
PLANNING COMMISSIONERS

PATRICIA KORZEC
Chairperson

RAY L. BAKER
Vice Chairperson

JEFFREY SIMS
Commissioner



ALVIN DEJOHNETTE
Commissioner

JOANN STEPHAN
Commissioner

ROBERT HARRIS
Commissioner

RAFAEL BRUGUERAS
Commissioner

PLANNING COMMISSION

Regular Meeting

Agenda

Thursday, September 10, 2020 at 7:00 PM

TELECONFERENCED MEETING

[Pursuant to Governor Executive Order N-29-20]

There Will Not Be a Physical Location for Attending the Meeting

The Public May Observe the Meeting and Offer Public Comment As Follows:

STEP 1

Install the Free Zoom App or Visit the Free Zoom Website at [<https://zoom.us/>](https://zoom.us/)

STEP 2

Get Meeting ID Number and Password by emailing zoom@moval.org or calling (951) 413-3206, no later than 6:00 p.m. on Thursday, September 10, 2020

STEP 3

Select Audio Source

Computer Speakers/Microphone or Telephone

STEP 4

Public Comments May be Made Via Zoom

During the Meeting, the Planning Commission Chair Will Explain the Process for Submitting Public Comments

ALTERNATIVE

If you do not wish to make public comments, you can view the meeting on Channel MVTV-3, the City's website at www.moval.org or YouTube

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.

CALL TO ORDER

ROLL CALL

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

PUBLIC COMMENTS PROCEDURE

During the public comment period for each item, as well as during the public comment period for items not on the agenda, the clerk will call upon each person who is on the Zoom application that has requested to speak. Each member of the public wishing to speak will have a maximum of 3 minutes to speak on any agenda item, 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. Those wishing to speak should follow the teleconference procedures. If you are absent at the time your name is called, you will forfeit the opportunity to speak on the items.

PUBLIC COMMENTS ON ANY ITEM NOT ON THE AGENDA/CONSENT CALENDAR

All matters listed under Consent Calendar are considered to be routine and non-controversial, and may be enacted by one roll call vote. There will be no discussion of these items unless a member of the Planning Commission requests that an item be removed for separate action.

- 1. Planning Commission Minutes – Regular Meeting – August 13, 2020 7:00 PM

NON-PUBLIC HEARING ITEMS

No items for discussion.

PUBLIC HEARING ITEMS

- 1. Case: PEN20-0056 Conditional Use Permit
- Applicant: Moval Nourish
- Property Owner: Michelle Sidney
- Representative: Devon Julian
- Location: 24760 Sunnymead Boulevard Suites 100 and 101, on the north side of Sunnymead Boulevard between Indian Street and the east-bound State Route 60 off-ramp. (APN 481-082-005)
- Case Planner: Sean P. Kelleher
- Council District: 1

Proposal	Conditional Use Permit for a 2,650 square foot retail cannabis dispensary, "Moval Nourish" located within at 24760 Sunnymead Boulevard, Suites 100 and 101.
2.	
Case:	PEN19-0188 - TTM 37725
Applicant:	PI Properties No. 67 LLC
Property Owner	PI Properties No. 67 LLC
Representative	Thatcher Engineering & Associates, Inc
Location:	Southwest corner of Perris Boulevard and Krameria Street
Case Planner:	Julia Descoteaux
Council District:	4
Proposal	A Tentative Tract Map TTM 37725 to subdivide 20.18 acres of vacant land into sixty-six (66) residential lots and 2 lettered lots for water quality treatment facilities.

OTHER COMMISSION BUSINESS

No items for discussion.

STAFF COMMENTS

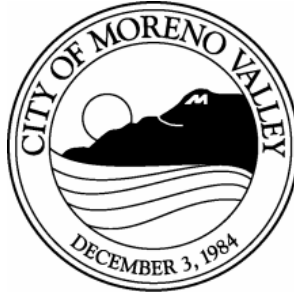
PLANNING COMMISSIONER COMMENTS

ADJOURNMENT

Planning Commission Regular Meeting, September 24, 2020 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

REGULAR MEETING – 7:00 PM
August 13, 2020



TELECONFERENCED MEETING
[Pursuant to Governor Executive Order N-29-20]

There Will Not Be a Physical Location for Attending the Meeting

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STEP 4

Public Comments May be Made Via Zoom

During the Meeting, the Mayor Will Explain the Process for Submitting Public Comments

ALTERNATIVE

If you do not wish to make public comments, you can view the meeting on Channel MVTV-3, the City's website at www.moval.org or YouTube

Minutes Acceptance: Minutes of Aug 13, 2020 7:00 PM (CONSENT CALENDAR)

CALL TO ORDER

This Regular meeting of the Planning Commission of the City of Moreno Valley was called to order at 7:00 p.m., by Chairperson Korzec in the Council Chambers located at 14177 Frederick Street, Moreno Valley, California.

ROLL CALL

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

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Commissioner Sims.

APPROVAL OF AGENDA

Motion to approve the agenda was made by Commissioner DeJohnette and seconded by Commissioner Harris.

Vote: 7-0

Ayes: Commissioner DeJohnette, Harris, Stephan, Brugueras, Sims, Vice Chairperson Baker and Chairperson Korzec

Action: **Approved**

PUBLIC COMMENTS PROCEDURE

PUBLIC COMMENTS

No public comments.

CONSENT CALENDAR

1. Planning Commission - Regular Meeting – July 23, 2020 7:00 PM

Motion to approve the Minutes of July 23, 2020 was made by Vice Chairperson Baker and seconded by Commissioner Brugueras.

Vote: 7-0

Ayes: Vice Chairperson Baker, Commissioner Brugueras, Stephan, Harris, DeJohnette, Sims and Chairperson Korzec

Action: **Approved**

NON-PUBLIC HEARING ITEMS

No items for discussion.

PUBLIC HEARING ITEMS

1. A revised Tentative Parcel Map 37478 and Amended Master Plot Plan to re-configure the approved PAMA Business Park/Alessandro Industrial Center to avoid crossing the California Aqueduct Easement. (Report of: Planning Commission)
 - A. APPROVE Resolution No. 2020-37, and thereby:
 1. ADOPT the Addendum to the previously approved Mitigated Negative Declaration for the PAMA project that has been prepared pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15162 as the current proposal does not include changes which will require major revisions of the previous environmental document due to identification of new or increased significant environmental effects; and
 - B. APPROVE Resolution No. 2020-29, and thereby:
 1. APPROVE Amended Tentative Parcel Map 37478 (Case No. PEN20-0037) subject to the Conditions of Approval, attached hereto as Exhibit A; and
 - C. APPROVE Resolution No. 2020-30, and thereby:
 1. APPROVE Amended Master Plot Plan (Case No. PEN20-0038) subject to the Conditions of Approval, attached hereto as Exhibit A.

Public Hearing Opened: 7:22 PM

No Public Speakers

Public Hearing Closed: 7: 25 PM

Motion to approve Resolution Numbers 2020-37, 2020-29, and 2020-30 was made by Commissioner Sims and seconded by Commissioner DeJohnette.

Vote: 7-0

Ayes: Commissioner Sims, DeJohnette, Brugueras, Stephan, Harris, Vice Chairperson Baker and Chairperson Korzec

Action: **Approved**

OTHER COMMISSION BUSINESS

No items for discussion.

STAFF COMMENTS

Sean P. Kelleher let the Commission know that both projects for Yum Yum Donuts are currently in the Plan Check process.

PLANNING COMMISSIONER COMMENTS

Commissioner Sims stated that he would like to see CalTrans address homeless issues along the freeways, onramps and off-ramps, particularly in high-visibility areas.

ADJOURNMENT

There being no further business to come before the Planning Commission, Chairperson Korzec adjourned the meeting at 7:38 PM.

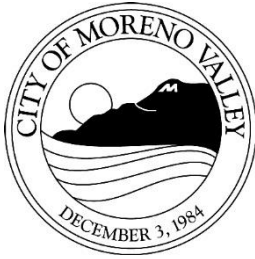
Submitted by:

Approved by:

Ashley Aparicio
Planning Commission Secretary

Patricia Korzec
Chairperson

Minutes Acceptance: Minutes of Aug 13, 2020 7:00 PM (CONSENT CALENDAR)



PLANNING COMMISSION

STAFF REPORT

Meeting Date: September 10, 2020

CONDITIONAL USE PERMIT FOR A 2,650 SQUARE FOOT RETAIL CANNABIS DISPENSARY, "MOVAL NOURISH" LOCATED AT 24760 SUNNYMEAD BOULEVARD, SUITES 100 AND 101

Case: PEN20-0056 Conditional Use Permit

Applicant: Moval Nourish

Property Owner: Michelle Sidney

Representative: Devon Julian

Location: 24760 Sunnymead Boulevard Suites 100 and 101, on the north side of Sunnymead Boulevard between Indian Street and the east-bound State Route 60 off-ramp. (APN 481-082-005)

Case Planner: Sean P. Kelleher

Council District: 1

Proposal: Conditional Use Permit for a 2,650 square foot retail cannabis dispensary, "Moval Nourish" located within at 24760 Sunnymead Boulevard, Suites 100 and 101.

SUMMARY

The applicant, Moval Nourish, is requesting approval of a Conditional Use Permit (CUP) to allow a 2,650 square foot retail cannabis dispensary within an existing multiple tenant building in the Village Specific Plan SP 204, Community Commercial (CC) District. The Village Specific Plan SP 204, Community Commercial (CC) District incorporates the permitted and conditionally permitted uses within the Moreno Valley Municipal Code's Community Commercial (CC) District by reference. The proposed use of commercial retail sales of cannabis is a conditionally permitted use within the Community

Commercial (CC) District and therefore is also a conditionally permitted use in the Village Specific Plan SP 204, Community Commercial (CC) District. The proposed use is for commercial retail sales of cannabis and cannabis products sold to individuals who are 21 years of age or older.

BACKGROUND

California Constitution Article XI

Pursuant to the authority granted to the City by Article XI, Section 7 of the California Constitution, a City may make and enforce, within its limits, regulations designed to promote the public health, safety and welfare. The City Council, recently adopted Ordinances that regulate commercial cannabis businesses in the City. These Ordinances are based on both federal and state laws.

Federal and State Laws

The Federal Controlled Substances Act classifies marijuana as a Schedule 1 Drug and makes it unlawful, under federal law, for any person to cultivate, manufacture, distribute, or possess with intent to manufacture, distribute, dispense, or possess. However, in 2016, Proposition 64 was approved by the voters in California (“The Adult Use Marijuana Act” or AUMA). AUMA established a comprehensive system to legalize, control and regulate the cultivation, processing, manufacturing, distribution, testing and sale of non-medical marijuana and products for use by adults 21 years of age and older. In addition, it allows taxation of commercial growth and retail sales of marijuana and marijuana products. In 2017, then Governor Jerry Brown signed the “Medical and Adult-Use Cannabis Regulations and Safety Act” (MAUCRSA) which further amends prior statutory enactments.

City Regulations

In November 2017, the City Council adopted Ordinance 926, which set rules for the establishment, operation, and regulation of specific commercial cannabis uses. In March 2018, the City Council approved Resolution 2018-11 approving the initial procedure for permit applications. Land use regulations for the operation of cannabis uses were established in April 2018 with the adoption of Ordinance 932, which provided for the following cannabis uses: dispensaries, testing, cultivation, manufacturing, microbusinesses, and distribution.

Additionally, in December 2018, the City Council adopted Resolution No. 2018-94, establishing a maximum of 43 commercial cannabis permits. The table below identifies the various types of commercial cannabis permit types, the number of permits allowed, and the number and status of permits submitted.

Commercial Cannabis Permit Types	Number of Permits Allowed	Number of Provisional Business Permits Issued	Number of Conditional Use Permit Applications Submitted	Number of Conditional Use Permit Applications In Review	Number of Conditional Use Permit Applications Approved
Dispensaries	23	23*	22*	4	17
Manufacturing	5	2	2	2	0
Cultivation	8	2	2	2	0
Distribution (of products from licensee to licensee only)	2	2	2	1	1
Microbusinesses	3	3*	3*	0	2
Testing Facilities	2	0	0	0	0

*Note: The Provisional Business License for one Microbusiness and one Dispensary have been revoked; therefore, the associated Conditional Use Permit Applications were closed.

The City's multi-step process for selecting commercial cannabis businesses that can legally operate in the City is as follows:

Step 1 – Application Process. Commercial Cannabis Business Permit applications were reviewed, and a background check of business owner(s) and their employees, was conducted. Applications with a minimum overall score of 80% were interviewed by staff to establish a candidate pool, and applications were required to be submitted through an online (PlanetBids) system. The City issued provisional Commercial Cannabis Business Permits to 32 successful applicants. Only those commercial cannabis businesses with provisional permits are eligible to proceed to the subsequent steps in the process.

Step 2 – Obtain a Conditional Use Permit. Municipal Code Section 9.09.290(C)(2) requires that commercial cannabis businesses must obtain a Conditional Use Permit, which is a land use entitlement process to confirm the proposed land use and site development elements will be consistent with City established development regulations as well as compatible with other land uses near the proposed project.

Step 3 – State approval. In addition to local permits, each commercial cannabis business must also obtain applicable State of California cannabis permits prior to commencing operation lawfully within the City.

Step 4 – Obtain a Certificate of Occupancy. Lastly, all commercial cannabis businesses must obtain a Certificate of Occupancy (“C of O”) from the Building and Safety Division prior to opening for business. The C of O is the final step in the process and documents that the Applicant has completed all required tenant improvements to the building and modifications to the parking lot, as required by conditions of approval in the CUP Resolution, and have paid all requisite City fees.

Provisional Commercial Cannabis Business Permit

On August 20, 2018, Moval Nourish received a provisional Commercial Cannabis Business Permit (Permit Number MVCCBP-R0003) from the City of Moreno Valley. The applicant represents that they will apply for the necessary state permits once the Planning Commission approves the CUP application.

PROJECT DESCRIPTION

Project

The applicant is requesting approval to establish a commercial cannabis dispensary (retail sales only) at 24760 Sunnymead Boulevard, Suites 100 and 101 within an existing center located on the north side of Sunnymead Boulevard between Indian Street and the east-bound State Route 60 off-ramp. (APN 481-082-005). The project site includes a one-story, rectangular building located in the center of the site. The dispensary is proposed within two suites, which will be combined into a single suite, nearest Sunnymead Boulevard.

Proposed tenant improvements include modifications to the floor plan to establish a new lobby, retail area, offices, and secured storage areas. The lobby includes a check-in area with secured access to the retail area. The retail area would provide for the sale of cannabis products, and the remainder of the building would include restrooms, employee and security offices, and secured storage areas. Various exterior improvements are proposed, including the removal and relocation of existing exterior doors along the south and west elevations of the building, as discussed in the design section below. The applicant is proposing hours of operation between 10:00 a.m. and 9:00 p.m. Monday through Sunday.

