;
  - ✓ Loss prevention and housekeeping;
  - ✓ Waste segregation and separation; and
  - ✓ Close loop recycling.
- ☐ Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.
- ☐ Recycle materials whenever possible.

Objectives
■ *Cover*
■ *Contain*
■ *Educate*
■ *Reduce/Minimize*
■ *Product Substitution*

Targeted Constituents	
Sediment	
Nutrients	
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

Minimum BMPs Covered	
Good Housekeeping	✓
Preventative Maintenance	✓
Spill and Leak Prevention and Response	✓
Material Handling & Waste Management	✓
Erosion and Sediment Controls	
Employee Training Program	✓
Quality Assurance Record Keeping	✓

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION®

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Waste Handling & Disposal SC-34

- Use the entire product before disposing of the container.
- To the extent possible, store wastes under cover or indoors after ensuring all safety concerns such as fire hazard and ventilation are addressed.
- Provide containers for each waste stream at each work station. Allow time after shift to clean area.

Good Housekeeping

- Cover storage containers with leak proof lids or some other means. If waste is not in containers, cover all waste piles (plastic tarps are acceptable coverage) and prevent stormwater run-on and runoff with a berm. The waste containers or piles must be covered except when in use.
- Use drip pans or absorbent materials whenever grease containers are emptied by vacuum trucks or other means. Grease cannot be left on the ground. Collected grease must be properly disposed of as garbage.
- Dispose of rinse and wash water from cleaning waste containers into a sanitary sewer if allowed by the local sewer authority. Do not discharge wash water to the street or storm drain. Clean in a designated wash area that drains to a clarifier.
- Transfer waste from damaged containers into safe containers.
- Take special care when loading or unloading wastes to minimize losses. Loading systems can be used to minimize spills and fugitive emission losses such as dust or mist. Vacuum transfer systems can minimize waste loss.
- Keep the waste management area clean at all times by sweeping and cleaning up spills immediately.
- Use dry methods when possible (e.g., sweeping, use of absorbents) when cleaning around restaurant/food handling dumpster areas. If water must be used after sweeping/using absorbents, collect water and discharge through grease interceptor to the sewer.
- Stencil or demarcate storm drains on the facility's property with prohibitive message regarding waste disposal.
- Cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropylene or hypalon.
- If possible, move the activity indoor after ensuring all safety concerns such as fire hazard and ventilation are addressed.

Preventative Maintenance

- Prevent stormwater run-on from entering the waste management area by enclosing the area or building a berm around the area.
- Prevent waste materials from directly contacting rain.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Waste Handling & Disposal SC-34

- Cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropylene or hypalon.
- Cover the area with a permanent roof if feasible.
- Cover dumpsters to prevent rain from washing waste out of holes or cracks in the bottom of the dumpster.
- Check waste containers weekly for leaks and to ensure that lids are on tightly. Replace any that are leaking, corroded, or otherwise deteriorating.
- Sweep and clean the waste management area regularly. Use dry methods when possible (e.g., sweeping, vacuuming, use of absorbents) when cleaning around restaurant/food handling dumpster areas. If water must be used after sweeping/using absorbents, collect water and discharge through grease interceptor to the sewer.
- Inspect and replace faulty pumps or hoses regularly to minimize the potential of releases and spills.
- Repair leaking equipment including valves, lines, seals, or pumps promptly.

Spill Response and Prevention Procedures

- Keep your spill prevention and plan up-to-date.
- Have an emergency plan, equipment and trained personnel ready at all times to deal immediately with major spills.
- Collect all spilled liquids and properly dispose of them.
- Store and maintain appropriate spill cleanup materials in a location known to all near the designated wash area.
- Ensure that vehicles transporting waste have spill prevention equipment that can prevent spills during transport. Spill prevention equipment includes:
  - ✓ Vehicles equipped with baffles for liquid waste; and
  - ✓ Trucks with sealed gates and spill guards for solid waste.

Material Handling and Waste Management

Litter Control

- Post "No Littering" signs and enforce anti-litter laws.
- Provide a sufficient number of litter receptacles for the facility.
- Clean out and cover litter receptacles frequently to prevent spillage.

Waste Collection

- Keep waste collection areas clean.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Waste Handling & Disposal SC-34

- Inspect solid waste containers for structural damage regularly. Repair or replace damaged containers as necessary.
- Secure solid waste containers; containers must be closed tightly when not in use.
- Do not fill waste containers with washout water or any other liquid.
- Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc., may not be disposed of in solid waste containers (see chemical/ hazardous waste collection section below).
- Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal. Affix labels to all waste containers.

Chemical/Hazardous Wastes

- Select designated hazardous waste collection areas on-site.
- Store hazardous materials and wastes in covered containers and protect them from vandalism.
- Place hazardous waste containers in secondary containment.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Hazardous waste cannot be reused or recycled; it must be disposed of by a licensed hazardous waste hauler.

Employee Training Program

- Educate employees about pollution prevention measures and goals.
- Train employees how to properly handle and dispose of waste using the source control BMPs described above.
- Train employees and subcontractors in proper hazardous waste management.
- Use a training log or similar method to document training.
- Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.

Quality Assurance and Record Keeping

- Keep accurate maintenance logs that document minimum BMP activities performed for waste handling and disposal, types and quantities of waste disposed of, and any improvement actions.
- Keep accurate logs of spill response actions that document what was spilled, how it was cleaned up, and how the waste was disposed.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Waste Handling & Disposal SC-34

- Establish procedures to complete logs and file them in the central office.

Potential Capital Facility Costs and Operation & Maintenance Requirements

Facilities

- Capital costs will vary substantially depending on the size of the facility and the types of waste handled. Significant capital costs may be associated with reducing wastes by modifying processes or implementing closed-loop recycling.
- Many facilities will already have indoor covered areas where waste materials will be stored and will require no additional capital expenditures for providing cover.
- If outdoor storage of wastes is required, construction of berms or other means to prevent stormwater run-on and runoff may require appropriate constructed systems for containment.
- Capital investments will likely be required at some sites if adequate cover and containment facilities do not exist and can vary significantly depending upon site conditions.

Maintenance

- Check waste containers weekly for leaks and to ensure that lids are on tightly. Replace any that are leaking, corroded, or otherwise deteriorating.
- Sweep and clean the waste management area regularly. Use dry methods when possible (e.g., sweeping, use of absorbents) when cleaning around restaurant/food handling dumpster areas. If water must be used after sweeping/using absorbents, collect water and discharge through grease interceptor to the sewer.
- Inspect and replace faulty pumps or hoses regularly to minimize the potential of releases and spills.
- Repair leaking equipment including valves, lines, seals, or pumps promptly.

References and Resources

Minnesota Pollution Control Agency, *Industrial Stormwater Best Management Practices Guidebook*. Available online at: http://www.pca.state.mn.us/index.php/view-document.html?gid=10557.

New Jersey Department of Environmental Protection, 2013. *Basic Industrial Stormwater General Permit Guidance Document NJPDES General Permit No NJ0088315,* Revised. Available online at: http://www.nj.gov/dep/dwq/pdf/5G2_guidance_color.pdf.

Orange County Stormwater Program, Best Management Practices for Industrial/Commercial Business Activities. Available online at: http://ocwatersheds.com/documents/bmp/industrialcommercialbusinessesactivities

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Waste Handling & Disposal SC-34

Oregon Department of Environmental Quality, 2013. *Industrial Stormwater Best Management Practices Manual- BMP 26 Fueling and Liquid Loading/Unloading Operations*. Available online at: http://www.deq.state.or.us/wq/wqpermit/docs/IndBMP021413.pdf.

Sacramento Stormwater Management Program. *Best Management Practices for Industrial Storm Water Pollution Control*. Available online at: http://www.msa.saccounty.net/sactostormwater/documents/guides/industrial-BMP-manual.pdf.

Sacramento County Environmental Management Stormwater Program: Best Management Practices. Available online at: http://www.emd.saccounty.net/EnvHealth/Stormwater/Stormwater-BMPs.html.