Safety and Security Plan

The applicant will implement similar security measures to other cannabis retail businesses, as are required by Moreno Valley Municipal Code Section 9.09.290. The section requires a Safety and Security Plan, which has been provided to the City and identifies methods to address site security for employees, customers, and the public as well as fire prevention methods that comply with local and state laws and include provisions for on-site security guards, fire alarm system, and required secured parking for deliveries, a video surveillance system, and the transfer of product and currency. A condition of approval requires the applicant to provide all video to the Police and Fire Departments upon their request.

Odor Control Plan

An Odor Control Plan has been prepared for the project in conformance with City requirements to ensure abatement of all potential odors that could emanate from the dispensary. This plan states that the dispensary will utilize an activated carbon filter system. Filters will be replaced as necessary to ensure there will be no odor nuisance

emitted from the operation. The air filtration system will be designed by a licensed Mechanical Engineer and reviewed and permitted by the Building & Safety Division staff as part of the tenant improvement plans for the heating, ventilation and air conditioning (HVAC) systems for the proposed dispensary. In addition, staff is requiring that automatic closures shall be installed on all interior and exterior doors and that all roof venting, wall penetrations panel joints, etc., be sealed to prevent odors from migrating outside of the dispensary.

Surrounding Area

The proposed retail cannabis dispensary will occupy a 2,650 square foot suite within an existing center. Uses within the plaza include a variety of office and personal service uses. Uses adjacent to the overall site include State Route 60 to the north, and a mix of retail, office, service, and restaurant uses to the south, east and west.

Access/Parking

Vehicle access to the site is provided by an existing driveway on Sunnymead Boulevard. The proposed retail cannabis dispensary is required to be parked at a ratio of 1 space for every 225 square feet of floor area. As the suite is 2,650 square feet in size, 12 parking spaces would be required. The overall parking requirement for the site, given the mix of uses, including the retail cannabis dispensary, would be 65 parking spaces. The project site is an older plaza and the number of parking spaces does not meet the current Municipal Code standard in that a total of 60 parking spaces are available on-site.

Therefore, a shared parking study (Attachment 4) was prepared for the project site pursuant to the shared parking provisions of Section 9.11.070 "Adjustments to off-street parking requirements." As noted in the report "[d]ue to the ongoing Covid-19 pandemic at the time of this study, many retail stores and offices in the subject shopping center have been mandated by local and state authorities to close business operations temporarily. Since field observation would not reflect the typical parking conditions, the study has applied the time-of-day projection of various uses, similar to the evaluation of any new commercial development, based on the methodology of shared parking as recommended in *Shared Parking, Second Edition* by Urban Land Institute (ULI)." Based on this analysis, the study found that the peak parking demand occurs between 1:00 p.m. and 2:00 p.m. with 59 spaces being utilized. Based on the findings of the parking analysis one additional parking space would be available on-site at the time of peak parking demand. Therefore, a finding can be made that the shared parking study justifies the requested parking reduction as the peak parking demand of the on-site uses is less than the total number of spaces available on-site.

Design

The applicant has proposed modification to the exterior of the existing building as they are combining suites 100 and 101 into a single suite, as well as, to control access into the dispensary and screen activities within the proposed sales area. Modifications to the

south (Sunnymead) building elevation include enclosing three existing doors and the replacement of the western most window with a new door and smaller window. Additionally, to screen the sales area the applicant has proposed to construct a wall behind the two easterly windows on the south building elevation and install a black film to block visibility of the wall. City staff has spoken with the applicants representative and expressed concern with the removal of the existing doors as they provide architectural interest to the building and the representative has agreed to a condition of approval that requires the retention of the three existing doors and the installation of a wall behind them. Additionally, staff has provided a condition of approval recommending the applicant replace the existing windows with spandrel glass in lieu of the black film.

In addition to the exterior modifications to the building, the applicant has proposed to upgrade the project site in several different ways, including: upgrading on-site lighting to meet Municipal Code standards, installing landscaping in planters where it is missing, and installing a bike rack.

REVIEW PROCESS

In compliance with the Municipal Code, the Project Review Staff Committee (PRSC) reviewed this project on May 12, 2020. The applicant has worked with staff, and modified the proposed plans to the satisfaction of all departments. Based on staff's review, it was determined that the project will be consistent with the City's requirements, subject to the conditions of approval in the attached Resolution.

ENVIRONMENTAL

Staff recommends that the Planning Commission find that the proposed project is exempt from the provisions of the California Environmental Quality Act (CEQA) under CEQA Guidelines as a Class 32 Exemption (Section 15332, In-Fill Development Projects). Pursuant to the California Code of Regulations a Class 32 exemption can be applied to a project when the project is 1) consistent with the applicable General Plan designation and applicable policies; 2) occurs on a site that is less than five acres in size; 3) the site has no valuable habitat for rare or endangered species; 4) the project will not result in significant effects related to traffic, noise, air quality, or water quality; and 5) the site is adequately served by utilities and public services. The proposed project has been found to meet all of the conditions of the Class 32 exemption as the project is consistent with the applicable General Plan designation and policies; is located on a site less than five acres in size; contains no valuable habitat; will not result in significant environmental effects; and is adequately served by utilities and public services.

NOTIFICATION

Public notice was sent to all property owners of record within 600' of the project on August 27, 2020. The public hearing notice for this project was posted on the project site and published in the local newspaper on August 28, 2020.

REVIEW AGENCY COMMENTS

The project application materials were circulated for review by all appropriate City departments and divisions as well as applicable outside agencies.

STAFF RECOMMENDATION

Staff recommends that the Planning Commission **APPROVE** Resolution No. 2020-39, and thereby:

1. **CERTIFY** that Conditional Use Permit PEN20-0056 is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) as a Class 32 Exemption (Section 15332, In-Fill Development Projects); and
2. **APPROVE** Conditional Use Permit PEN20-0056 subject to the attached Conditions of Approval included as Exhibit A to the Resolution.

Prepared by:
Sean P Kelleher

Approved by:
Patty Nevins
Planning Official

ATTACHMENTS

1. Resolution No. 2020-39
2. Exhibit A to Resolution No. 2020-39
3. Development Plans
4. Shared Parking Analysis
5. Aerial Map
6. Zoning Map
7. Mailing Notice - PEN20-0056
8. Radius Map

PLANNING COMMISSION RESOLUTION NO. 2020-39

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY APPROVING A CONDITIONAL USE PERMIT (PEN20-0056) FOR A 2,650 SQUARE FOOT CANNABIS DISPENSARY, "MOVAL NOURISH," LOCATED AT 24760 SUNNYMEAD BOULEVARD SUITES 100 AND 101, ON THE NORTH SIDE OF SUNNYMEAD BOULEVARD BETWEEN INDIAN STREET AND THE EAST-BOUND STATE ROUTE 60 OFF-RAMP (APN: 481-082-005).

WHEREAS, Moval Nourish has filed an application for the approval of Conditional Use Permit (CUP) PEN20-0056 for the development of a 2,650 square foot cannabis dispensary, operating between the hours of 10:00 a.m. and 9:00 p.m., 7 days per week, as described in the title above; and

WHEREAS, the application has been evaluated in accordance with established City of Moreno Valley (City) procedures, and with consideration of Specific Plan 204, the Municipal Code, the General Plan, and other applicable regulations; and

WHEREAS, upon completion of a thorough development review process the project was appropriately agendized and noticed for a public hearing before the Planning Commission of the City of Moreno Valley (Planning Commission); and

WHEREAS, the public hearing notice for this project was published in the local newspaper on August 28, 2020, and public notice was sent to all property owners of record within 600 feet of the project site on August 27, 2020. The public hearing notice for this project was also posted on the project site on August 28, 2020, and

WHEREAS, on September 10, 2020, the Planning Commission held a public hearing to consider the application; and

WHEREAS, on September 10, 2020, the Planning Commission of the City of Moreno Valley determined that the project is exempt from the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et. seq.) under CEQA Guidelines Section 15332, Class 32: In-Fill Development Projects; 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, it is hereby found, determined and resolved by the Planning Commission as follows:

- A. This Planning Commission hereby specifically finds that all of the facts set forth above in this Resolution are true and correct.
- B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on September 10, 2020, including written and oral staff reports, public testimony 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 goals, objectives, policies and programs of the general plan.

FACT: State Planning Law requires cities and counties to set forth goals, policies, and implementation programs for the long term physical development of the community. Section 65302 (a) of the Government Code requires preparation of a land use element which designates the proposed general distribution and general location of the uses of land for housing, business, industry, public buildings, and open space. The proposed development is located within the Commercial (C) land use designation of the Moreno Valley General Plan.

The CUP has been evaluated against and found consistent with General Plan Objective 2.4, which states “provide commercial areas within the City that are conveniently located, efficient, attractive, and have safe and easy pedestrian and vehicular circulation in order to serve the retail and service commercial needs of Moreno Valley residents and businesses.” Staff has confirmed that the proposed project does not conflict with any of the goals, objectives, policies, and programs of the General Plan. The reuse of two existing suites, combined into one, with a new cannabis dispensary will provide a convenient, safe, and easily accessible commercial business within the City.

2. **Conformance with Zoning Regulations** – The proposed project complies with all applicable zoning and other regulations.

FACT: The proposed project is within the Village Specific Plan SP 204, Community Commercial (CC) district. Municipal Code Section 9.02.290 C 2 (Cannabis Business Locations and Use), requires a Conditional Use Permit in order to lawfully operate all commercial cannabis activities including dispensaries. The proposed Conditional Use Permit for a cannabis dispensary will comply with the Municipal Code Section 9.09.290 Commercial Cannabis Activities which provides standards for cannabis dispensaries. Additionally, the project is designed in accordance with the provisions of Village Specific Plan SP 204, Community Commercial (CC) district and has been conditioned would comply with all applicable zoning standards.

3. **Health, Safety and Welfare** – The proposed project will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity.

FACT: The proposed commercial cannabis business will operate within two existing suites, combined into one. This proposed use will be consistent with General Plan Goal 6.1 as it achieves acceptable levels of protection from natural and man-made hazards to life, health, and property through the implementation of the security plan, and compliance with applicable building and fire codes.

Planning staff has reviewed the request in accordance with the latest edition of the California Environmental Quality Act (CEQA) Guidelines and has determined that the project is exempt from the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et. seq.) under CEQA Guidelines as a Class 32 Exemption (Section 15332, In-Fill Development Projects). Pursuant to the California Code of Regulations a Class 32 exemption can be applied to a project when the project is 1) consistent with the applicable General Plan designation and applicable policies; 2) occurs on a site that is less than five acres in size; 3) the site has no valuable habitat for rare or endangered species; 4) the project will not result in significant effects related to traffic, noise, air quality, or water quality; and 5) the site is adequately served by utilities and public services. The proposed project has been found to meet all of the conditions of the Class 32 exemption as the project is consistent with the applicable General Plan designation and policies; is located on a site less than five acres in size; contains no valuable habitat; will not result in significant environmental effects; and is adequately served by utilities and public services.

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.

FACT: The project site is consistent with the Commercial (C) General Plan land use designation, and the Village Specific Plan SP 204, Community Commercial (CC) district and is permitted subject to the approval of a Conditional Use Permit. The proposed commercial cannabis dispensary will operate within a 2,650 square foot suite. Proposed interior and exterior tenant and modifications to the site are consistent with applicable federal, state and local regulations.

Additionally, the project site is not located within 600 feet of any public or private school providing instruction in kindergarten or grades 1 through 12, and from child day care centers, youth centers, or arcades.

Overall, the proposed project has been found to be consistent with certain objectives, goals and policies outlined in the City's General Plan, as well as being compatible with the existing land uses in the project area.

This project as proposed and conditioned conforms to all development standards of the Village Specific Plan SP 204, Community Commercial (CC) district and the design guidelines for commercial developments prescribed in the Specific Plan, City's Municipal Code and City Landscape Standards.

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 Habitat Conservation 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 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 PEN20-0056, 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, reservations, 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, reservations, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the applicable statute of limitations has previously expired.

BE IT FURTHER RESOLVED in light of the evidence and based on the foregoing findings, the Planning Commission **HEREBY APPROVES** Resolution No. 2020-39, and thereby:

1. **CERTIFY** that Conditional Use Permit PEN20-0056 is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) as a Class 32 Exemption (Section 15332, In-Fill Development Projects); and
2. **APPROVE** Conditional Use Permit PEN20-0056 subject to the attached Conditions of Approval included as Exhibit A to the Resolution.

APPROVED this 10th day of September, 2020.

Patricia Korzec
Chairperson, Planning Commission

ATTEST:

APPROVED AS TO FORM:

Patty Nevins
Planning Official

City Attorney

Attachments:

Exhibit A: Conditions of Approval

Attachment: Resolution No. 2020-39 [Revision 4] (4142 : PEN20-0056_Moval Nourish Dispensary)

CONDITIONS OF APPROVAL

Conditional Use Permit PEN20-0056

Page 1

CITY OF MORENO VALLEY
 CONDITIONS OF APPROVAL
 Conditional Use Permit (PEN20-0056)

EFFECTIVE DATE:

EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENTPlanning Division

1. This approval shall expire three years after the approval date of this project unless used or extended as provided for by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever. Use means the beginning of substantial construction contemplated by this approval within the three-year period, which is thereafter pursued to completion, or the beginning of substantial utilization contemplated by this approval. (MC 9.02.230)
2. In the event the use hereby permitted ceases operation for a period of one (1) year or more, or as defined in the current Municipal Code, this permit may be revoked in accordance with provisions of the Municipal Code. (MC 9.02.260)
3. This project is located within the Village Specific Plan SP 204, Community Commercial (CC) district. The provisions of the zoning, and the Conditions of Approval shall prevail unless modified herein.
4. The commercial cannabis dispensary shall be consistent with all other applicable federal, state and local requirements including the Moreno Valley Municipal Code Title 5 and Title 9, and all related Municipal Code sections.
5. 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)
6. All landscaped areas and the parking lot shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)
7. Any signs indicated on the submitted plans are not included with this approval and shall be renewed under separate permit.
8. All site plans, grading plans, landscape plans and proposed signage shall be coordinated for consistency with this approval.
9. A copy of all pages of these conditions shall be included in the construction drawing package.

Special Conditions

10. The site has been approved for a commercial cannabis dispensary, located at 24760 Sunnymead Boulevard, Suites 100 and 101, (approximately 2,650 square feet) per the approved plans and per the requirements of the City's Municipal Code (MC) Section 9.09.290

CONDITIONS OF APPROVAL

Conditional Use Permit PEN20-0056

Page 2

- Commercial cannabis activities, 9.09.293 Cannabis Business locations and use, and 5.05 Commercial Cannabis Activity. A change or modification to the interior design/set-up, exterior elevations or business process (including security procedures) shall require separate review and approval. For a Conditional Use Permit, violation may result in revocation of a Conditional Use Permit per MC Section 9.09.290 F and 9.02.260.
11. The cannabis license and the Conditional Use Permit, apply only to the 2,650 square foot suite at 24760 Sunnymead Boulevard, Suites 100 and 101. No use of any other tenant space, outside of the 2,650 square foot suite is allowed per Conditional Use Permit PEN20-0056.
 12. Daily hours of operation for the dispensary may start no earlier than 6:00 am and end no later than 10:00 pm, Sunday through Saturday.
 13. A licensee conducting a commercial cannabis dispensary shall meet all applicable operational requirements for retail/commercial cannabis dispensaries. (MC 9.09.290 (E)(4))
 14. The commercial cannabis operation shall have a valid Commercial Cannabis Business Permit and shall comply with all requirements of Moreno Valley Municipal Code Chapter 5.05 prior to issuance of occupancy permits.
 15. The cannabis licensee shall display its current valid Commercial Cannabis Business Permit under Chapter 5.05 of this Code and a Conditional Use Permit issued in accordance with this chapter inside the lobby or waiting area of the main entrance to the site. The permits shall be displayed at all times in a conspicuous place so that it may be readily seen by all persons entering the site. (MC 9.09.290 (D)(2)(c))
 16. All City Fire, Police and Code personnel shall have unlimited and unrestricted property access for inspections of commercial cannabis businesses and facilities during business hours. (MC 9.09.290 (D)(2)(g))
 17. No person associated with this commercial cannabis dispensary shall cause or permit the sale, dispensing or consumption of alcoholic beverages or the sale of tobacco products on or within 50 feet of the premises of a cannabis business. (MC 9.09.290 (D)(2)(b))
 18. No person shall smoke, ingest, or otherwise consume cannabis in any form on, or within twenty (20) feet of, the dispensary site. (MC 9.09.290 (E)(4)(f))
 19. No commercial cannabis dispensary owner or employee shall: (i) cause or permit the sale, distribution, or consumption of alcoholic beverages on the dispensary property (ii) hold or maintain a license from the State Division of Alcoholic Beverage Control for the sale of alcoholic beverages; or (iii) operate a business on or adjacent to the dispensary property that sells alcoholic beverages. No alcoholic beverages shall be allowed or stored on the dispensary property. (MC 9.09.290 (E)(4)(g))
 20. No cannabis or marijuana materials or products shall be visible from the exterior of any structure, facility, or building in which commercial cannabis dispensaries are being conducted. All commercial cannabis dispensaries must take place within a fully enclosed, secured and permanent structure (with accommodations in place at all times to allow for and facilitate unlimited/unrestricted access throughout the premises by emergency service personnel). (MC 9.09.290 (E)(6)(c))
 21. The applicant shall provide frosted glass in-lieu of the proposed clear glass walls and door that separate the lobby from the mercantile area to ensure that no cannabis or marijuana materials

CONDITIONS OF APPROVAL

Conditional Use Permit PEN20-0056

Page 3

- or products are visible from the exterior of the building.
22. The commercial cannabis dispensary shall have designated locked storage on the dispensary property for after-hours storage of medical and adult use recreational cannabis and cannabis infused products. All cannabis and cannabis infused products shall be stored at the dispensary property in secured rooms that are completely enclosed or in a safe that is bolted to the floor (with accommodations in place at all times to allow for and facilitate unlimited/unrestricted access throughout the premises by emergency service personnel). (MC 9.09.290 (E)(4)(c))
 23. All operations conducted and equipment used must be in compliance with all applicable state and local regulations, including all building, electrical and fire codes. (MC 9.09.290 (E)(7)(b))
 24. Security surveillance cameras and a video recording system must be installed to monitor all doors into and out of the buildings on the site, the parking lot, loading areas, and all exterior sides of the property adjacent to the public rights-of-way. The camera and recording systems must be of adequate quality, color rendition, and resolution to allow the identification of any individual present on the site. The recording system must be capable of exporting the recorded video in standards MPEG formats to another common medium, such as a DVD or USB drive. (MC 9.09.290 (E)(12)(a))
 25. All windows on the building that houses the Cannabis Facility shall be appropriately secured and all cannabis and marijuana securely stored.
 26. Professionally and centrally monitored fire, robbery, and burglar alarm systems must be installed and maintained in good working condition. The alarm system must include a private security company that is required to respond to every alarm. (MC 9.09.290 (E)(12)(b))
 27. Waste and storage and disposal of all cannabis and marijuana products shall meet all applicable state and local health regulation. (MC 9.09.290 (E)(13))
 28. The premises must be equipped with an odor absorbing ventilation and exhaust system so that odor generated inside the Cannabis Business that is distinctive to its operation is not detected outside the Cannabis Business, anywhere on adjacent property or public rights-of-way, on or about any exterior or interior common area walkways, hallways, breeze-ways, foyers, lobby areas, or any other areas available for common use by tenants or the visiting public, or within any other unit located within the same building as the Cannabis Business. As such, Cannabis Businesses must install and maintain the following equipment or any other equipment which the Local Licensing Authority determines has the same or better effectiveness:
 - a. An exhaust air filtration system with odor control that prevents internal odors from being emitted externally; or
 - b. An air system that creates negative air pressure between the Cannabis Businesses' interior and exterior so that the odors generated inside the Cannabis Business are not detectable outside the Cannabis Business.
 29. All Cannabis heating, ventilation, air conditioning and odor control plans and blue prints shall be stamped by a Licensed HVAC Mechanical Engineer.
 30. All window arrays, doors and associated framing systems shall be renovated to install new glazing compounds and seals.
 31. Automatic closures on all interior and exterior doors shall be installed.

CONDITIONS OF APPROVAL

Conditional Use Permit PEN20-0056

Page 4

32. All interior and exterior door seals shall be replaced and adjusted.
33. All roof venting, wall penetrations, panel joints etc. shall be sealed.
34. Air curtains shall be installed on all exterior doors.
35. Two secured parking spaces, identified on a plot plan shall be located convenient to the required secured area of each facility to be used by secured transfer vehicles involved in the couriering or dispensing of cannabis materials products to and from the facility and for use by any secured vehicle commissioned for the transfer of currency to and from the facility. (MC 9.09.290 (E)(9)(f))
36. Licensee shall prohibit loitering by individuals outside the licensed premises or anywhere on the property. (MC 9.09.290 (E) (14) (c))
37. Licensee shall remove any graffiti from the licensed premises within twenty-four (24) hours of its occurrence, or as requested by the city. (MC 9.09.290 (E) (14) (d))
38. Exterior landscaping within ten (10) feet of a licensed premises shall be designed, installed and maintained free of locations which could reasonably be used by persons to conceal themselves and/or to enable undesirable activity. The design and maintenance practices shall give appropriate consideration to both natural and artificial illumination. (MC 9.09.290 (E)(8)(c))
39. Prior to issuance of any building permits, final landscaping and irrigation plans shall be submitted for review and approval of any new or repaired landscaping by the Planning Division designed per the City's Municipal Code 9.17.
40. Prior to issuance of Certificates of Occupancy or building final, the required landscaping and irrigation improvements shall be installed, and inspected and approved by the Planning Division. (DC 9.03.040)
41. Prior to issuance of Certificates of Occupancy or building final, the applicant shall cause the slurry sealing and restriping of the parking lot that shall be inspected and approved by the Planning and Building Divisions.
42. The parking lot lighting shall be maintained in good repair and shall comply with the Municipal Code lighting standards and the Security Plan at all times.
43. Prior to approval of tenant improvement plans, a detailed, on-site, computer generated, point-by-point comparison lighting plan, including exterior building, parking lot, and landscaping lighting, shall be submitted as part of the Building and Safety Plan Check submittal for review and approval. The lighting plan shall be generated on the plot plan and shall be integrated with the final landscape plan. The plan shall indicate the manufacturer's specifications for light fixtures used and shall include style, illumination, location, height and method of shielding. The lighting shall be designed in such a manner so that it meets the lighting standards in the Cannabis Ordinance 932. After the third plan check review for lighting plans, an additional plan check fee will apply. (MC 9.08.100, DG) Lighting shall comply with the provisions of MC Section 9.08.100 including fixture type, wattage illumination levels and shielding. (MC 9.09.290 (E)(10))
44. The commercial cannabis operation shall comply with all requirements of Moreno Valley Municipal Code Chapter 5.05 prior to issuance of occupancy permits.

CONDITIONS OF APPROVAL

Conditional Use Permit PEN20-0056

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Security Plan and Measures

45. Prior to Building Permit or Certificate of Occupancy, the process for any transfer of product or currency shall be identified in an updated Security Plan to be reviewed and approved by the Planning Division. (MC 9.09.290 (D)(2)(f))
46. The Security Plan on file with the City of Moreno Valley shall remain in effect as long as the established use is in operation. Any changes, additions, removal or modifications to the plan shall be submitted to the City for review and inclusion in the Conditional Use Permit file.
47. Prior to approval of tenant improvement plans, the applicant shall submit plans detailing provisions for controlled/secured access into and out of the dispensary area.
48. The three existing three doors along the south elevation shall be retained with the wall enclosing the sales area constructing within the building behind the doors.
49. The two eastern most windows on the south elevation of the building shall be replaced with spandrel glass.

Miscellaneous Operating Requirements

50. Persons under the age of twenty-one (21) years shall not be allowed on the premises. It shall be unlawful and a violation of this chapter for any person to employ any person at a commercial cannabis business who is not at least twenty-one (21) years of age.

Building Division

51. 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.
52. Contact the Building Safety Division for permit application submittal requirements.
53. Any construction within the city shall only be as follows: Monday through Friday seven a.m. to seven p.m. (except for holidays which occur on weekdays), eight a.m. to four p.m.; weekends and holidays (as observed by the city and described in the Moreno Valley Municipal Code Chapter 2.55), unless written approval is first obtained from the Building Official or City Engineer.
54. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.
55. The proposed development shall be subject to the payment of required development fees as required by the City's current Fee Ordinance at the time a building application is submitted or prior to the issuance of permits as determined by the City.
56. 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.
57. 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 2019 California Plumbing Code, Table 422.1. The

CONDITIONS OF APPROVAL

Conditional Use Permit PEN20-0056

Page 6

occupant load and occupancy classification shall be determined in accordance with the California Building Code.

58. All remodeled 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 2019 CBC.
59. 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)

ECONOMIC DEVELOPMENT DEPARTMENT

60. New Moreno Valley business are encouraged to hire local residents.
61. New Moreno Valley business 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:
- a. Job Announcements
 - b. Applicant testing / pre-screening
 - c. Interviewing
 - d. Job Fair support
 - e. Training space

New Moreno Valley businesses may work with the Economic Development Department to coordinate job recruitment fairs.

62. 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 public recruitment.

FIRE DEPARTMENT**Fire Prevention Bureau**

63. Prior to issuance of Certificate of Occupancy or Building Final, all commercial 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])
64. 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.
65. The Fire Code Official is authorized to enforce the fire safety during construction requirements

CONDITIONS OF APPROVAL

Conditional Use Permit PEN20-0056

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of Chapter 33. (CFC Chapter 33 & CBC Chapter 33)

66. 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])
67. 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)
68. Where egress control devices are installed they shall comply with California Building Code Chapter 10 and shall have a fire alarm system installed in accordance with NFPA 72.

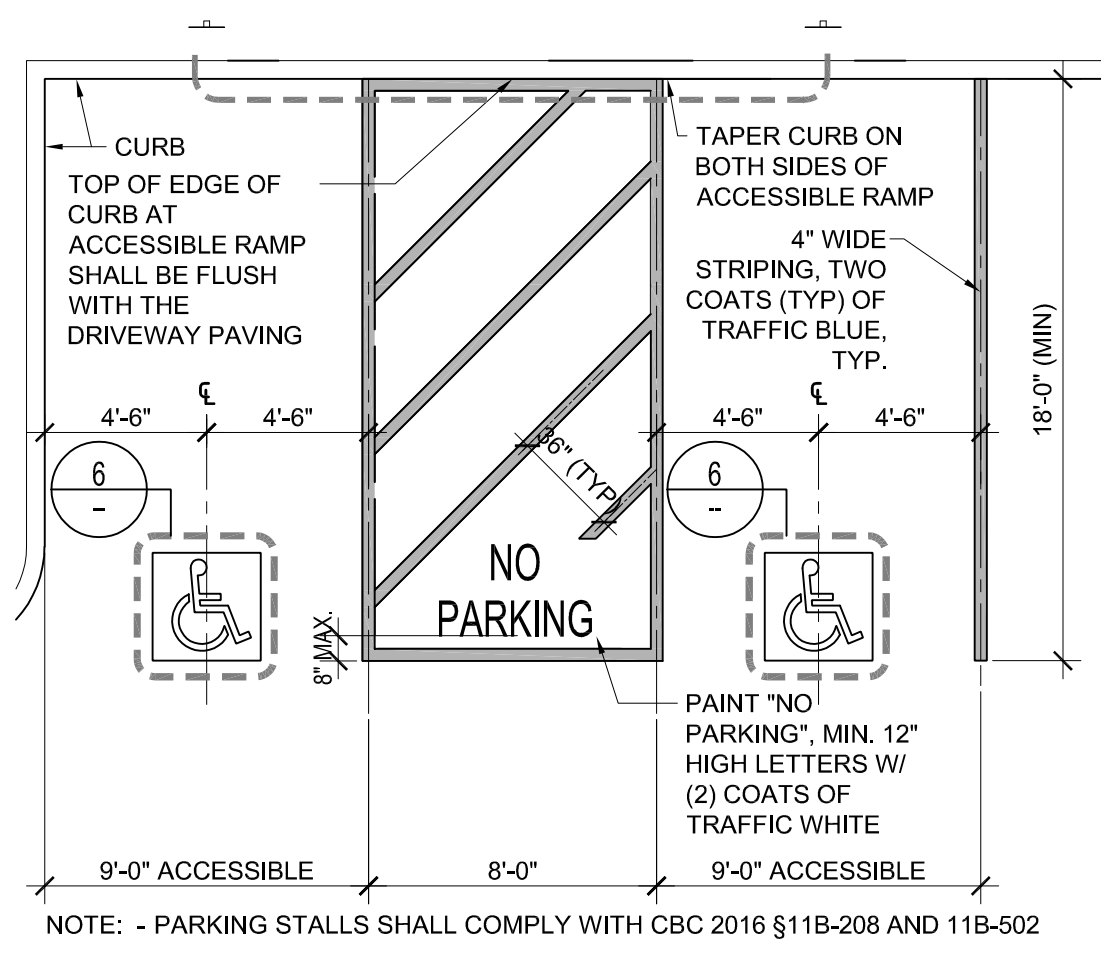
PUBLIC WORKS DEPARTMENTSpecial Districts Division

69. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.
70. 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.
71. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services), Zone C (Arterial Street Lighting), and Zone S (Sunnymead Boulevard Maintenance). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C and the annual parcel charge for Zone S for operations and capital improvements.