Santa Clara Valley Urban Runoff Pollution Prevention Program. http://www.scvurppp-w2k.com/

US EPA. National Pollutant Discharge Elimination System – Industrial Fact Sheet Series for Activities Covered by EPA's Multi Sector General Permit. Available online at: http://cfpub.epa.gov/npdes/stormwater/swsectors.cfm.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Safer Alternative Products SC-35

Description

Promote the use of less harmful products and products that contain little or no TMDL and 303(d) list pollutants. Alternatives exist for most product classes including chemical fertilizers, pesticides, cleaning solutions, janitorial chemicals, automotive and paint products, and consumables (batteries, fluorescent lamps).

Approach

Pattern a new program after the many established programs around the state and country. Integrate this best management practice as much as possible with existing programs at your facility.

Develop a comprehensive program based on:

- The "Precautionary Principle," which is an alternative to the "Risk Assessment" model that says it's acceptable to use a potentially harmful product until physical evidence of its harmful effects are established and deemed too costly from an environmental or public health perspective. For instance, a risk assessment approach might say it's acceptable to use a pesticide until there is direct proof of an environmental impact. The Precautionary Principle approach is used to evaluate whether a given product is safe, whether it is really necessary, and whether alternative products would perform just as well.
- Environmentally Preferable Purchasing Program to minimize the purchase of products containing hazardous ingredients used in the facility's custodial services, fleet maintenance, and facility maintenance in favor of using alternate products that pose less risk to employees and to the environment.
- Integrated Pest Management (IPM) or Less-Toxic Pesticide Program, which uses a pest management approach that minimizes the use of toxic chemicals and gets rid of pests

Objectives
■ *Educate*
■ *Reduce/Minimize*
■ *Product Substitution*

Targeted Constituents	
Sediment	
Nutrients	✓
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Minimum BMPs Covered	
Good Housekeeping	
Preventative Maintenance	
Spill and Leak Prevention and Response	
Material Handling & Waste Management	
Erosion and Sediment Controls	
Employee Training Program	✓
Quality Assurance Record Keeping	

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION®

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Safer Alternative Products SC-35

by methods that pose a lower risk to employees, the public, and the environment.

- Energy Efficiency Program including no-cost and low-cost energy conservation and efficiency actions that can reduce both energy consumption and electricity bills, along with long-term energy efficiency investments.

Consider the following mechanisms for developing and implementing a comprehensive program:

- Policies
- Procedures
  - ✓ Standard operating procedures (SOPs);
  - ✓ Purchasing guidelines and procedures; and
  - ✓ Bid packages (services and supplies).
- Materials
  - ✓ Preferred or approved product and supplier lists;
  - ✓ Product and supplier evaluation criteria;
  - ✓ Training sessions and manuals; and
  - ✓ Fact sheets for employees.

Implement this BMP in conjunction with the Vehicle and Equipment Management fact sheets (SC-20 – SC-22) and SC-41 Building and Grounds Maintenance.

Employee Training Program

- Employees who handle potentially harmful materials should be trained in the use of safer alternatives.
- Purchasing departments should be trained on safer alternative products and encouraged to procure less hazardous materials and products that contain little or no harmful substances or TMDL pollutants.
- Employees and contractors / service providers can both be educated about safer alternatives by using information developed by a number of organizations including the references and resources provided in this fact sheet.

Potential Limitations and Work-Arounds

Some facilities may have space constraints, limited staffing and time limitations that may preclude implementation of BMPs. Provided below are typical limitations and recommended "work-arounds"

- Alternative products may not be available, suitable, or effective in every case.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Safer Alternative Products SC-35

- ✓ Minimize use of hazardous/harmful products if no alternative product is available.

Regulatory Considerations

This BMP has no regulatory requirements unless local/municipal ordinance applies. Existing regulations already encourage facilities to reduce the use of hazardous materials through incentives such as reduced:

- Specialized equipment storage and handling requirements;
- Storm water runoff sampling requirements;
- Training and licensing requirements; and
- Record keeping and reporting requirements.

Cost Considerations

- The primary cost is for staff time to: 1) develop new policies and procedures and 2) educate purchasing departments and employees who handle potentially harmful materials about the availability, procurement, and use of safer alternatives.
- Some alternative products may be slightly more expensive than conventional products.

Supplemental Information

The following discussion provides some general information on safer alternatives. More specific information on particular hazardous materials and the available alternatives may be found in the references and resources listed below.

- Automotive products – Less toxic alternatives are not available for many automotive products, especially engine fluids. But there are alternatives to grease lubricants, car polishes, degreasers, and windshield washer solution. Refined motor oil is also available.
- Vehicle/Trailer lubrication – Fifth wheel bearings on trucks require routine lubrication. Adhesive lubricants are available to replace typical chassis grease.
- Cleaners – Vegetables-based or citrus-based soaps are available to replace petroleum-based soaps/detergents.
- Paint products – Water-based paints, wood preservatives, stains, and finishes with low VOC content are available.
- Pesticides – Specific alternative products or methods exist to control most insects, fungi, and weeds.
- Chemical Fertilizers – Compost and soil amendments are natural alternatives.
- Consumables – Manufacturers have either reduced or are in the process of reducing the amount of heavy metals in consumables such as batteries and fluorescent lamps.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Safer Alternative Products SC-35

All fluorescent lamps contain mercury, however low-mercury containing lamps are now available from most hardware and lighting stores. Fluorescent lamps are also more energy efficient than the average incandescent lamp.

- Janitorial chemicals – Even biodegradable soap can harm fish and wildlife before it biodegrades. Biodegradable does not mean non-toxic. Safer products and procedures are available for floor stripping and cleaning, as well as carpet, glass, metal, and restroom cleaning and disinfecting. Use paper products with post-consumer recycled content and implement electric had dryers.

Examples

There are a number of business and trade associations, and communities with effective programs. Some of the more prominent are listed below in the references and resources section.

References and Resources

Note: Many of these references provide alternative products for materials that typically are used inside and disposed to the sanitary sewer as well as alternatives to products that usually end up in the storm drain.

General Sustainable Practices and Pollution Prevention Including Pollutant-Specific Information

California Department of Toxic Substances Control, http://www.dtsc.ca.gov/PollutionPrevention/GreenTechnology/Index.cfm.

CalRecycle, http://www.calrecycle.ca.gov/Business/Regulated.htm.

City of Santa Monica Office of Sustainability and Environment, http://www.smgov.net/departments/ose/.

City of Palo Alto, http:// www.city.palo-alto.ca.us/cleanbay.

City and County of San Francisco, Department of the Environment, http://www.sfenvironment.org/toxics-health/greener-business-practices.

Green Business Program, http://www.greenbiz.ca.gov/GRlocal.html .

Product Stewardship Institute, http://www.productstewardship.us/index.cfm.

Sacramento Clean Water Business Partners. http://www.sacstormwater.org/CleanWaterBusinessPartners/CleanWaterBusinessPartners.html.

USEPA. National Pollutant Discharge Elimination System (NPDES) Stormwater Discharges From Industrial Facilities, http://cfpub.epa.gov/npdes/stormwater/indust.cfm.

USEPA Region IX Pollution Prevention Program, http://www.epa.gov/region9/waste/p2/business.html.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Safer Alternative Products SC-35

Western Sustainability and Pollution Prevention Network, http://wsppn.org/.

Metals (mercury, copper)

National Electrical Manufacturers Association – Environmental Stewardship, http://www.nema.org/Policy/Environmental-Stewardship/pages/default.aspx.

Sustainable Conservation, http://www.suscon.org.

Auto Recycling Project

Brake Pad Partnership

Pesticides and Chemical Fertilizers

Bio-Integral Resource Center, http://www.birc.org.

California Department of Pesticide Regulation, http://www.cdpr.ca.gov/dprprograms.htm.

University of California Statewide IPM Program, http://www.ipm.ucdavis.edu/default.html.