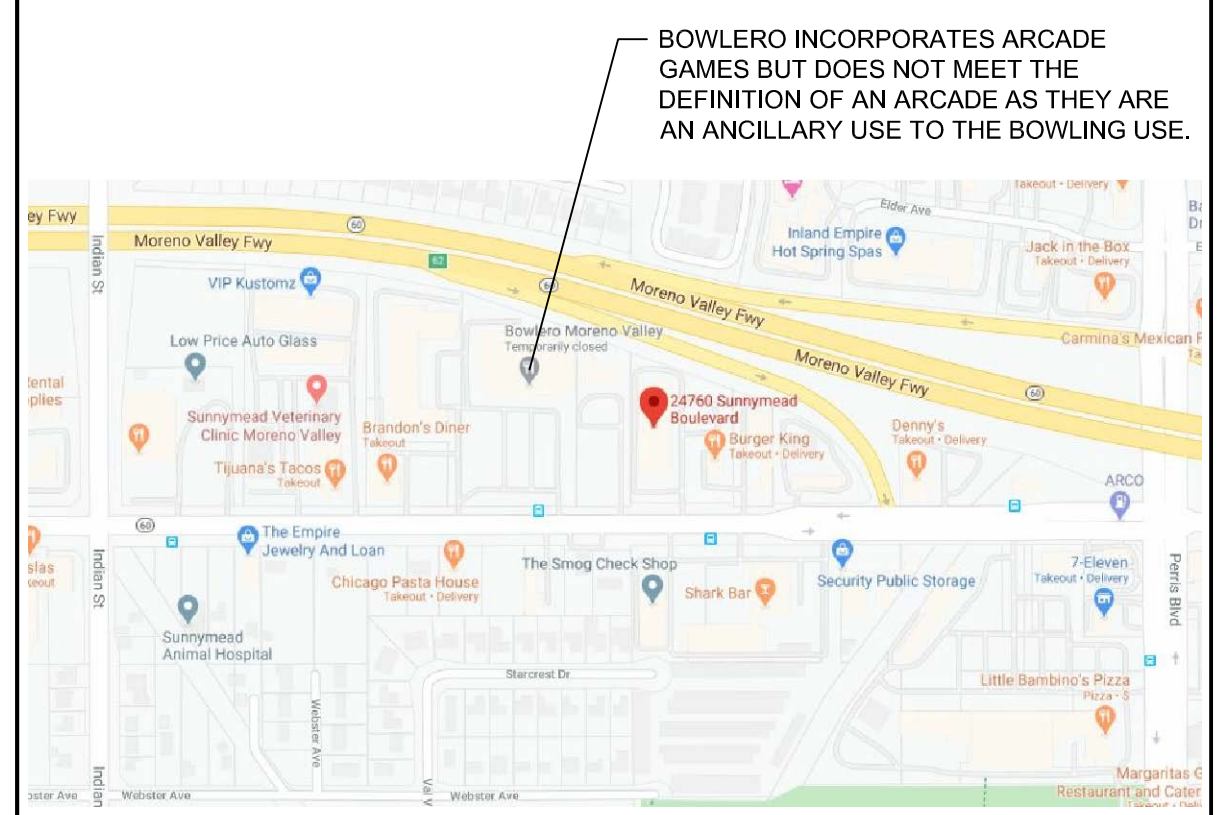
Transportation Engineering Division

72. 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. MVS-112A~D-0 for commercial driveway approaches.
73. Sight distance at the proposed roadways and driveways shall conform to City of Moreno Valley Standard No. MVS-164A, B, C-0.

TYP. ACCESSIBLE STALL DETAIL



VICINITY MAP



PROJECT CONTACTS

PROPERTY OWNER:
 GEORGE STERN
 PHONE: (310) 276-7131
 24760 SUNNYMEAD BLVD,
 MORENO VALLEY, CA 92553

APPLICANT:
 JULIE LE
 PHONE: (619) 277-2827
 3 CORPORATE PARK
 IRVINE, CA 92606

ARCHITECT:
 HIDE IWAGAMI
 PHONE: (949) 230-6006
 555 ANTON BLVD. #150
 COSTA MESA, CA 92626

KEYNOTES

- 1 EXISTING MAIL PAD TO REMAIN
- 2 EXISTING MAILBOX TO REMAIN
- 3 EXISTING WATER METER TO REMAIN
- 4 EXISTING BACKFLOW PREVENTER TO REMAIN
- 5 EXISTING IRRIGATION CONTROL TO REMAIN
- 6 EXISTING IRRIGATION VALVE TO REMAIN
- 7 EXISTING SIGNAGE PANEL TO REMAIN
- 8 EXISTING SIGNAGE PAD TO REMAIN
- 9 EXISTING GAS METERS TO REMAIN
- 10 EXISTING SIDE WALK TO REMAIN
- 11 EXISTING ASPHALT PAVING TO REMAIN.
- 12 EXISTING PARKING LIGHT POST TO REMAIN
- 13 EXISTING STREET LIGHTS TO REMAIN
- 14 NEW TRUNCATED DOMES PER CBC 11B-705
- 15 EXISTING TRANSFORMER TO REMAIN
- 16 EXISTING COLUMNS/ BEAM TO REMAIN
- 17 EXISTING PHONE POLE TO REMAIN
- 18 LINE OF ROOF CANOPY ABOVE
- 19 PROPERTY LINE
- 20 NEW BIKE RACK TO BE U-SHAPED AND BE INSTALLED PER CITY GUIDELINES.
- 21 NEW RE-STRIPED 9'X18' PARKING, TYP.
- 22 EXISTING LANDSCAPE TO REMAIN.
- 23 EXISTING FIRE HYDRANT TO REMAIN
- 24 EXISTING BURGER KING MONUMENT SIGN TO REMAIN
- 25 EXISTING WHEEL STOP TO REMAIN
- 26 NEW WHEEL STOP
- 27 NEW EXTERIOR WALL MOUNTED SECURITY LIGHT
- 28 NEW EXTERIOR FLOOD LIGHT
- 29 EXISTING SIDE YARD WALL NOT TO EXCEED 6 FEET IN HEIGHT
- 30 EXISTING REAR WALL NOT TO EXCEED 6 FEET IN HEIGHT
- 31 EXISTING DRAIN GUTTER
- 32 PROPOSED SECURED PARKING
- 33 DRAINAGE INLET
- 34 NEW DCDA PER EMWD REQUIREMENTS

PROJECT DESCRIPTION

INTERIOR COMMERCIAL TENANT IMPROVEMENTS TO EXISTING OFFICE SUITES (100 & 101)
 SCOPE OF WORK TO INCLUDE

- DEMOLITION OF EXISTING NON-BEARING WALLS
- NEW ELECTRICAL, PLUMBING AND HVAC WORK
- INSTALLATION OF NEW BUILDING AND CANOPY MOUNTED SECURITY LIGHTS
- NEW SPRINKLER SYSTEM FOR THE PROJECT SUITE ONLY

PROJECT INFORMATION

PROJECT SITE
 MOVAL NOURISH
 24760 SUNNYMEAD BOULEVARD
 MORENO VALLEY, CA. 92553

ZONING CLASSIFICATION: SP 204 CC (THE VILLAGE - COMMUNITY COMMERCIAL)
 FEMA FLOOD ZONE: NOT IN FLOOD ZONE

ASSESSOR'S PARCEL NO.: 481-082-005

SITE ACREAGE
 GROSS: 1.01 ACRE
 BUILDING LOT COVERAGE: 33.85% - 2,650 SF
 LANDSCAPE COVERAGE: 2.33% - 188 SF

LEGAL DESCRIPTION
 PARCEL 1 OF PARCEL MAP 22787, IN THE CITY OF MORENO VALLEY, AS SHOWN BY MAP ON FILE IN BOOK 148, PAGES 25 AND 26 OF PARCEL MAPS, RECORDS OF RECORDS OF RIVERSIDE COUNTY, CA.

BUILDING INFORMATION
 EXISTING SINGLE STORY BUILDING : 14,838 SF
 PROPOSED PROJECT USE: CANNABIS DISPENSARY IN SUITE 100 & 101 (2 SUITES HAVE ALREADY BEEN COMBINED)
 PROJECT SUITE AREA: 2,650 SF
 NUMBER OF SUITES: 10 (FROM 101-110)
 BUILDING CONSTRUCTION TYPE: V-B
 EXISTING BUILDING HEIGHT: 17 FEET 4 INCHES

SPRINKLER SYSTEM
 AUTOMATIC FIRE SPRINKLER SYSTEM WILL BE PROVIDED TO COMPLY WITH THE APPLICABLE SPRINKLER REQUIREMENTS.

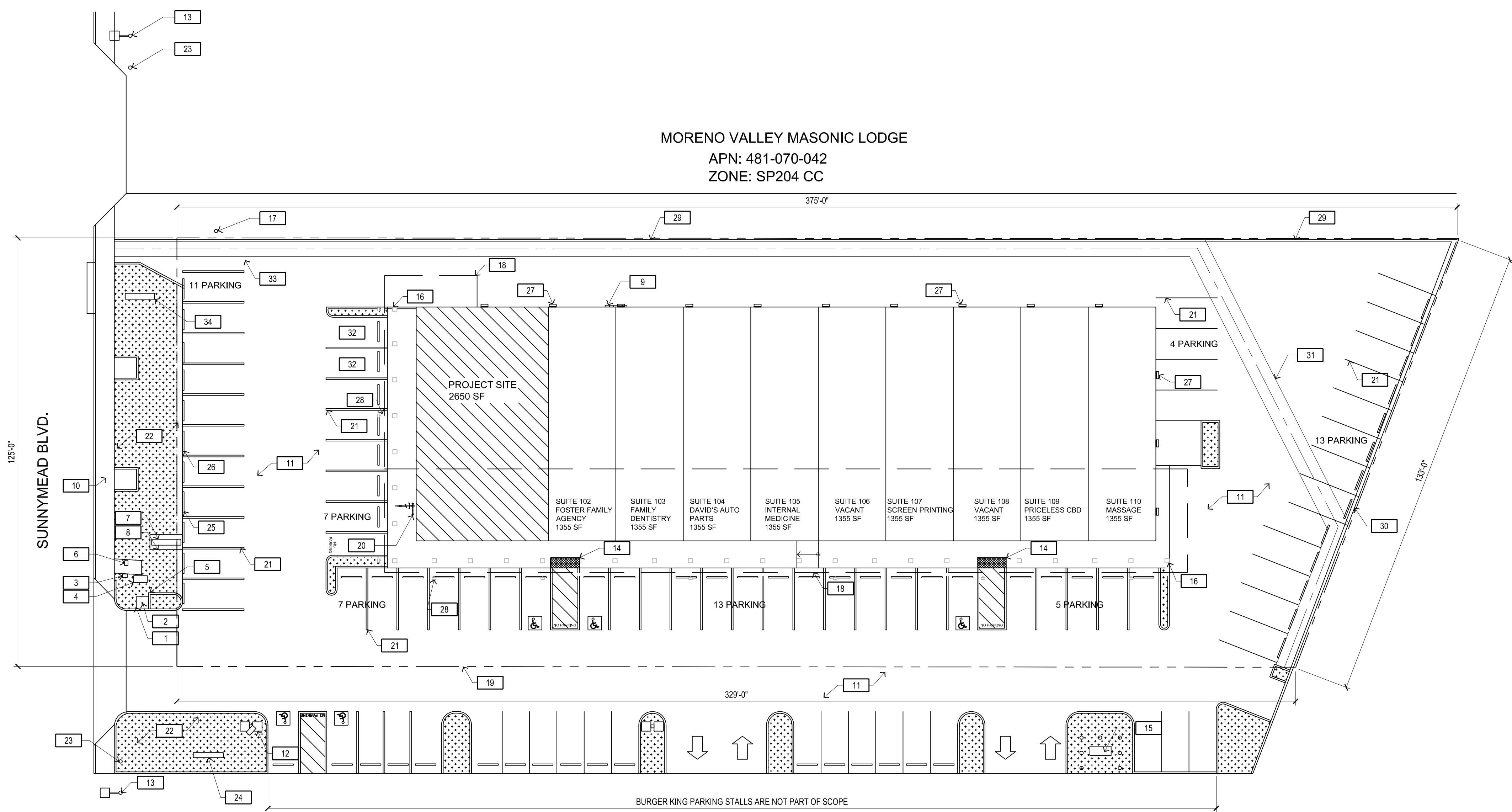
SET BACK
 BUILDING SET BACK:
 FRONT: 10 FEET
 SIDE: 10 FEET
 REAR: 10 FEET
 PARKING SET BACK:
 FRONT: 20 FEET
 SIDE: 15 FEET
 REAR: 15 FEET

PARKING CALCULATIONS
 REQUIRED:
OFFICE USE: SUITE 102 AND 107
 TOTAL GROSS SF: 2,710 SF AT 1/250 SF = 11 PARKING
MEDICAL USE: SUITE 103 AND 105
 TOTAL GROSS SF: 2,710 SF AT 1/225 SF = 12 PARKING
RETAIL USE: SUITE 104, 109 AND 110
 TOTAL GROSS SF: 4,065 SF AT 1/225 SF = 18 PARKING
VACANT SPACES: SUITE 106 AND 108
 TOTAL GROSS SF: 2,710 SF AT 1/225 SF = 12 PARKING
PROPOSED DISPENSARY USE: 100 AND 101
 TOTAL GROSS SF: 2,650 SF AT 1/225SF = 12 PARKING

TOTAL REQUIRED: 65 STALLS
 TOTAL PROVIDED: 60 STALLS

BIKE RACK: REQUIRED 5% OF 65 STALLS = 4 STALLS
 BIKE RACK PROVIDES: 4 STALLS

UTILITIES
 WATER: EASTERN MUNICIPAL WATER DISTRICT
 SEWER: EASTERN MUNICIPAL WATER DISTRICT
 POWER:
 GAS: SOUTHERN CALIFORNIA GAS
 TELEPHONE: ATT&T



BURGER KING
 APN: 481-082-006
 ZONE: SP204 CC

SITE PLAN

1"=20'-0" 1

MOVAL NOURISH
 24760 SUNNYMEAD BOULEVARD
 MORENO VALLEY, CA. 92553

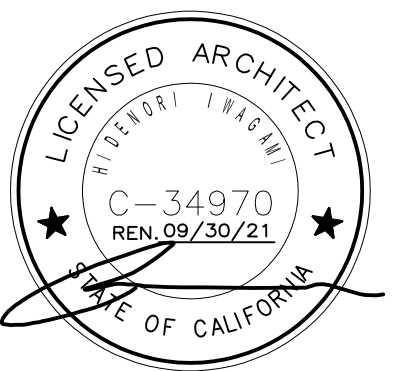
PROPOSED SITE PLAN

Entitlement Number: PEN20-0056
 Plan Check Number:
 2nd Planning Submittal: 05-26-2020