Dioxins

Bay Area Dioxins Project, http://www.abag.ca.gov/bayarea/dioxin/project_materials.htm.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Parking Area Maintenance SC-43

Description

Parking lots can contribute a number of substances, such as trash, suspended solids, hydrocarbons, oil and grease, and heavy metals that can enter receiving waters through stormwater runoff or non-stormwater discharges. The protocols in this fact sheet are intended to prevent or reduce the discharge of pollutants from parking areas and include using good housekeeping practices, following appropriate cleaning BMPs, and training employees.

BMPs for other outdoor areas on site (loading/unloading, material storage, and equipment operations) are described in SC-30 through SC-33.

Approach

The goal of this program is to ensure stormwater pollution prevention practices are considered when conducting activities on or around parking areas to reduce potential for pollutant discharge to receiving waters. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

General Pollution Prevention Protocols

- ☐ Encourage advanced designs and maintenance strategies for impervious parking lots. Refer to the treatment control BMP fact sheets in this manual for additional information.
- ☐ Keep accurate maintenance logs to evaluate BMP implementation.

Good Housekeeping

- ☐ Keep all parking areas clean and orderly. Remove debris, litter, and sediments in a timely fashion.
- ☐ Post "No Littering" signs and enforce anti-litter laws.

Objectives
■ *Cover*
■ *Contain*
■ *Educate*
■ *Reduce/Minimize*
■ *Product Substitution*

Targeted Constituents	
Sediment	✓
Nutrients	
Trash	✓
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Minimum BMPs Covered	
Good Housekeeping	✓
Preventative Maintenance	✓
Spill and Leak Prevention and Response	✓
Material Handling & Waste Management	
Erosion and Sediment Controls	
Employee Training Program	✓
Quality Assurance Record Keeping	✓

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION®

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Parking Area Maintenance SC-43

- ☐ Provide an adequate number of litter receptacles.
- ☐ Clean out and cover litter receptacles frequently to prevent spillage.

Preventative Maintenance

Inspection

Have designated personnel conduct inspections of parking facilities and stormwater conveyance systems associated with parking facilities on a regular basis.

- ☐ Inspect cleaning equipment/sweepers for leaks on a regular basis.

Surface Cleaning

- ☐ Use dry cleaning methods (e.g., sweeping, vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system if possible.
- ☐ Establish frequency of public parking lot sweeping based on usage and field observations of waste accumulation.
- ☐ Sweep all parking lots at least once before the onset of the wet season.
- ☐ Dispose of parking lot sweeping debris and dirt at a landfill.
- ☐ Follow the procedures below if water is used to clean surfaces:
  - ✓ Block the storm drain or contain runoff.
  - ✓ Collect and pump wash water to the sanitary sewer or discharge to a pervious surface. Do not allow wash water to enter storm drains.
- ☐ Follow the procedures below when cleaning heavy oily deposits:
  - ✓ Clean oily spots with absorbent materials.
  - ✓ Use a screen or filter fabric over inlet, then wash surfaces.
  - ✓ Do not allow discharges to the storm drain.
  - ✓ Vacuum/pump discharges to a tank or discharge to sanitary sewer.
  - ✓ Dispose of spilled materials and absorbents appropriately.

Surface Repair

- ☐ Check local ordinance for SUSMP/LID ordinance.
- ☐ Preheat, transfer or load hot bituminous material away from storm drain inlets.
- ☐ Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff.
- ☐ Cover and seal nearby storm drain inlets where applicable (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Parking Area Maintenance SC-43

place until job is complete and all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal.

- Use only as much water as necessary for dust control during sweeping to avoid runoff.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Spill Response and Prevention Procedures

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Place a stockpile of spill cleanup materials where it will be readily accessible or at a central location.
- Clean up fluid spills immediately with absorbent rags or material.
- Dispose of spilled material and absorbents properly.

Employee Training Program

- Provide regular training to field employees and/or contractors regarding cleaning of paved areas and proper operation of equipment.
- Train employees and contractors in proper techniques for spill containment and cleanup.
- Use a training log or similar method to document training.

Quality Assurance and Record Keeping

- Keep accurate maintenance logs that document minimum BMP activities performed for parking area maintenance, types and quantities of waste disposed of, and any improvement actions.
- Keep accurate logs of spill response actions that document what was spilled, how it was cleaned up, and how the waste was disposed.
- Establish procedures to complete logs and file them in the central office.

Potential Capital Facility Costs and Operation & Maintenance Requirements

Facilities

- Capital investments may be required at some sites to purchase sweeping equipment, train sweeper operators, install oil/water/sand separators, or implement advanced BMPs. These costs can vary significantly depending upon site conditions and the amount of BMPs required.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Parking Area Maintenance SC-43

Maintenance

- Sweep and clean parking lots regularly to minimize pollutant transport into storm drains from stormwater runoff.
- Clean out oil/water/sand separators regularly, especially after heavy storms.
- Maintain advanced BMPs such as vegetated swales, infiltration trenches, or detention basins as appropriate. Refer to the treatment control fact sheets for more information.

Supplemental Information

Advanced BMPs

Some parking areas may require advanced BMPs to further reduce pollutants in stormwater runoff, and a few examples are listed below. Refer to the Treatment Control Fact Sheets and the New Development and Redevelopment Manual for more information.

- When possible, direct sheet runoff to flow into biofilters (vegetated strip and swale) and/or infiltration devices.
- Utilize sand filters or oleophilic collectors for oily waste in low quantities.
- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.

References and Resources

City of Seattle, Seattle Public Utilities Department of Planning and Development, 2009. *Stormwater Manual Vol. 1 Source Control Technical Requirements Manual.*

California Stormwater Quality Association, 2003. *New Development and Redevelopment Stormwater Best Management Practice Handbook*. Available online at: https://www.casqa.org/resources/bmp-handbooks/new-development-redevelopment-bmp-handbook.

Kennedy/Jenks Consultants, 2007. *The Truckee Meadows Industrial and Commercial Storm Water Best Management Practices Handbook*. Available online at: http://www.cityofsparks.us/sites/default/files/assets/documents/env-control/construction/TM-I-C_BMP_Handbook_2-07-final.pdf.

Orange County Stormwater Program, Best Management Practices for Industrial/Commercial Business Activities. Available online at: http://ocwatersheds.com/documents/bmp/industrialcommercialbusinessesactivities.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Parking Area Maintenance SC-43

Pollution from Surface Cleaning Folder, 1996, 2003. Bay Area Stormwater Management Agencies Association. Available online at: http://basmaa.org/Portals/0/documents/pdf/Pollution%20from%20Surface%20Cleaning.pdf.

Sacramento Stormwater Management Program. *Best Management Practices for Industrial Storm Water Pollution Control*. Available online at: http://www.msa.saccounty.net/sactostormwater/documents/guides/industrial-BMP-manual.pdf.

The Storm Water Managers Resource Center, http://www.stormwatercenter.net.

US EPA. *Post-Construction Stormwater Management in New Development and Redevelopment*. BMP Fact Sheets. Available online at: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=min_measure&min_measure_id=5.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Drainage System Maintenance SC-44

Description

As a consequence of its function, the stormwater drainage facilities on site convey stormwater that may contain certain pollutants either to the offsite conveyance system that collects and transports urban runoff and stormwater, or directly to receiving waters. The protocols in this fact sheet are intended to reduce pollutants leaving the site to the offsite drainage infrastructure or to receiving waters through proper on-site conveyance system operation and maintenance. The targeted constituents will vary depending on site characteristics and operations.

Approach

Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

General Pollution Prevention Protocols

- ☐ Maintain catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis to remove pollutants, reduce high pollutant concentrations during the first flush of storms, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.
- ☐ Develop and follow a site specific drainage system maintenance plan that describes maintenance locations, methods, required equipment, water sources, sediment collection areas, disposal requirements, and any other pertinent information.

Good Housekeeping

Illicit Connections and Discharges

- ☐ Look for evidence of illegal discharges or illicit connections during routine maintenance of conveyance system and drainage structures:

Objectives
■ *Cover*
■ *Contain*
■ *Educate*
■ *Reduce/Minimize*

Targeted Constituents	
Sediment	✓
Nutrients	✓
Trash	✓
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

Minimum BMPs Covered	
Good Housekeeping	✓
Preventative Maintenance	✓
Spill and Leak Prevention and Response	✓
Material Handling & Waste Management	
Erosion and Sediment Controls	
Employee Training Program	✓
Quality Assurance Record Keeping	✓

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION®

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Drainage System Maintenance SC-44

- ✓ Identify evidence of spills such as paints, discoloring, odors, etc.
- ✓ Record locations of apparent illegal discharges/illicit connections.
- ✓ Track flows back to potential discharges and conduct aboveground inspections. This can be done through visual inspection of upgradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
- ✓ Eliminate the discharge once the origin of flow is established.

- ☐ Stencil or demarcate storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" or similar stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- ☐ Refer to fact sheet SC-10 Non-Stormwater Discharges for additional information.

Illegal Dumping

- ☐ Inspect and clean up hot spots and other storm drainage areas regularly where illegal dumping and disposal occurs.
- ☐ Establish a system for tracking incidents. The system should be designed to identify the following:
  - ✓ Illegal dumping hot spots;
  - ✓ Types and quantities (in some cases) of wastes;
  - ✓ Patterns in time of occurrence (time of day/night, month, or year);
  - ✓ Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills); and
  - ✓ Responsible parties.
- ☐ Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- ☐ Refer to fact sheet SC-10 Non-Stormwater Discharges for additional information.

Preventative Maintenance

Catch Basins/Inlet Structures

- ☐ Staff should regularly inspect facilities to ensure compliance with the following:
  - ✓ Immediate repair of any deterioration threatening structural integrity.
  - ✓ Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Drainage System Maintenance SC-44

- Clean catch basins, storm drain inlets, and other conveyance structures before the wet season to remove sediments and debris accumulated during the summer.
- Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Prioritize storm drain inlets; clean and repair as needed.
- Keep accurate logs of the number of catch basins cleaned.
- Store wastes collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes if necessary with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not allowed, water should be pumped or vacuumed to a tank and properly disposed. Do not dewater near a storm drain or stream.

Storm Drain Conveyance System

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Collect and pump flushed effluent to the sanitary sewer for treatment whenever possible.

Pump Stations

- Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- Do not allow discharge to reach the storm drain system when cleaning a storm drain pump station or other facility.
- Conduct routine maintenance at each pump station.
- Inspect, clean, and repair as necessary all outlet structures prior to the wet season.

Open Channel

- Modify storm channel characteristics to improve channel hydraulics, increase pollutant removals, and enhance channel/creek aesthetic and habitat value.
- Conduct channel modification/improvement in accordance with existing laws. Any person, government agency, or public utility proposing an activity that will change the natural state of any river, stream, or lake in California, must enter into a Steam or Lake Alteration Agreement with the Department of Fish and Wildlife. The developer-applicant should also contact local governments (city, county, special districts), other state agencies (SWRCB, RWQCB, Department of Forestry, Department of Water Resources), and Army Corps of Engineers and USFWS.

Spill Response and Prevention Procedures

- Keep your spill prevention control plan up-to-date.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Drainage System Maintenance SC-44

- Investigate all reports of spills, leaks, and/or illegal dumping promptly.
- Place a stockpile of spill cleanup materials where it will be readily accessible or at a central location.
- Clean up all spills and leaks using "dry" methods (with absorbent materials and/or rags) or dig up, remove, and properly dispose of contaminated soil.

Employee Training Program

- Educate employees about pollution prevention measures and goals.
- Train employees how to properly handle and dispose of waste using the source control BMPs described above.
- Train employees and subcontractors in proper hazardous waste management.
- Use a training log or similar method to document training.
- Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
- Have staff involved in detection and removal of illicit connections trained in the following:
  - ✓ OSHA-required Health and Safety Training (29 CFR 1910.120) plus annual refresher training (as needed).
  - ✓ OSHA Confined Space Entry training (Cal-OSHA Confined Space, Title 8 and Federal OSHA 29 CFR 1910.146).
  - ✓ Procedural training (field screening, sampling, smoke/dye testing, TV inspection).

Quality Assurance and Record Keeping

- Keep accurate maintenance logs that document minimum BMP activities performed for drainage system maintenance, types and quantities of waste disposed of, and any improvement actions.
- Keep accurate logs of spill response actions that document what was spilled, how it was cleaned up, and how the waste was disposed.
- Keep accurate logs of illicit connections, illicit discharges, and illegal dumping into the storm drain system including how wastes were cleaned up and disposed.
- Establish procedures to complete logs and file them in the central office.

Potential Limitations and Work-Arounds

Provided below are typical limitations and recommended "work-arounds" for drainage system maintenance:

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Drainage System Maintenance SC-44

- Clean-up activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.

  ✓ Perform all maintenance onsite and do not flush accumulated material downstream to private property or riparian habitats.

- Storm drain flushing is most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity). Other considerations associated with storm drain flushing may include the availability of a water source, finding a downstream area to collect sediments, and liquid/sediment disposal.

  ✓ Develop and follow a site specific drainage system maintenance plan that describes maintenance locations, methods, required equipment, water sources, sediment collection areas, disposal requirements, and any other pertinent information.

- Regulations may include adoption of substantial penalties for illegal dumping and disposal.

  ✓ Do not dump illegal materials anywhere onsite.

  ✓ Identify illicit connections, illicit discharge, and illegal dumping.

  ✓ Cleanup spills immediately and properly dispose of wastes.

- Local municipal codes may include sections prohibiting discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the sanitary sewer system.

  ✓ Collect all materials and pollutants accumulated in drainage system and dispose of according to local regulations.

  ✓ Install debris excluders in areas with a trash TMDL.

Potential Capital Facility Costs and Operation & Maintenance Requirements

Facilities

- Capital costs will vary substantially depending on the size of the facility and characteristics of the drainage system. Significant capital costs may be associated with purchasing water trucks, vacuum trucks, and any other necessary cleaning equipment or improving the drainage infrastructure to reduce the potential .

- Developing and implementing a site specific drainage system maintenance plan will require additional capital if a similar program is not already in place.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Drainage System Maintenance SC-44

Maintenance

- Two-person teams may be required to clean catch basins with vactor trucks.
- Teams of at least two people plus administrative personnel are required to identify illicit discharges, depending on the complexity of the storm sewer system.
- Arrangements must be made for proper disposal of collected wastes.
- Technical staff are required to detect and investigate illegal dumping violations.
- Methods used for illicit connection detection (smoke testing, dye testing, visual inspection, and flow monitoring) can be costly and time-consuming. Site-specific factors, such as the level of impervious area, the density and ages of buildings, and type of land use will determine the level of investigation necessary.

Supplemental Information

Storm Drain Flushing

Flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in storm drainage systems. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as an open channel, another point where flushing will be initiated, or the sanitary sewer and the treatment facilities, thus preventing re-suspension and overflow of a portion of the solids during storm events. Flushing prevents "plug flow" discharges of concentrated pollutant loadings and sediments. Deposits can hinder the designed conveyance capacity of the storm drain system and potentially cause backwater conditions in severe cases of clogging.

Storm drain flushing usually takes place along segments of pipe with grades that are too flat to maintain adequate velocity to keep particles in suspension. An upstream manhole is selected to place an inflatable device that temporarily plugs the pipe. Further upstream, water is pumped into the line to create a flushing wave. When the upstream reach of pipe is sufficiently full to cause a flushing wave, the inflated device is rapidly deflated with the assistance of a vacuum pump, thereby releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce impacts of stormwater pollution, a second inflatable device placed well downstream may be used to recollect the water after the force of the flushing wave has dissipated. A pump may then be used to transfer the water and accumulated material to the sanitary sewer for treatment. In some cases, an interceptor structure may be more practical or required to recollect the flushed waters.