PLAN PREPARED BY: NICOLE SANDOVAL

SHEET

A1.0



Consultant

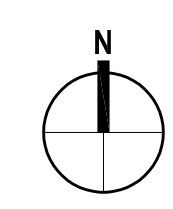
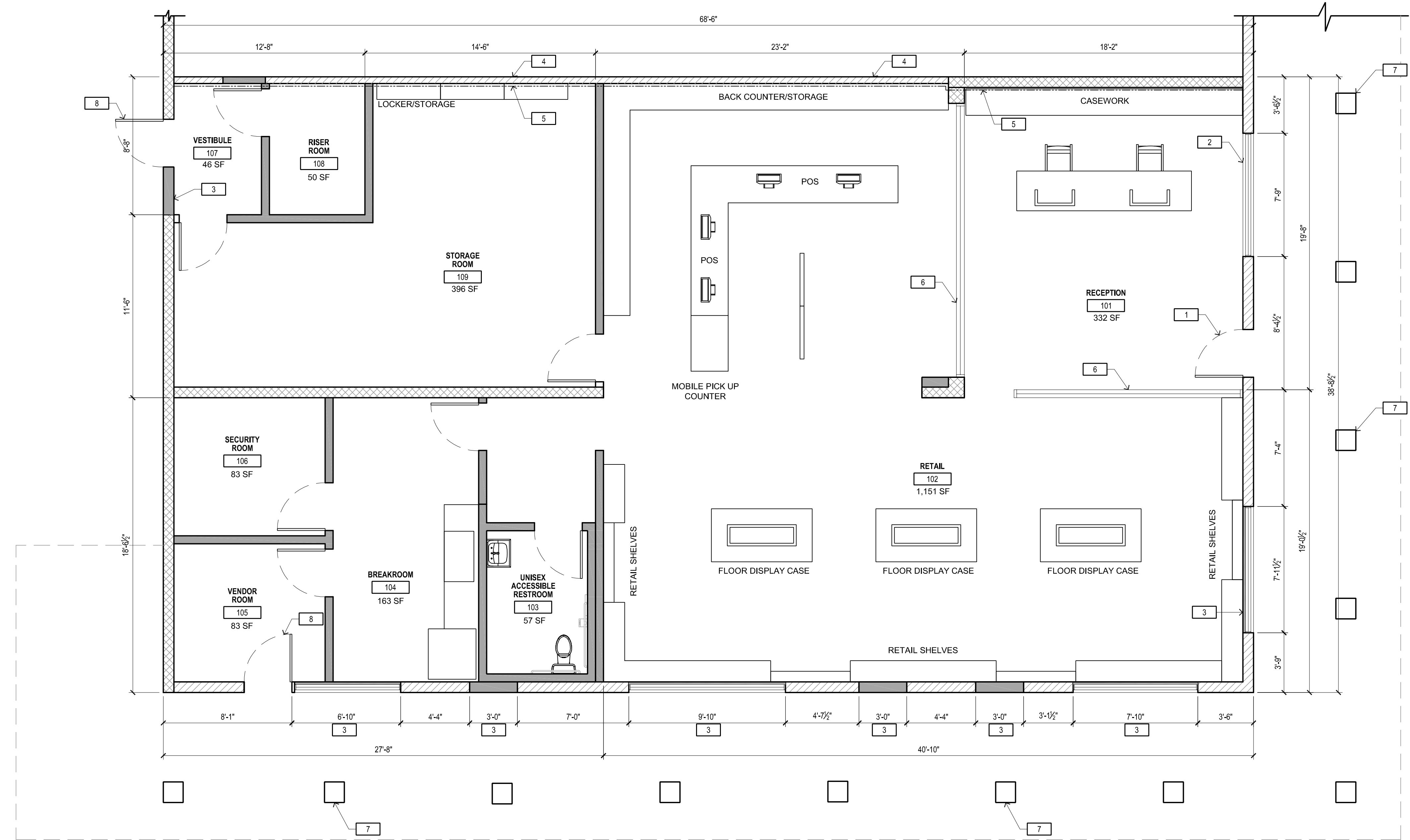
KEYNOTES

- 1 EXISTING DOOR TO REMAIN
- 2 EXISTING EXTERIOR WINDOW TO REMAIN
- 3 EXISTING WINDOW TO REMAIN. APPLY BLACK FILM FROM INTERIOR SIDE. INSTALL GYP. WALL ON THE INTERIOR SIDE.
- 4 EXISTING DEMISING WALL TO REMAIN.
- 5 LINE OF MIN. 2-HR RATED FIRE WALL
- 6 NEW FROSTED GLASS WALL
- 7 EXISTING EXTERIOR COLUMN, TYP.
- 8 NEW EXTERIOR DOOR

LEGEND

- NEW CMU WALL
- EXISTING 2X WOOD STUD WALL
- NEW NON-BEARING WALL
- PROPOSED 3-HR RATED FIRE WALL WITH 4-FOOT HORIZONTAL PROJECTION.

NOTES:
 - PROPOSED PROJECT SUITE WILL BE EQUIPPED WITH AUTOMATIC FIRE SPRINKLER SYSTEM PER 2019 CFC AND MORENO VALLEY MUNICIPAL CODE.
 - NO MAN TRAP DOORS WILL BE USED AT THIS LOCATION.



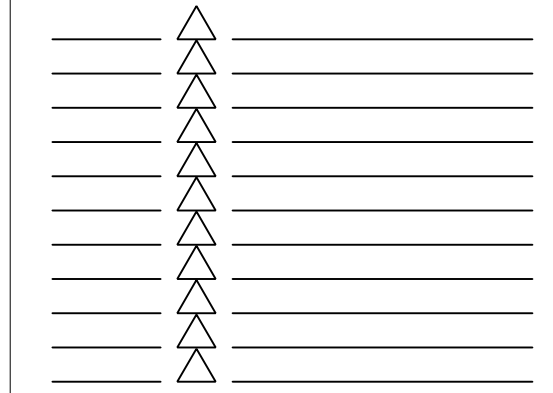
PROPOSED FLOOR PLAN 1/4"=1'-0" (1)

MOVAL NOURISH
 24760 SUNNYMEAD BOULEVARD
 MORENO VALLEY, CA. 92553

PROPOSED FLOOR PLAN

Entitlement Number: PEN20-0056
 Plan Check Number:
 2nd Planning Submittal: 05-26-2020

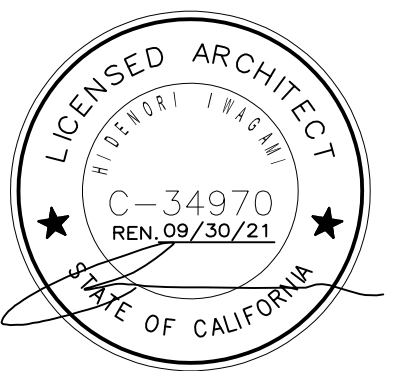
PLAN PREPARED BY: NICOLE SANDOVAL



SHEET

A2.0

Jul 7 2020 5:26 PM by: hdel
 c:\users\hdel\hdel\hdel\atelier
 sheet plotted: 05/26/2020 10:58:00 AM
 drawing file name: mval\design\entitlement\2.0 - proposed 1st floor plan.dwg



Seal

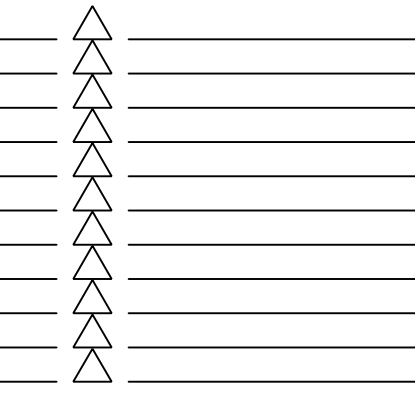
MOVAL NOURISH
24760 SUNNYMEAD BOULEVARD
MORENO VALLEY, CA. 92553

Consultant

ROOF PLAN

Entitlement Number: PEN20-0056
Plan Check Number:
2nd Planning Submittal: 05-26-2020

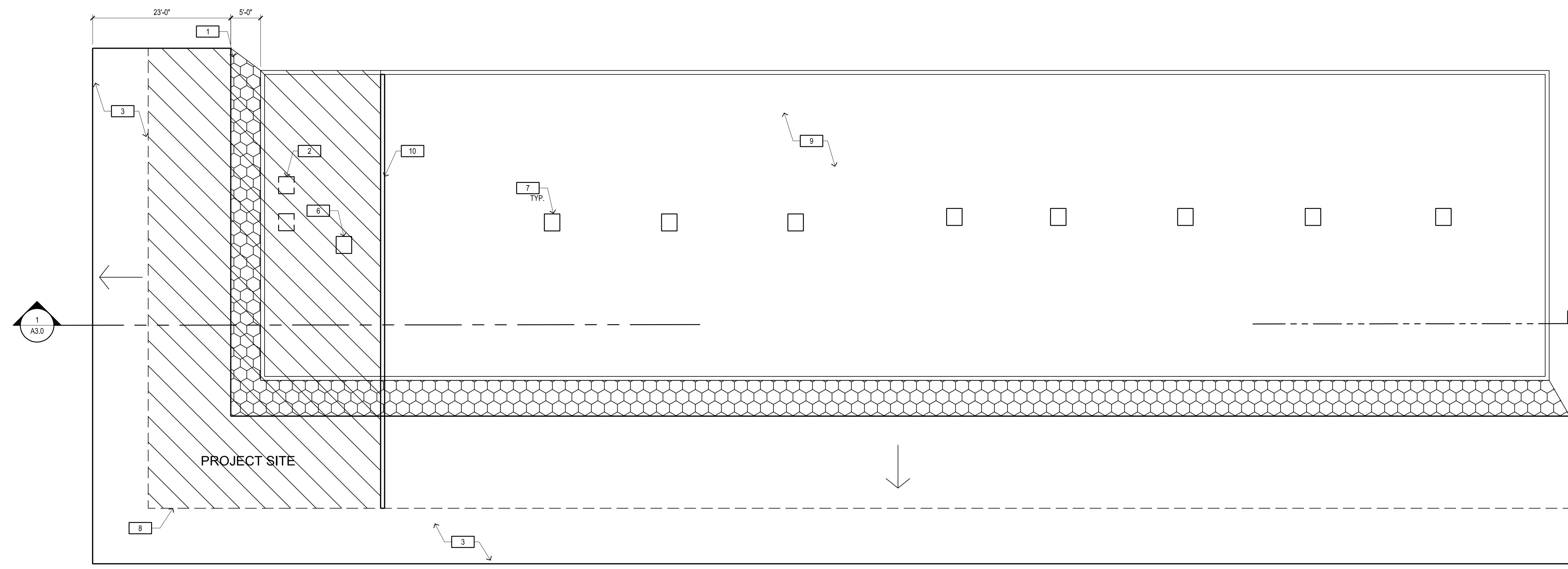
PLAN PREPARED BY: NICOLE SANDOVAL



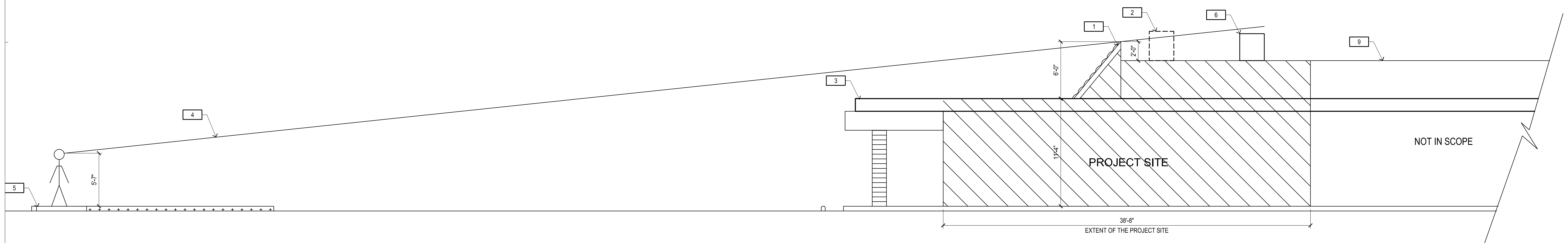
SHEET

A3.0

- ### KEYNOTES
- 1 EXISTING MAIL PARAPET TO REMAIN
 - 2 EXISTING ROOF TOP UNIT TO BE REMOVED
 - 3 EXISTING BUILDING OVERHANG
 - 4 LINE OF SIGHT
 - 5 EXISTING SIDEWALK
 - 6 NEW CONDENSING UNIT
 - 7 EXISTING ROOFTOP UNITS
 - 8 BUILDING EXTERIOR WALL
 - 9 EXISTING MECHANICAL WELL
 - 10 PROPOSED 3-HR FIRE WALL PROJECTION TO BE 30 INCHES ABOVE ROOF LINE

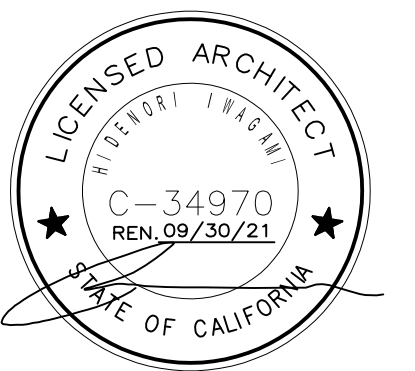


ROOF PLAN 1"=10'-0" 2



BUILDING SECTION 3/16"=1'-0" 1

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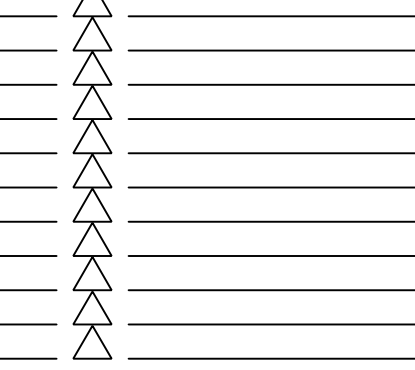
Consultant