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet. At this maximum recommended length, the percent removal efficiency ranges between 65-75% for organics and 55-65% for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used if allowed or that fire hydrant line flushing coincide with storm sewer flushing.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

Drainage System Maintenance SC-44

References and Resources

City of Seattle, Seattle Public Utilities Department of Planning and Development, 2009. *Stormwater Manual Vol. 1 Source Control Technical Requirements Manual.*

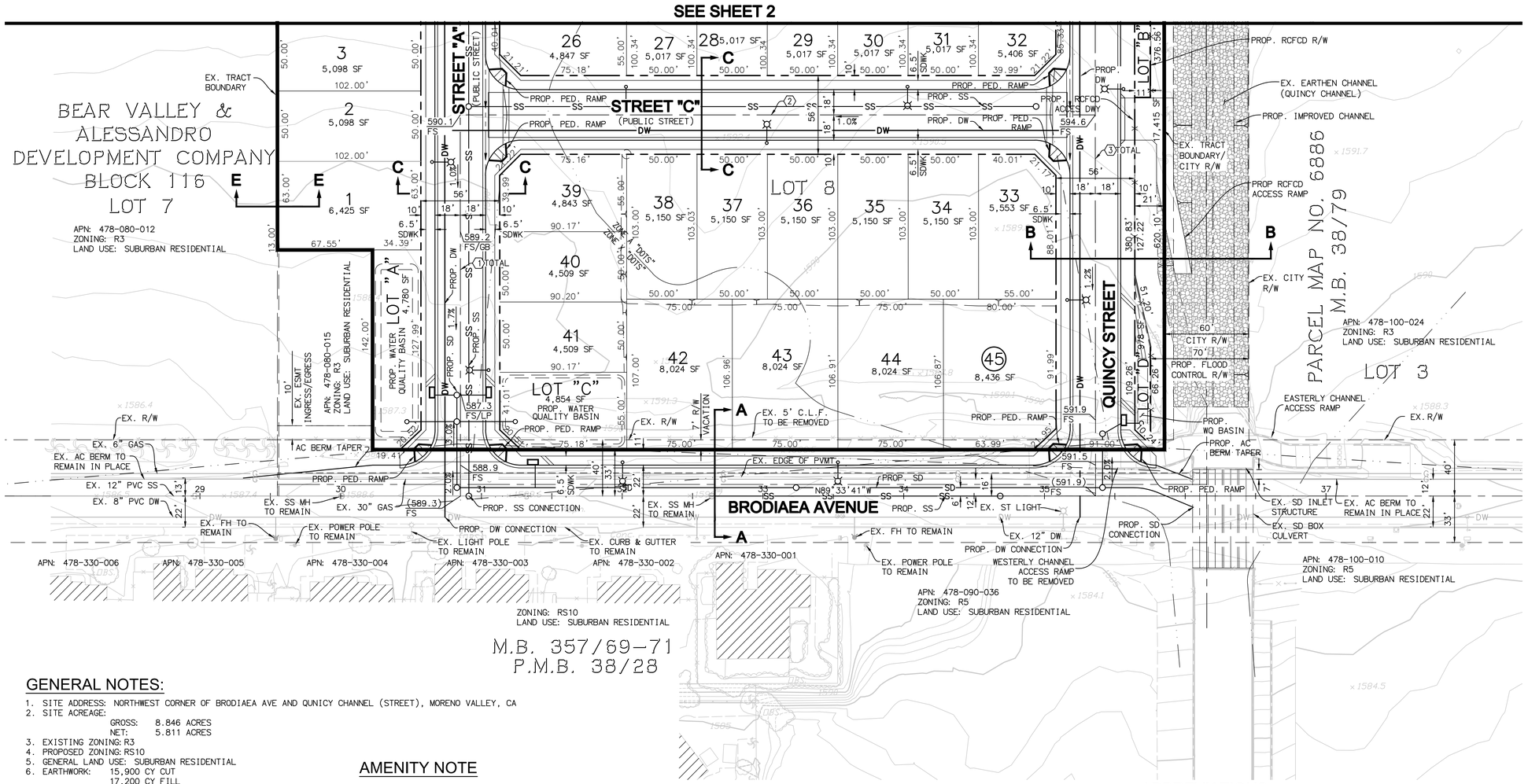
Knox County Tennessee *Stormwater Management Manual* Chapter 5 Drainage System Maintenance, 2008. Available online at: http://www.knoxcounty.org/stormwater/manual/Volume%201/knoxco_swmm_v1_chap5_jan2008.pdf.

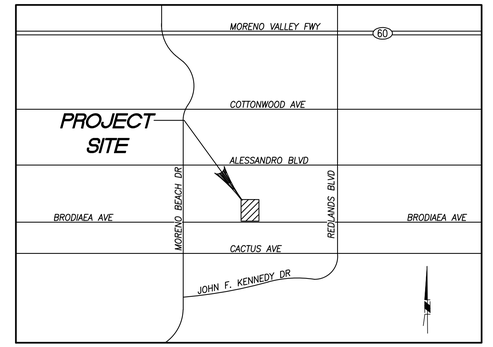
US EPA. Storm Drain System Cleaning, 2012. Available online at: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=102.

Attachment: WQMP MBI 4-24-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

TENTATIVE TRACT MAP 37544

APN: 478-080-014





VICINITY MAP

NOT TO SCALE

LOT SUMMARY:

SUBAREA LOT NUMBER	CONCEPT PLAN LAND USE	AREA ACREAGE
LOT 1	RESIDENTIAL	0.147
LOT 2	RESIDENTIAL	0.117
LOT 3	RESIDENTIAL	0.117
LOT 4	RESIDENTIAL	0.117
LOT 5	RESIDENTIAL	0.118
LOT 6	RESIDENTIAL	0.116
LOT 7	RESIDENTIAL	0.204
LOT 8	RESIDENTIAL	0.274
LOT 9	RESIDENTIAL	0.141
LOT 10	RESIDENTIAL	0.115
LOT 11	RESIDENTIAL	0.112
LOT 12	RESIDENTIAL	0.111
LOT 13	RESIDENTIAL	0.111
LOT 14	RESIDENTIAL	0.111
LOT 15	RESIDENTIAL	0.113
LOT 16	RESIDENTIAL	0.108
LOT 17	RESIDENTIAL	0.109
LOT 18	RESIDENTIAL	0.118
LOT 19	RESIDENTIAL	0.115
LOT 20	RESIDENTIAL	0.117
LOT 21	RESIDENTIAL	0.117
LOT 22	RESIDENTIAL	0.117
LOT 23	RESIDENTIAL	0.116
LOT 24	RESIDENTIAL	0.176
LOT 25	RESIDENTIAL	0.103
LOT 26	RESIDENTIAL	0.111
LOT 27	RESIDENTIAL	0.115
LOT 28	RESIDENTIAL	0.115
LOT 29	RESIDENTIAL	0.115
LOT 30	RESIDENTIAL	0.115
LOT 31	RESIDENTIAL	0.115
LOT 32	RESIDENTIAL	0.124
LOT 33	RESIDENTIAL	0.127
LOT 34	RESIDENTIAL	0.118
LOT 35	RESIDENTIAL	0.118
LOT 36	RESIDENTIAL	0.118
LOT 37	RESIDENTIAL	0.118
LOT 38	RESIDENTIAL	0.118
LOT 39	RESIDENTIAL	0.111
LOT 40	RESIDENTIAL	0.104
LOT 41	RESIDENTIAL	0.104
LOT 42	RESIDENTIAL	0.184
LOT 43	RESIDENTIAL	0.184
LOT 44	RESIDENTIAL	0.184
LOT 45	RESIDENTIAL	0.194
LOT A	OPEN SPACE	0.110
LOT B	OPEN SPACE	0.195
LOT C	OPEN SPACE	0.111
LOT D	OPEN SPACE	0.023
--	PROPOSED PUBLIC STREET	2.412
--	PROPOSED COUNTY CHANNEL	0.182
TOTAL		8.846

GENERAL NOTES:

1. SITE ADDRESS: NORTHWEST CORNER OF BRODIAEA AVE AND QUNICY CHANNEL (STREET), MORENO VALLEY, CA
2. SITE ACREAGE:
   GROSS: 8.846 ACRES
   NET: 5.811 ACRES
3. EXISTING ZONING: R3
4. PROPOSED ZONING: RS10
5. GENERAL LAND USE: SUBURBAN RESIDENTIAL
6. EARTHWORK: 15,900 CY CUT
   17,200 CY FILL
   1,300 CY IMPORT
7. TOPOGRAPHY SOURCE:
8. TOTAL STREET LENGTH: 2,081 L.F.
9. SCHOOL DISTRICT: MORENO VALLEY UNIFIED

AMENITY NOTE

THE PROJECT PROPOSES A LINEAR PARK AND WALKING TRAIL THAT WILL RUN THE ENTIRE LENGTH OF THE PROJECT ALONG QUINCY CHANNEL WITH AMENITIES TO INCLUDE: MEANDERING TRAIL, BENCHES, EXERCISE STATIONS, AND LANDSCAPE. TRAIL SHALL BE MAINTAINED BY THE CITY. AMENITIES AND LANDSCAPING WITHIN LOT "B" SHALL BE MAINTAINED BY THE HOA.

FLOOD ZONE NOTE

THE SUBJECT PROPERTY IS DESIGNATED AS FEMA ZONE A "DOTS": SPECIAL FLOOD ZONE HAZARD AREA (SFHA) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. NO BASE FLOOD ELEVATION DETERMINED.

AND FEMA FLOOD ZONE X "DOTS": OTHER FLOOD AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.

AS SHOWN ON:
FLOOD INSURANCE RATE MAP NO. 06065C0770G
COMMUNITY: CITY OF MORENO VALLEY
NUMBER: 065074
PANEL: 0770 OF 3805
DATE: AUGUST 28, 2008.

(SOURCE: https://msc.fema.gov)

LEGAL DESCRIPTION

PARCEL 1:

LOT 8 IN BLOCK 116 OF MAP NO. 1 OF BEAR VALLEY AND ALESSANDRO DEVELOPMENT COMPANY, AS SHOWN BY MAP ON FILE IN BOOK 11 PAGE(S) 10 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY, CALIFORNIA.

EXCEPT THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID LOT 8, SAID POINT BEING ON THE NORTHERLY LINE OF BRODIAEA STREET, AS SHOWN ON SAID MAP; THENCE EASTERLY ALONG THE SOUTHERLY LINE OF SAID LOT, 67.6 FEET; THENCE NORTHERLY AND PARALLEL WITH THE WESTERLY LINE OS SAID LOT, 135 FEET; THENCE WESTERLY AND PARALLEL WITH THE SOUTHERLY LINE OF SAID LOT, 67.6 FEET; THENCE SOUTHERLY ALONG THE WESTERLY LINE OF SAID LOT, 135 FEET TO THE POINT OF BEGINNING.

APN: 478-080-014

SYMBOLS LEGEND

- TOP/TOE OF SLOPE
- TRACT BOUNDARY
- EASEMENT
- CENTERLINE
- RETAINING WALL
- LINE OF SIGHT
- FLOOD ZONE LINE
- PROPOSED PROPERTY LINE
- RIGHT OF WAY
- EXISTING RIGHT OF WAY
- SLOPE
- SANITARY SEWER
- STORM DRAIN
- DOMESTIC WATER
- EXISTING STREET LIGHT
- CATCH BASIN
- FIRE HYDRANT
- SCE TRANSFORMER LOCATION.
- DOUBLE DETECTOR CHECK
- AC CONDENSER
- PROPOSED ST LIGHT

ABBREVIATIONS

AC	ASPHALT CONCRETE
℄	CENTER LINE
C.L.F.	CHAIN LINK FENCE
CONC.	CONCRETE
CY	CUBIC YARD
DW	DOMESTIC WATER
ESMT.	EASEMENT
EX.	EXISTING
FH	FIRE HYDRANT
MH	MANHOLE
MWS	MODULAR WETLAND SYSTEM
RCFCD	RIVERSIDE COUNTY FLOOD CONTROL DISTRICT
PED.	PEDESTRIAN
PVC	POLYVINYL CHLORIDE
PROP.	PROPOSED
PVMT.	PAVEMENT
R/W	RIGHT OF WAY
SCE	SOUTHERN CALIFORNIA EDISON
SD	STORM DRAIN
SDWK	SIDEWALK
SF	SQUARE FEET
SS	SANITARY SEWER
WQ	WATER QUALITY

LINE/CURVE DATA TABLE

	℄	BEARING/DELTA	RADIUS	LENGTH	TANGENT
TOTAL	1	N00°24'18"E	--	398.03'	--
	2	N89°33'41"W	--	456.00'	--
TOTAL	3	N00°24'18"E	--	525.07'	--

40 20 0 40 80 120

SCALE: 1"=40'

DIGALERT

DIAL TOLL FREE 1-800-227-2600

AT LEAST TWO DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE PLOTTED FROM CITY RECORDS. NO ADDITIONAL UTILITY OR SUBSTRUCTURE RESEARCH HAS BEEN PERFORMED. THE CONTRACTOR SHALL DETERMINE THE EXISTENCE AND THE TRUE HORIZONTAL AND VERTICAL LOCATION AND SIZE OF ANY UNDERGROUND UTILITIES OR STRUCTURES AND SHALL BE RESPONSIBLE FOR PROTECTION, ADJUSTMENT, OR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR NOTIFYING U.S.A./DIG ALERT AT 1-800-227-2600 FOR UNDERGROUND UTILITY MARKING AT LEAST 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION. CONSTRUCTION SHALL NOT COMMENCE PRIOR TO SAID UNDERGROUND UTILITY MARKING.

REGISTERED PROFESSIONAL ENGINEER JARED BERNARD No. 77740 CIVIL STATE OF CALIFORNIA

Michael Baker INTERNATIONAL

5 Hutton Centre Drive, Suite 500, Santa Ana, CA 92707
Phone: (949) 472-3505 · MBAKERINTL.COM

REVISIONS			
N°	DATE	BY	DESCRIPTION

DEVELOPER:
FRONTIER ENTERPRISES

CONTACT: MELISSA VALLONE
2151 E. CONVENTION CENTER WAY
ONTARIO, CA
951-354-8040
MVALLONE@FRONTEIR-ENTERPRISE.COM

TENTATIVE TRACT MAP 37544

TRACT NO.

CITY CASE NO.