MOVAL NOURISH
 24760 SUNNYMEAD BOULEVARD
 MORENO VALLEY, CA. 92553

EXTERIOR ELEVATIONS

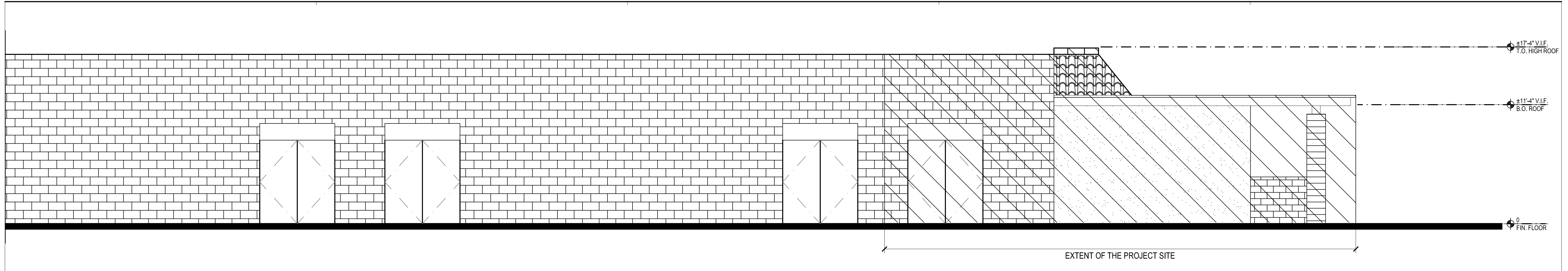
Entitlement Number: PEN20-0056
 Plan Check Number:
 2nd Planning Submittal: 05-26-2020

PLAN PREPARED BY: NICOLE SANDOVAL

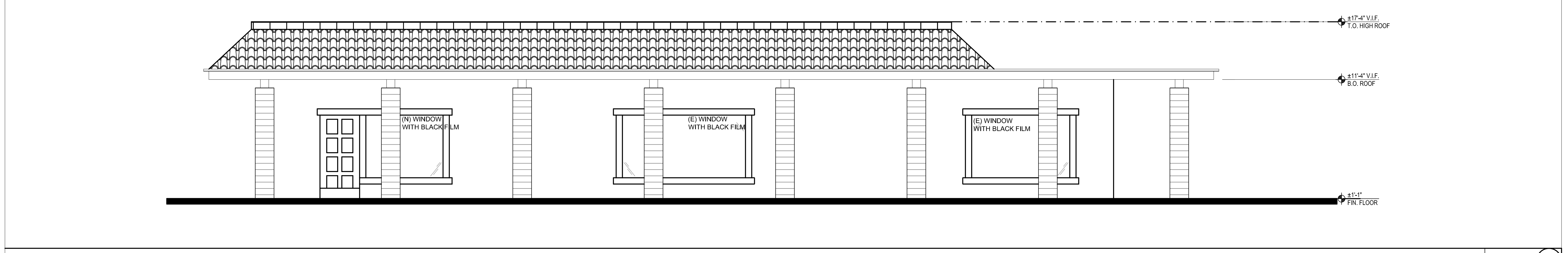


SHEET

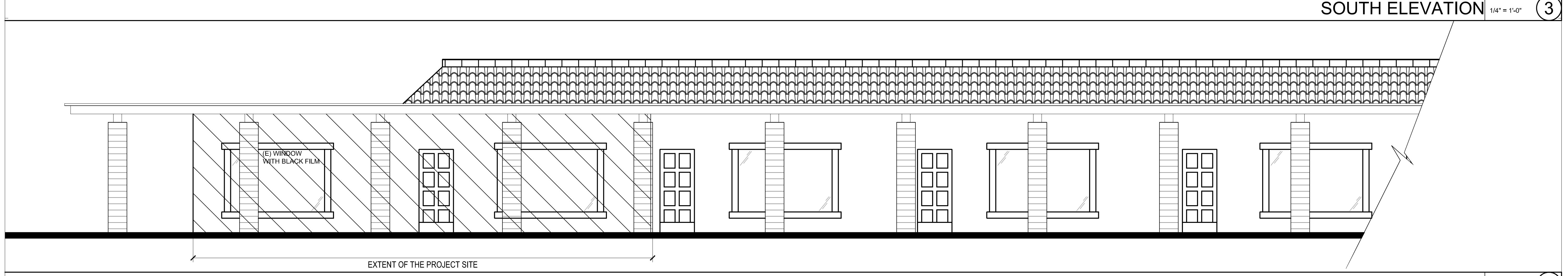
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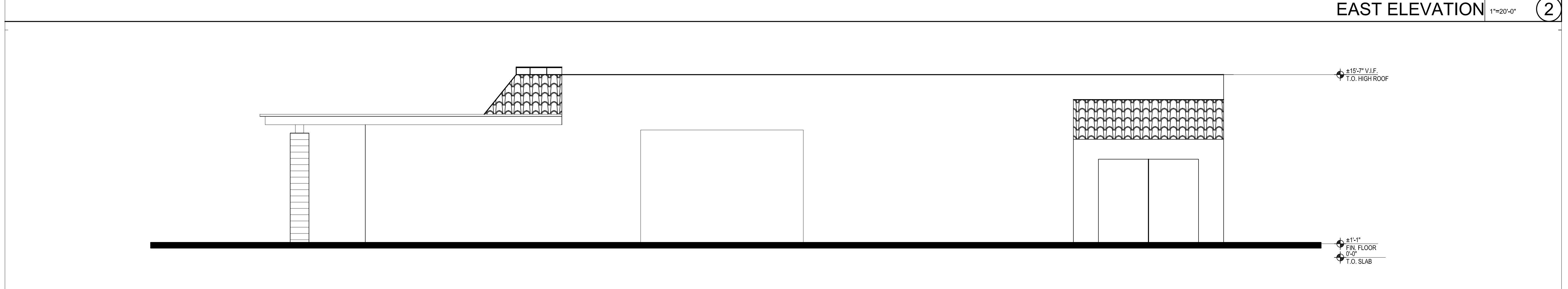
WEST ELEVATION 1/4" = 1'-0" **4**



SOUTH ELEVATION 1/4" = 1'-0" **3**



EAST ELEVATION 1" = 20'-0" **2**



NORTH ELEVATION 1/4" = 1'-0" **1**

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 drawing file name: mval05\entitlement\1.c - sunnymead.dvdr05.dwg



June 1, 2020

Hide Iwagami, Architect / CEO
 Hestia Atelier, LLP
 555 Anton Blvd. Suite 150
 Costa Mesa, CA 92626

**Re: Shared Parking Study – Moval Nourish Cannabis Dispensary
 24760 Sunnymead Blvd, Moreno Valley**

Hi Hide,

Per your request, we have conducted a shared parking study for the proposed cannabis dispensary. The study concludes that sufficient parking is provided to accommodate the parking demand of all existing and proposed uses. This letter presents our methodology, finding, and recommendation in regards to the sufficiency of on-site parking.

PROJECT INFORMATION

The proposed project is located at 24760 Sunnymead Boulevard in the City of Moreno Valley. “Moval Nourish” has filed an application to operate a cannabis dispensary at Suites 100 and 101 (2,650 sq. ft. combined). The subject suites are currently vacant. The proposed hours of business are 6 am to 10 pm daily. The project plans to slurry coat and restripe the parking lot to provide a total 60 parking spaces, including three (3) accessible spaces. Site plan is shown in **Exhibit 1**.

It is noted that the adjacent Burger King Restaurant share its access with the subject site. However, there is no reciprocal parking agreement and parking is not shared. Parking stalls on the east half of the drive aisle belong to Burger King and have been excluded from the consideration of parking availability in this project.

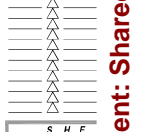
K2 Traffic Engineering, Inc.

1442 Irvine Blvd, Suite 210, Tustin, CA 92780 T.714-832-2116 Email: khsu@k2traffic.com



Entirement Number: PEN0006
Plan Check Number:
202 Planning Submittal

PLAN PREPARED BY:



S H E E T

A1.

KEYNOTES

- 1. EXISTING MAIL PAD TO REMAIN
- 2. EXISTING MAILBOX TO REMAIN
- 3. EXISTING WATER METER TO REMAIN
- 4. EXISTING BACKFLOW PREVENTER TO REMAIN
- 5. EXISTING IRRIGATION CONTROL TO REMAIN
- 6. EXISTING IRRIGATION VALVE TO REMAIN
- 7. EXISTING SIGNAGE PANEL TO REMAIN
- 8. EXISTING SIGNAGE PAD TO REMAIN
- 9. EXISTING GAS METERS TO REMAIN
- 10. EXISTING SIDE WALK TO REMAIN
- 11. EXISTING ASPHALT PAVING TO REMAIN
- 12. EXISTING PARKING LIGHT POST TO REMAIN
- 13. EXISTING STREET LIGHTS TO REMAIN
- 14. EXISTING TRASH ENCLOSURE TO REMAIN
- 15. EXISTING TRANSFORMER TO REMAIN
- 16. EXISTING COLLUMNS/BEAM TO REMAIN
- 17. EXISTING PHONE POLE TO REMAIN
- 18. LINE OF ROOF CANOPY ABOVE
- 19. PROPERTY LINE
- 20. NEW BIKE RACK
- 21. NEW RE-STRIPPED 9'X18' PARKING, TYP.
- 22. EXISTING LANDSCAPE TO REMAIN
- 23. EXISTING FIRE HYDRANT TO REMAIN
- 24. EXISTING BURGER KING MONUMENT SIGN TO REMAIN
- 25. EXISTING WHEEL STOP TO REMAIN
- 26. NEW WHEEL STOP
- 27. NEW EXTERIOR WALL MOUNTED SECURITY LIGHT
- 28. NEW EXTERIOR FLOOD LIGHT
- 29. EXISTING SIDE YARD WALL NOT TO EXCEED 6 FEET IN HEIGHT
- 30. EXISTING REAR WALL NOT TO EXCEED 5 FEET IN HEIGHT
- 31. EXISTING DRAIN GUTTER
- 32. PROPOSED SECURED PARKING
- 33. DRAINAGE INLET

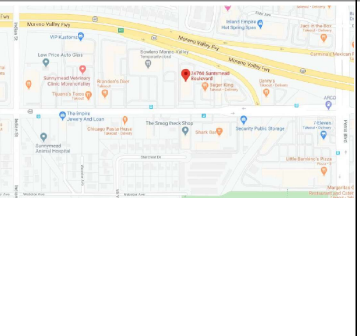
PROJECT CONTACTS

PROPERTY OWNER:
GEORGE STERN
PHONE: (810) 276-7131
24760 SUNNYMEAD BLVD.
MORENO VALLEY, CA 92553

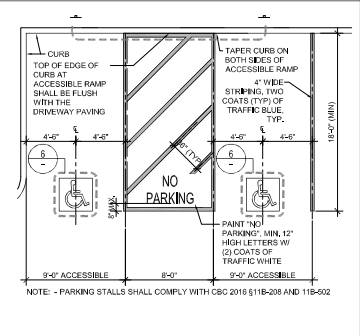
APPLICANT:
JULIE LE
PHONE: (619) 277-2827
3 CONCHATE PARK
IRVINE, CA 92606

ARCHITECT:
HIGGINS WAGMAN
PHONE: (949) 234-6000
555 ANTON BLVD, #150
COSTA MESA, CA 92626

VICINITY MAP



TYP. ACCESSIBLE STALL DETAIL



PROJECT DESCRIPTION

INTERIOR COMMERCIAL TENANT IMPROVEMENTS TO EXISTING OFFICE SUITES (100 & 101)

- DEMOLITION OF EXISTING NON-BEARING WALLS
- NEW ELECTRICAL, PLUMBING AND HVAC WORK
- INSTALLATION OF NEW BUILDING AND CANOPY MOUNTED SECURITY LIGHTS

PROJECT INFORMATION

PROJECT SITE:
MOVAL NOURISH
24760 SUNNYMEAD BOULEVARD
MORENO VALLEY, CA 92553

ZONING CLASSIFICATION: SP 204 CC (THE VILLAGE - COMMUNITY COMMERCIAL)
FEMA FLOOD ZONE: NOT IN FLOOD ZONE

ASSESSOR'S PARCEL NO.: 481-020-005

SITE ACREAGE:
GROSS: 1.07 ACRE
BUILDING LOT COVERAGE: 33.80% = 2,889 SF
LANDSCAPE COVERAGE: 2.33% = 183 SF

LEGAL DESCRIPTION:
PARCEL 1 OF PARCEL MAP 22787, IN THE CITY OF MORENO VALLEY, AS SHOWN BY MAP ON FILE IN BOOK 141, PAGES 25 AND 26 OF PARCEL MAPS, RECORDS OF RECORDS OF RIVERSIDE COUNTY, CA.

BUILDING INFORMATION:
EXISTING SINGLE STORY BUILDING: 14,838 SF
PROPOSED PROJECT USE: CONSUMER DISPENSARY IN SUITE 103 & 101 (2 SUITES HAVE ALREADY BEEN COMPLETED)
PROJECT SUITE AREA: 2,650 SF
NUMBER OF SUITES: 10 (FROM 104-110)
BUILDING CONSTRUCTION TYPE: I-0
EXISTING BUILDING HEIGHT: 17 FEET 4 INCHES

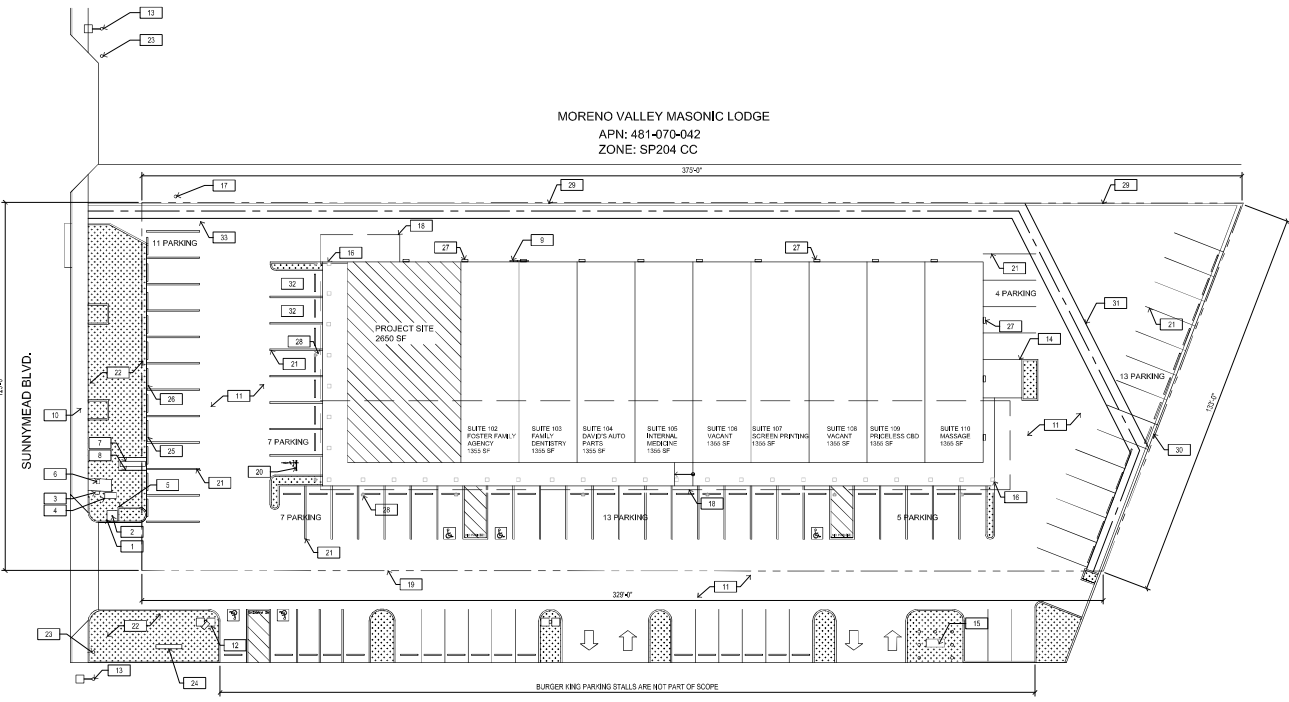
SET BACK:
BUILDING SET BACK:
FRONT: 5 FEET
SIDE: 10 FEET
REAR: 10 FEET
PARKING SET BACK:
FRONT: 20 FEET
SIDE: 15 FEET
REAR: 15 FEET