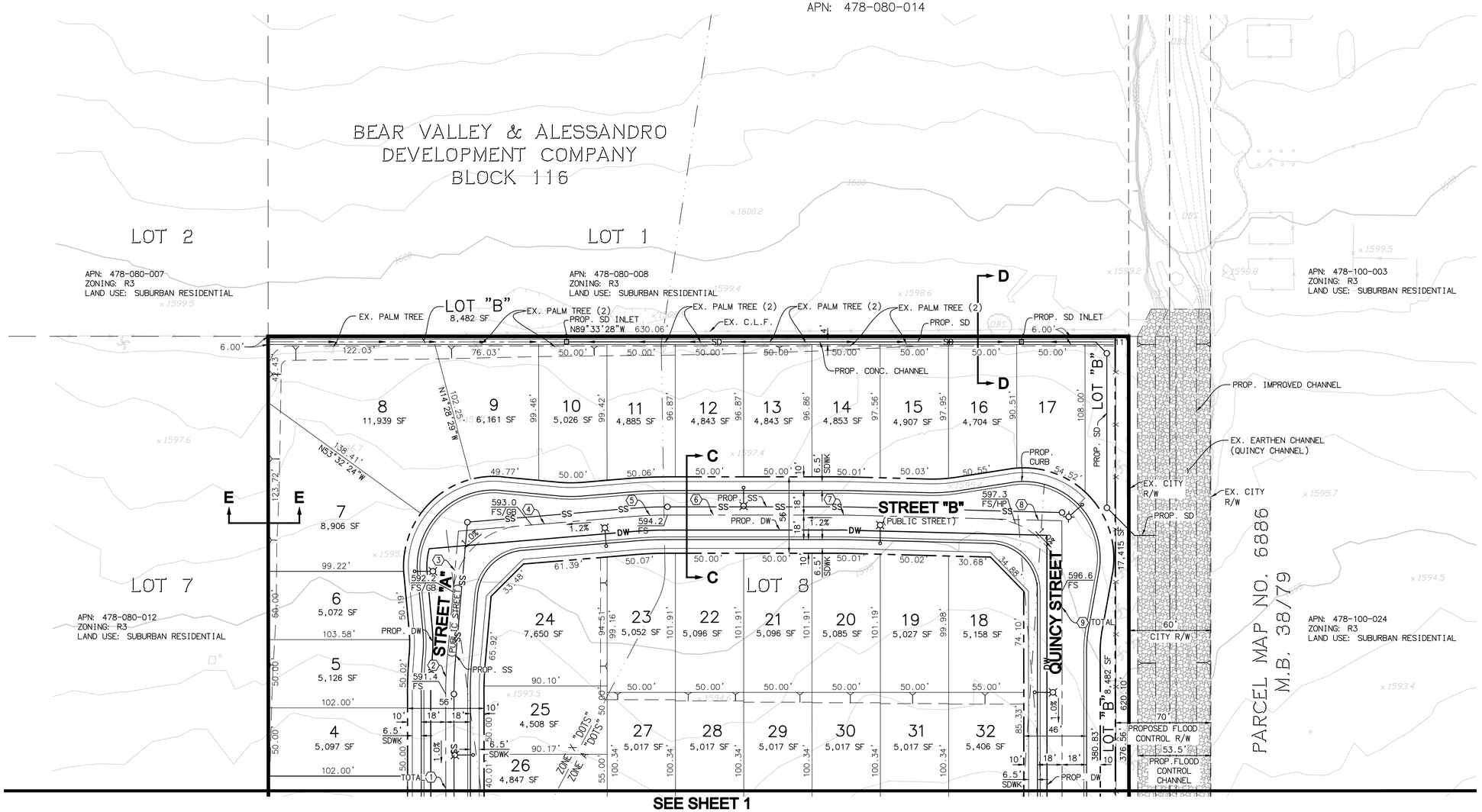
DATE: 09/12/18

SHEET 1 of 2

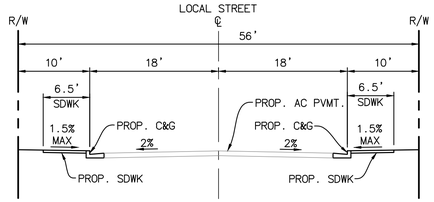
Attachment: TTM 37544 9-13-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)
H:\PDATA\161595\CADD\LAND\DLV\TTM\161595-TTM-01.DWG JARED.BERNARD 9/13/18 7:26 am

TENTATIVE TRACT MAP 37544

APN: 478-080-014



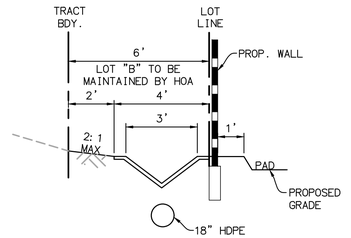
LINE/CURVE DATA					
	(N)	BEARING/DELTA	RADIUS	LENGTH	TANGENT
TOTAL	1	N00°24'18"E	---	398.03'	---
	2	05°02'22"	300.00'	26.39'	13.20'
	3	N05°26'40"E	---	93.40'	---
	4	N85°36'48"E	---	127.95'	---
	5	04°52'59"	300.00'	25.57'	12.79'
	6	N89°33'41"W	---	124.48'	---
	7	01°29'41"	300.00'	7.83'	3.91'
	8	N88°04'00"W	---	156.52'	---
TOTAL	9	N00°24'18"E	---	525.07'	---



NOTE: STREET DESIGN
PER STD. MVSI-107A

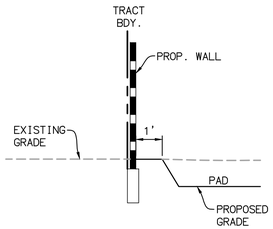
SECTION C-C

SCALE: 1"=10'



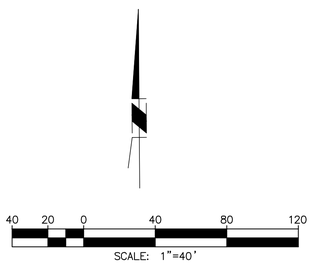
SECTION D-D

NOT TO SCALE

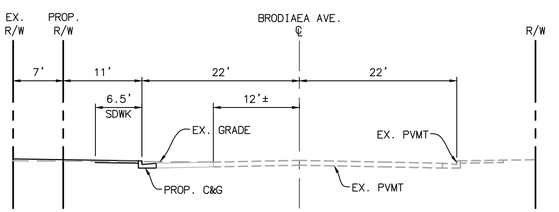


SECTION E-E

NOT TO SCALE



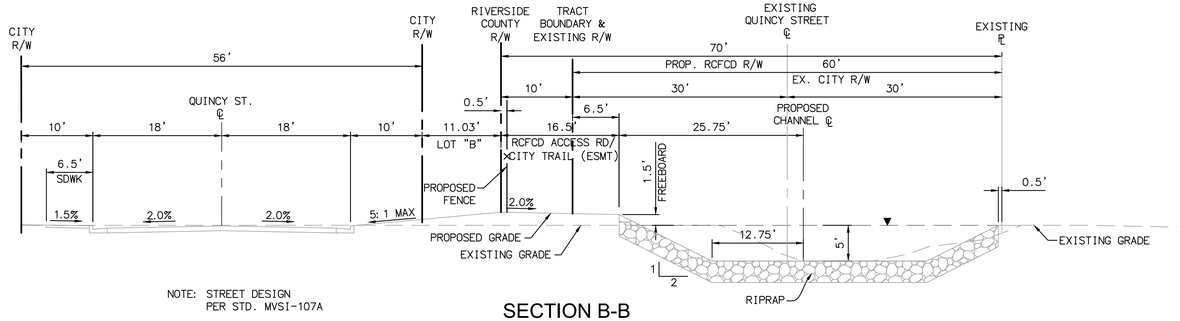
SCALE: 1"=40'



NOTE: STREET DESIGN
PER STD. MVSI-106B

SECTION A-A

SCALE: 1"=10'



NOTE: STREET DESIGN
PER STD. MVSI-107A

SECTION B-B

SCALE: 1"=10'

DIGALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE PLOTTED FROM CITY RECORDS. NO ADDITIONAL UTILITY OR SUBSTRUCTURE RESEARCH HAS BEEN PERFORMED. THE CONTRACTOR SHALL DETERMINE THE EXISTENCE AND THE TRUE HORIZONTAL AND VERTICAL LOCATION AND SIZE OF ANY UNDERGROUND UTILITIES OR STRUCTURES AND SHALL BE RESPONSIBLE FOR PROTECTION, ADJUSTMENT, OR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR NOTIFYING U.S.A./DIG ALERT AT 1-800-227-2600 FOR UNDERGROUND UTILITY MARKING AT LEAST 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION. CONSTRUCTION SHALL NOT COMMENCE PRIOR TO SAID UNDERGROUND UTILITY MARKING.

REGISTERED PROFESSIONAL ENGINEER
JARED BERNARD
No. 77740
CIVIL
STATE OF CALIFORNIA

Michael Baker
INTERNATIONAL
5 Hutton Centre Drive, Suite 500, Santa Ana, CA 92707
Phone: (949) 472-3505 · MBAKERINTL.COM

REVISIONS			
N°	DATE	BY	DESCRIPTION

DEVELOPER:
FRONTIER ENTERPRISES
CONTACT: MELISSA VALLONE
2151 E. CONVENTION CENTER WAY
ONTARIO, CA
951-354-8040
MVALLONE@FRONTEIR-ENTERPRISE.COM

TENTATIVE TRACT MAP 37544

TRACT NO.
CITY CASE NO.
DATE: 04/24/18
SHEET 2 of 2

Attachment: TTM 37544 9-13-18 (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)
H:\PDATA\161595\CADD\LAND\DLV\TTM\161595-TTM-02.DWG JARED.BERNARD 9/12/18 1:06 pm

This may affect your property

Notice of PUBLIC HEARING

Notice is hereby given that a Public Hearing will be held by the Planning Commission of the City of Moreno Valley on the following item(s):

PROJECT: Brodiaea Residential Project

PEN18-0092 Tentative Tract Map 37544
PEN18-0053 General Plan Amendment
PEN18-0054 Change of Zone

APPLICANT/OWNER: FH II, LLC.
REPRESENTATIVE: Melissa Vallone
A.P. No: 478-080-014
LOCATION: Northwest corner of Brodiaea Avenue and Quincy Street, easterly of Moreno Beach Drive

PROPOSAL: The Project consists of a proposed Tentative Tract Map (No. 37544) for the subdivision of 45 single-family residential units and associated improvements, including, but not limited to, improvements to Quincy Channel, streets and utility infrastructure on approximately 8.85 acres of land. The Project includes a General Plan Amendment to change the Land Use Designation from Residential 3 (maximum 3 units/acre) to Residential 10 (maximum 10 units/acre), and a Change of Zone to change the Zoning Designation from R3 (maximum 3 units/acre) to RS10 (maximum 10 units/acre). Approval of this Project will require adoption of a Mitigated Negative Declaration (MND).

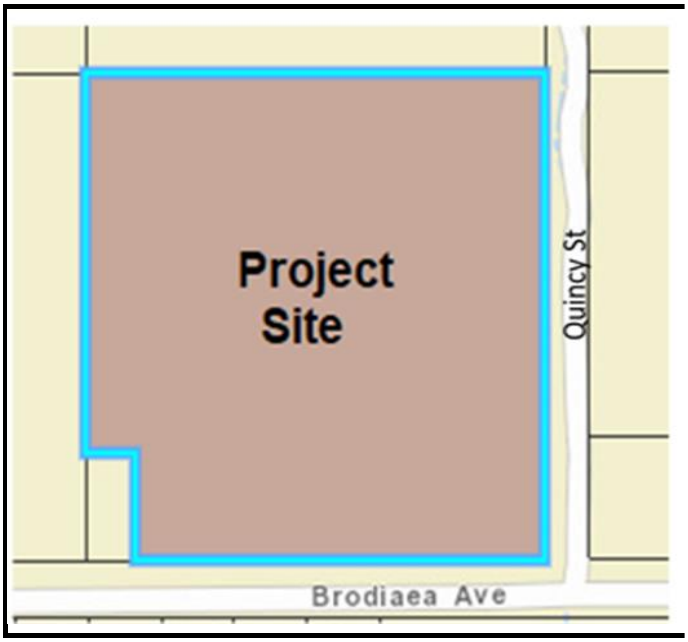
ENVIRONMENTAL DETERMINATION: Mitigated Negative Declaration (Circulated September 25, 2018 through October 24, 2018)

COUNCIL DISTRICT: 3

STAFF RECOMMENDATION: Approval

Any person interested in any listed proposal can contact the Community Development Department, Planning Division, at 14177 Frederick St., Moreno Valley, California, during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday and Fridays from 7:30 a.m. to 4:30 p.m.), or may telephone (951) 413-3206 for further information. The associated documents will be available for public inspection at the above address. In the case of Public Hearing items, any person may also appear and be heard in support of or opposition to the project or recommendation of adoption of the Environmental Determination at the time of the Hearing. The Planning Commission, at the Hearing or during deliberations, could approve changes or alternatives to the proposal.

The Planning Commission, at the Hearing or during deliberations, could approve changes or alternatives to the proposal. If you challenge any of these items in court, you may be limited to raising only those items you or someone else raised at the Public Hearing described in this notice, or in written correspondence delivered to the Planning Commission at, or prior to, the Public Hearing.



LOCATION **N**

PLANNING COMMISSION HEARING

City Council Chamber, City Hall
14177 Frederick Street
Moreno Valley, Calif. 92553

DATE AND TIME: October 25, 2018 at 7 PM
CONTACT PLANNER: Chris Ormsby
PHONE: (951) 413-3229

Upon request and in compliance with the Americans with Disabilities Act of 1990, any person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to Guy Pegan, ADA Coordinator, at 951.413.3120 at least 48 hours before the meeting. The 48-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

Attachment: 300-ft Public Hearing Notice (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)

POR. NW 1/4 SEC. 14, T.3S., R.3W.
POR. NE 1/4 SEC. 15

TRA 021-011
021-010

478-08
11-12

ALESSANDRO BLVD

N

2
07
9.10 AC ML

1
08
8.69 AC ML

ST

03
2.09 AC ML

4
02
6.58 AC ML

300'

300'

478-10

116

TRA
TRA

021-010
021-011

478-08

POR PAR 4

03
4.69 AC ML

04

05

12
9.40 AC

14
8.76 AC ML

QUINCY

PAR 1
22
3.76 AC GR

PAR 2
23
3.29 AC GR

LOT C
LOT E
LOT G

PAR 3
24
1.26 AC ML

PAR 4
25
1.10 AC ML

LOT B
LOT D
LOT F

LOT A

15

478-32

478-33

478-44

BRODIAEA

PEONY CIRCLE
LOT N

330

321

322

331

440

ANNADALE DRIVE
ANNALEIGH COURT
MARYKNOLL COURT
MORNINGSIDE DRIVE
ARBORGLENN DRIVE
ARBORGLENN DRIVE
QUINCY STREET
QUINCY CHANNEL
BOTTLEBRUSH WAY
LARKSONG WAY
LOT O

320

PAR 2
31
1.14 AC GR

PAR 4
19
2.18 AC ML

PAR 3
18
3.16 AC ML

PAR 1
26
2.94 AC NT

PAR 2
27
1.87 AC NT

PAR 1
20
1.20 AC ML

PAR 2
21
1.00 AC ML

PAR 1
24

PAR 2
25

PAR 3
28
1.81 AC NT

PAR 4
29
1.81 AC NT

ADSHAW CIRCLE
LOT B
LOT D
LOT C
LOT E

McCLOUD DR
LOT E
LOT D
LOT C
LOT F

LOT A
LOT A
LOT A
LOT B

TUS AVENUE

Date *	Old Number *	New Number *
2/1/1975	9	11,ST
10/1/1977	10	12-15
2/1/1978	8	16-19
12/1/1978	16	20-21
5/1/1979	14	22-23
10/1/1981	17	24-25
10/1/1981	6	26-29
2/1/1988	13	30-31
6/1/2004	2	32-33
6/1/2004	3,32	34
6/1/2004	1	35,36
6/1/2004	33,35	37
6/1/2004	34	PG 32
6/1/2004	37	PG 33
1/4/2018	35,100-10	38
1/4/2018	7,100-34	39
1/4/2018	38	PG 44
1/4/2018	39	PG 45

Bk 486 Pg 24 | Pg 08 | Pg 32 | Pg 33 | Bk 486 Pg 25 | Pg 45 | Bk 304 Pg 48 | Bk 304 Pg 04 | Bk 304 Pg 05 | Bk 304 Pg 06

Map Reference *
PM 53/35 PARCEL MAP NO. 11496
MB 11/10 - 0 S.B. BEAR VALLEY AND ALESSANDRO DEV. CO.
PM 36/96 PARCEL MAP NO 8115
PM 38/28 PARCEL MAP NO 8114
PM 55/84 PARCEL MAP NO 11822
PM 96/16 PARCEL MAP NO 16636
PM 96/57-58 PARCEL MAP NO. 17535
PM 148/33-34 PARCEL MAP NO. 22460

Feb 2018

Attachment: Radius Map for Noticing (3283 : Tentative Tract Map, General Plan Amendment and Change of Zone)