PARKING CALCULATIONS:
REQUIRE:
OFFICE USE: SUITE 102 AND 107
TOTAL GROSS SF: 27,710 SF AT 10.00 SF = 2771 PARKING
MEDICAL USE: SUITE 103 AND 105
TOTAL GROSS SF: 27,710 SF AT 10.00 SF = 2771 PARKING
RETAIL USE: SUITE 104, 106 AND 110
TOTAL GROSS SF: 189,350 SF AT 10.00 SF = 18,935 PARKING
VACANT SPACES: SUITE 100 AND 108
TOTAL GROSS SF: 2,710 SF AT 10.00 SF = 271 PARKING
PROPOSED DISPENSARY USE: 10 AND 101
TOTAL GROSS SF: 2,650 SF AT 10.00 SF = 265 PARKING

TOTAL REQUIRED: 45 STALLS
TOTAL PROVIDED: 45 STALLS

BK RACK REQUIRED: 5% OF 45 STALLS = 4 STALLS
BK RACK PROVIDED: 4 STALLS

UTILITIES:
WATER: EASTERN MUNICIPAL WATER DISTRICT
SEWER: EASTERN MUNICIPAL WATER DISTRICT
POWER: PG&E
GAS: SOUTHERN CALIFORNIA GAS
TELEPHONE: ATT



SITE PLAN 1"=20'-0" 1

EXHIBIT 1. SITE PLAN

Original issued: JAN 10 2020 10: 07 AM 10: 10 AM
City of Moreno Valley
City Engineer
City of Moreno Valley
City Engineer
City of Moreno Valley
City Engineer

EXISTING TENANTS

Existing tenants in the plaza include retail uses, general and medical offices, etc. Besides the subject units of cannabis facility, there are two other vacant units for totaling 2,710 sq. ft. at the time of this study. A complete list of tenant and vacancy information can be found in **Table 1**.

MAXIMUM PARKING DEMAND

Moreno Valley Municipal Code states that "Parking requirements for commercial cannabis dispensary businesses shall be the same as parking requirements and restrictions for off-street parking that pertains to general retail establishments" (Section 9.09.290 E (9) a). The parking requirement is one parking space per 225 sq. ft. gross floor area (GFA) and the proposed cannabis dispensary requires six (6) parking spaces.

Except the subject units of the proposed cannabis dispensary, there are two other vacant units totaling 2,710 sq. ft. of office or retail use. With an overall demand of 65 parking spaces and a capacity of 60 parking spaces, the site has a deficiency of five (5) parking spaces prior to consideration of shared parking.

Table 2. Maximum Parking Demand

Category	Parking Demand
Proposed Cannabis Facility	12
Existing Tenants and Vacant Units	53
Overall Parking Demand	65
Parking Provided	60
Deficiency	-5

Table 1. Tenant Information and Joint Use Parking Matrix

Prepared: 5/21/2020

Suite	Business Name	Use	Business Hours	Sq. Ft.	Moreno Valley Municipal Code	
					Parking Requirement (Sq.Ft./Space)	Req'd Parking Spaces
100, 101	Moval Nourish (Proposed)	Retail	Daily 8:00 am-10:00 pm	2,650	225	11.8
102	Foster Family Agency	Office	M-F 9 am-5 pm	1,355	250	5.4
103	Family Dentistry	Medical Office	M-F 9 am-5 pm	1,355	225	6.0
104	David's Auto Parts	Retail	M-Sat 9 am-6 pm	1,355	225	6.0
105	Internal Medicine	Medical Office	M-Sat 9 am-6 pm	1,355	225	6.0
106	Vacant	Retail or Office	N/A	1,355	225	6.0
107	Screen Printing	Office	M-Sat 9 am-6 pm	1,355	250	5.4
108	Vacant	Retail or Office	N/A	1,355	225	6.0
109	Priceless CBD	Retail	M-Sat 11 am-6 pm	1,355	225	6.0
110	Y.W. Massage	Retail	Daily 9 am-9 pm	1,355	225	6.0
				14,845	SUM	64.6

Parking Per Land Use Category

Proposed Project	11.8
Shopping Center (incl. retail and vacant units)	30.0
Office (incl. general & medical offices)	22.8

Parking Summary

Parking Demand	65
Parking Capacity	60
Deficiency (= Parking Capacity - Parking Demand)	-5

Attachment: Shared Parking Analysis [Revision 1] (4142 : PEN20-0056_Moval Nourish Dispensary)

SHARED PARKING ANALYSIS

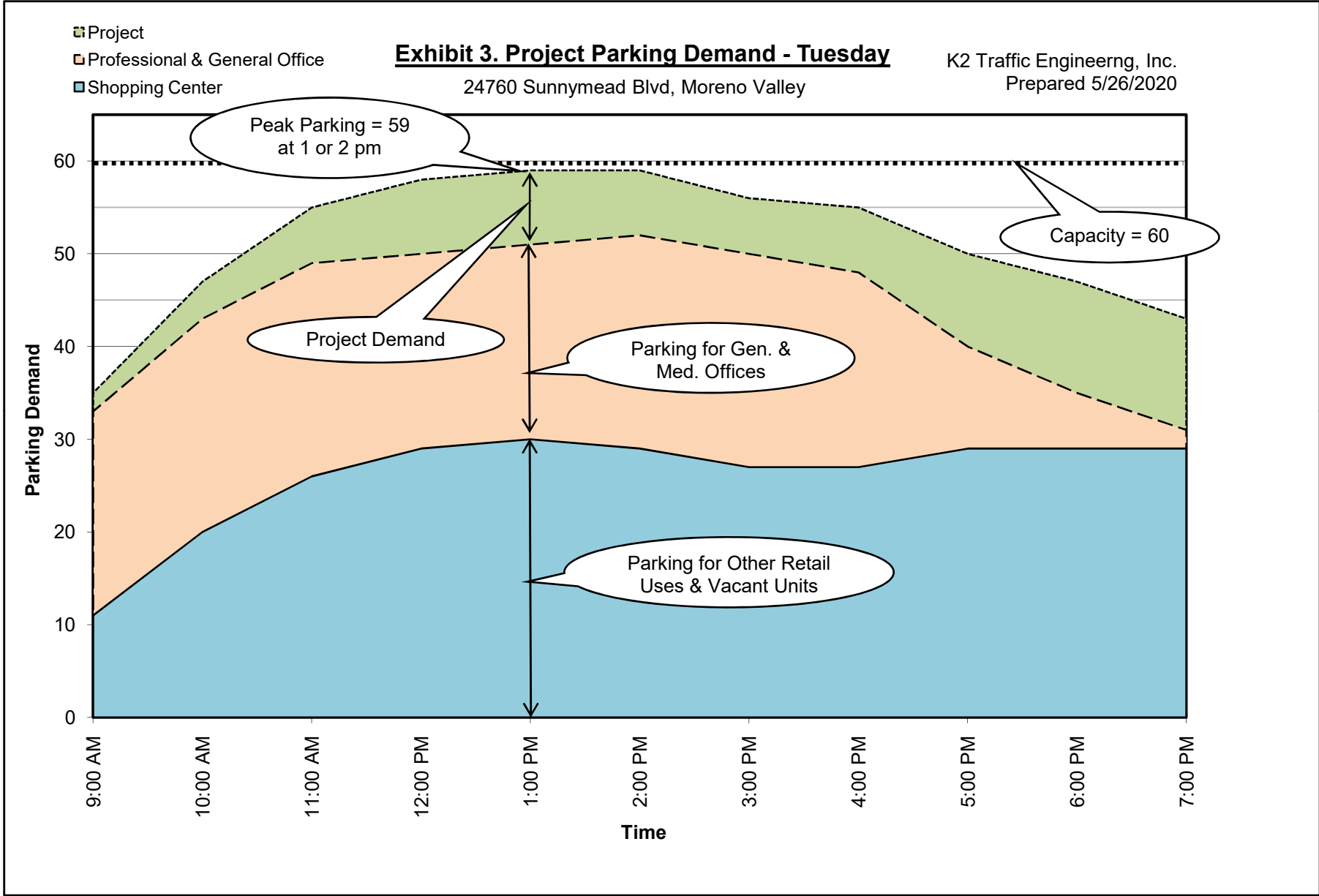
Due to the ongoing Covid-19 pandemic at the time of this study, many retail stores and offices in the subject shopping center have been mandated by local and state authorities to close business operations temporarily. Since field observation would not reflect the typical parking conditions, the study has applied the time-of-day projection of various uses, similar to evaluation of any new commercial development, based on the methodology of shared parking as recommended in *Shared Parking, Second Edition* by Urban Land Institute (ULI). The projected future parking demand on an hourly basis is shown in **Exhibit 2**.

Overall parking demand is calculated by adding hourly survey of existing tenants with projected demands for future tenants, including the proposed project and vacancies, as illustrated in **Exhibit 3**. The overall parking demand reaches its peak demand of 59 spaces at 1 pm and 2 pm. The parking lot with 60 spaces can sufficiently accommodate the parking demand of all existing and proposed uses.

Exhibit 2. Weekday Time-of-Day Factors

Land Use	Max. Parking Demand	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM
Proposed Cannabis Dispensary	11.8	20%	30%	50%	70%	70%	60%	50%	60%	85%	100%	100%
	Hourly Demand	2	4	6	8	8	7	6	7	10	12	12
Shopping Center (incl. retail and vacant units)	30.0	35%	65%	85%	95%	100%	95%	90%	90%	95%	95%	95%
	Hourly Demand	11	20	26	29	30	29	27	27	29	29	29
Office (incl. general & medical offices)	22.8	95%	100%	100%	90%	90%	100%	100%	90%	50%	25%	10%
	Hourly Demand	22	23	23	21	21	23	23	21	11	6	2
Total		35	47	55	58	59	59	56	55	50	47	43

Time-of-day factors were derived from published data in ULI's "Shared Parking " and empirical data of comparable cannabis retail stores.



ACCESSIBLE SPACES

The site adequately provides 57 regular spaces and three (3) accessible spaces. The proposed number of accessible space sufficiently meets the ADA requirement set forth by the American with Disability Act of 1990.

Regards,

K2 Traffic Engineering, Inc.

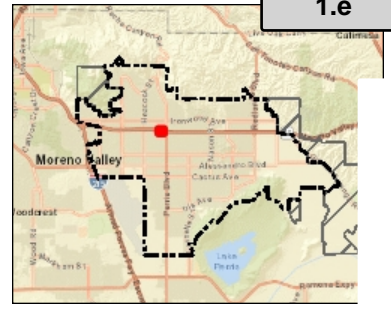


Jende Kay Hsu, T.E.
California Licensed TR2285



Attachment: Shared Parking Analysis [Revision 1] (4142 : PEN20-0056_Moval Nourish Dispensary)

Aerial Map



- Legend**
- Master Plan of Trails
 - Bridge
 - Improved
 - Multiuse
 - Proposed
 - Regional
 - State
 - Road Labels
 - Parcels
 - ⊞ City Boundary
 - ⊞ Sphere of Influence

Attachment: Aerial Map (4142 : PEN20-0056_Moval Nourish Dispensary)

Image Source: Nearmap

Notes:
PEN20-0056 - Conditional Use Permit

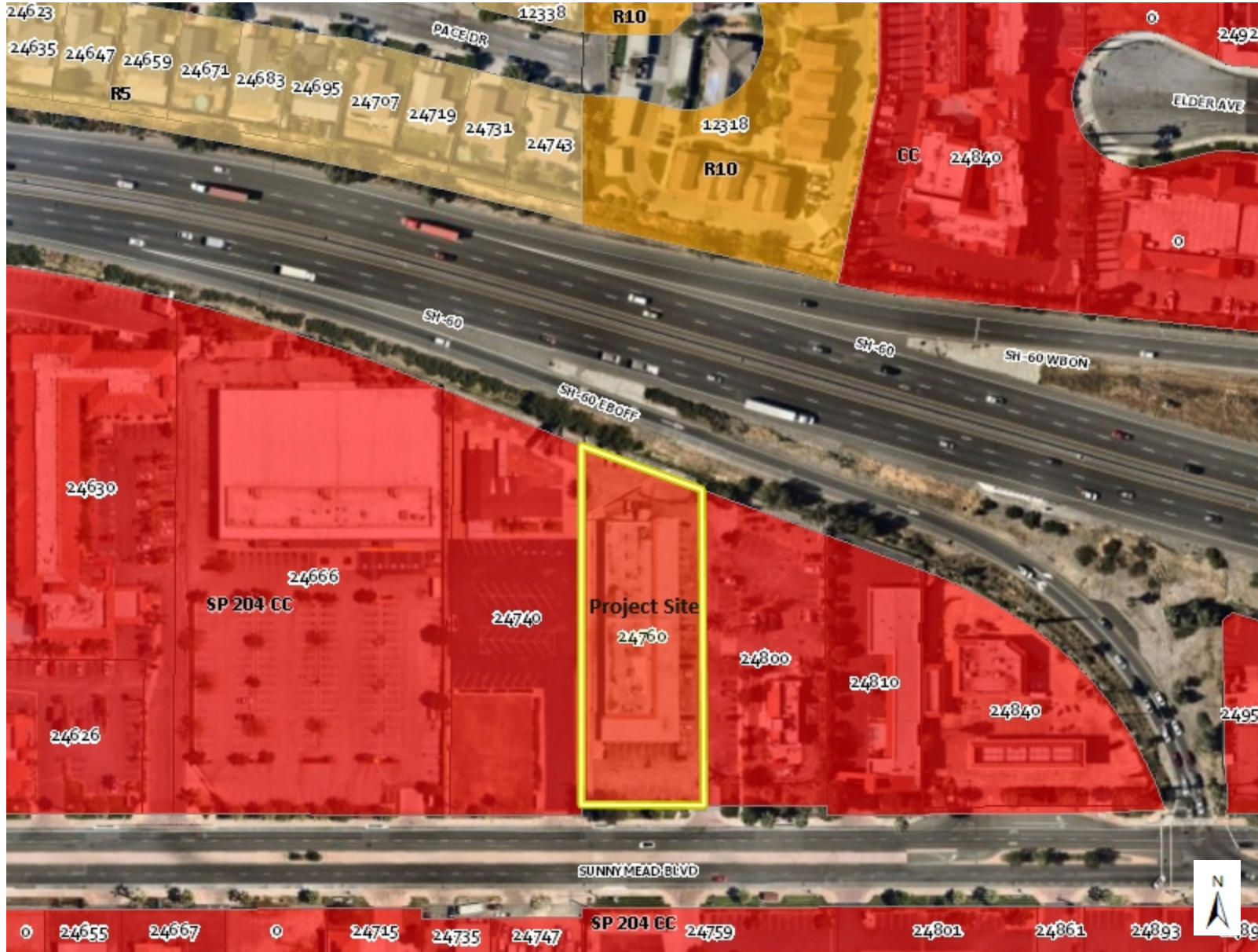
315.5 0 157.74 315.5 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

Print Date: 8/17/2020

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.

SP 204 Community Commercial District



Legend

Zoning

- Commercial
- Industrial/Business Park
- Public Facilities
- Office
- Planned Development
- Large Lot Residential
- Residential Agriculture 2 DU/AC
- Residential 2 DU/AC
- Suburban Residential
- Multi-family
- Open Space/Park

Master Plan of Trails

- Bridge
- Improved
- Multiuse
- Proposed
- Regional
- State

Road Labels

- Parcels
- City Boundary
- Sphere of Influence

Image Source: Nearmap

Notes:

PEN20-0056-Conditional Use Permit

315.5 0 157.74 315.5 Feet

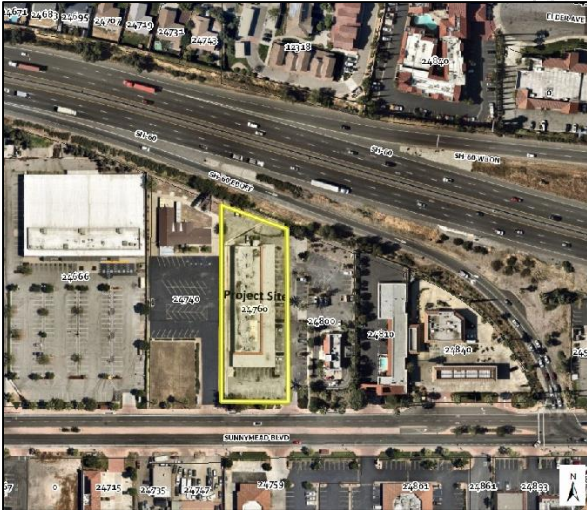
DISCLAIMER: The information shown on this map was compiled from the City of Moreno Valley GIS and Riverside County GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.



City of Moreno Valley
 Community Development Department
 Planning Division
 City Hall Council Chamber
 14177 Frederick Street
 Moreno Valley, CA 92553

NOTICE OF PUBLIC HEARING (VIA TELECONFERENCE ONLY)

PURSUANT TO COVID-19 GOVERNOR EXECUTIVE ORDER N-29-20



Notice of Teleconferenced Public Hearing before the Planning Commission of City of Moreno Valley:

DATE & TIME: September 10, 2020 at 7:00 P.M. **VIA TELECONFERENCE ON**

COVID-19 TELECONFERENCE INSTRUCTIONS:

For Teleconference Meeting public participation instructions, please see agency <http://morenovalleyca.iqm2.com/Citizens/default.aspx>

PROJECT LOCATION: 24760 Sunnymead Boulevard, Suites 100 and 101 or north side of Sunnymead Boulevard between Indian Street and the east-bound State Route 60 off-ramp. (APN: 481-082-005), District 1.

CASE NUMBER(s): PEN20-0056

CASE PLANNER: Sean P. Kelleher, Senior Planner (951) 413-3215
seanke@moval.org

<APN>
 <Property Owner>
 <Street Address>
 <City, State, Zip>

Attachment: Mailing Notice - PEN20-0056 (4142) : PEN20-

NOTICE OF PUBLIC HEARING

1.g

PROPOSAL: A Conditional Use Permit (CUP) for a retail cannabis dispensary, “MoVal Nourish” in an existing 2,650 square foot suite located in the Village Specific Plan SP 204, Community Commercial (CC) district.

ENVIRONMENTAL DETERMINATION: This project is a retail use within an existing single-story building. As designed and conditioned this project is exempt from the provisions of the California Environmental Quality Act (CEQA) under CEQA Guidelines Section 1530 for Existing Facilities.

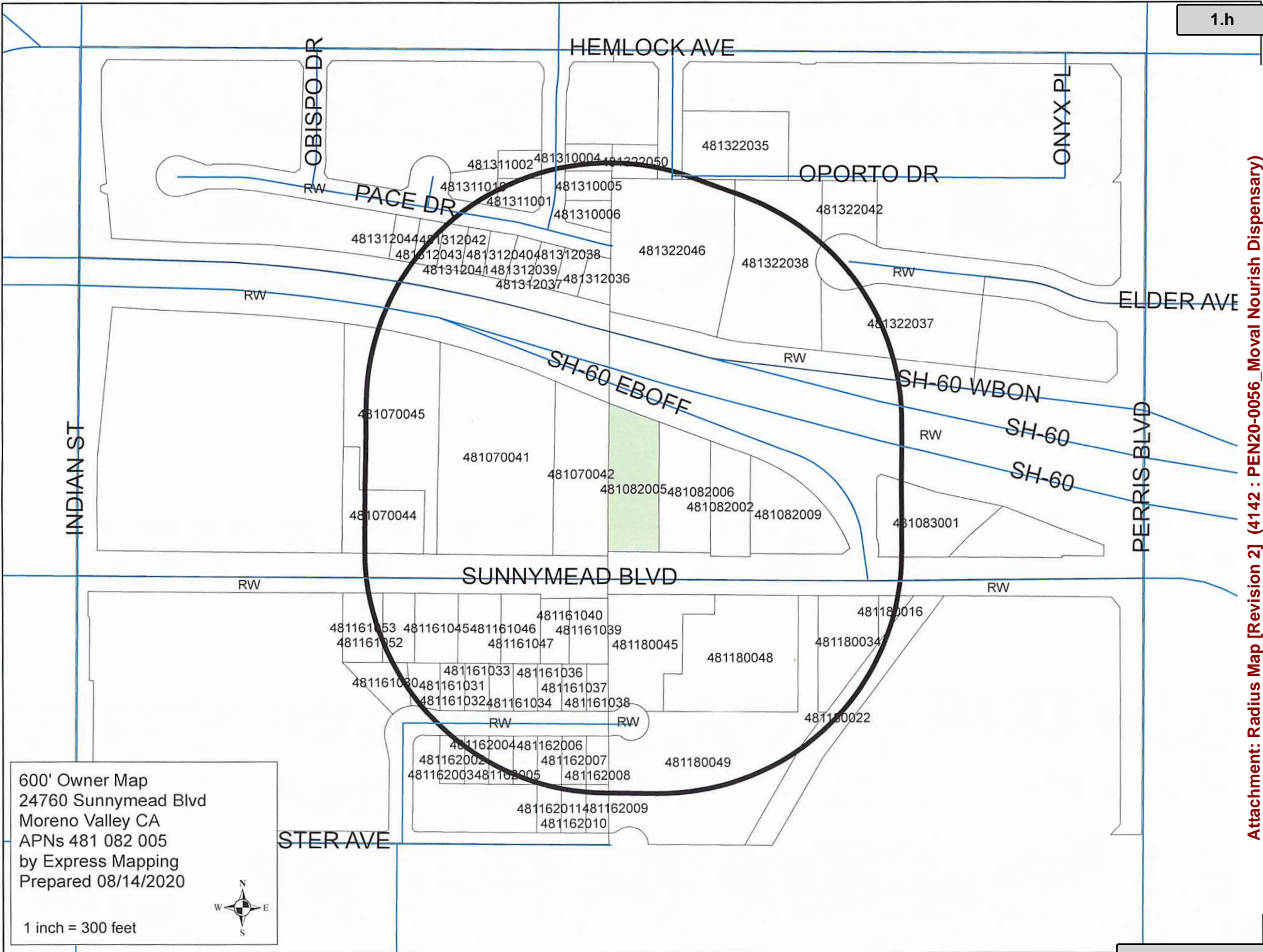
PUBLIC HEARING: All interested parties will be provided an opportunity to submit oral testimony during the teleconferenced Public Hearing and/or provide written testimony during or prior to the teleconferenced Public Hearing. The application file and related environmental documents may be inspected by appointment at the Community Development Department at 14177 Frederick Street, Moreno Valley, California by calling (951) 413-3206 during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday).

COVID-19 – IMPORTANT NOTICES: Please note that due to the COVID-19 pandemic situation, staff will attempt to make reasonable arrangements to ensure accessibility to inspect the aforementioned records. **In addition, special instructions on how to effectively participate in the teleconferenced Public Hearing, as approved by Governor Executive Order N-25-20, will be posted at <http://morenovalleyca.igm2.com/Citizens/default.aspx> and will be described in the Planning Commission agenda.**

PLEASE NOTE: The Planning Commission may consider and approve changes to the proposed items under consideration during the teleconferenced Public Hearing.

GOVERNMENT CODE § 65009 NOTICE: If you challenge any of the proposed actions taken by the Planning Commission in court, you may be limited to raising only those issues you or someone else raised during the teleconferenced Public Hearing described in this notice, or in written correspondence delivered to the Planning Division of the City of Moreno Valley during or prior to, the teleconferenced Public Hearing.

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.

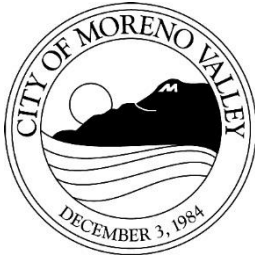


600' Owner Map
 24760 Sunnymead Blvd
 Moreno Valley CA
 APNs 481 082 005
 by Express Mapping
 Prepared 08/14/2020



1 inch = 300 feet

Attachment: Radius Map [Revision 2] (4142 : PEN20-0056_Moval Nourish Dispensary)



PLANNING COMMISSION

STAFF REPORT

Meeting Date: September 10, 2020

A TENTATIVE TRACT MAP TTM 37725 TO SUBDIVIDE 20.18 ACRES OF VACANT LAND INTO SIXTY-SIX (66) RESIDENTIAL LOTS AND 2 LETTERED LOTS FOR WATER QUALITY TREATMENT FACILITIES.

Case:	PEN19-0188 - TTM 37725
Applicant:	PI Properties No. 67 LLC
Property Owner	PI Properties No. 67 LLC
Representative	Thatcher Engineering & Associates, Inc
Location:	Southwest corner of Perris Boulevard and Krameria Street
Case Planner:	Julia Descoteaux
Council District:	4
Proposal	A Tentative Tract Map TTM 37725 to subdivide 20.18 acres of vacant land into sixty-six (66) residential lots and 2 lettered lots for water quality treatment facilities.

SUMMARY

The applicant, PI Properties No. 67 LLC, has submitted an application for Tentative Tract Map 37726 to subdivide approximately 20.18 acres into sixty-six single-family residential lots with two (2) lettered lots for water quality treatment facilities. The proposed subdivision is located at the southwest corner of Perris Boulevard and Krameria Avenue.

PROJECT DESCRIPTION

The applicant, PI Properties No. 67 LLC, is requesting approval of Tentative Tract Map 37726 for the subdivision of approximately 20.18 acres into sixty-six single-family residential lots. Each proposed lot is consistent with the Residential 5 (R5) District regulations, which requires lots to be a minimum of 7,200 square feet (minimum 70'x100'). The proposed map provides lots ranging from 7,212 to 15,950 square feet. Lettered lots A and B identified on the map as bio retention areas are required for water quality treatment.

Site and Surrounding Area

The vacant project site consists of five (5) parcels located on the southwest corner of Perris Boulevard and Krameria Avenue, and all five (5) parcels are zoned Residential 5 (R5) District. Properties to the north, south, and west are zoned Residential 5 (R5) District and are developed with single-family residences. To the east across Perris Boulevard is a small lot residential tract that is zoned Residential single-family 10 (RS10) District. To the northeast is a parcel that has an existing shopping center zoned Community Commercial (CC) District.

Access/Parking

The proposed subdivision includes the construction of new streets within the interior of the tract. These streets will connect to the existing roadway network via a new street (Street "E") at Krameria Avenue that aligns with Windbreak Street. Access to the interior of the tract will also be provided by the extension of Kettenburg Lane. Finally, eight lots will be accessed from Tarano Lane, an existing street.

Design/Landscaping

The design of the tract is consistent with the goals and objectives of the City's General Plan to provide a variety of housing opportunities. As designed, the project is consistent with the provisions of Chapter 9.03 Residential Districts, Section 9.16.130 Design Guidelines, and Section 9.14 Land Divisions of the Municipal Code. All zoning and development guidelines have been satisfied.

Through conditions of approval applied to the project, the developer must create a homeowner's association (HOA) prior to recordation of the final map. The HOA will be required to accept ownership of the water quality treatment facilities and maintain them in perpetuity.

Fences and walls must be constructed consistent with the provisions of the Municipal Code. Perimeter block walls surrounding the tract are required. A combination retaining/tract boundary wall is required along the southeastern property line to maintain existing off-site grades. The retaining portion of the wall will be a maximum of four feet (4') high at the southeastern end of the project tapering down as the grade changes to the west. Atop the retaining wall will be a five-foot (5') solid block wall with a one-foot (1') tubular steel fence on top, not to exceed nine (9') feet of a solid block wall and ten feet (10') in overall height. The Municipal Code limits retaining walls on a boundary line

to three feet (3') in height; as such, approval of a minor variance will be required prior to the issuance of grading permits. Maintenance responsibility for the walls and fences shall be borne by the respective homeowners or may be included in the responsibility of the HOA at the discretion of the applicant.

Perimeter landscaping for the tract will be required per the Municipal Code requirements. Street and parkway landscaping on Perris Boulevard at the southerly edge shall reduce the street trees, site trees and shrubs to ensure the line-of-site is maintained for the southerly residents.

REVIEW PROCESS

The application for this project was submitted in August 2019. The project has been considered by all appropriate agencies within and outside of the City, as is the standard review process with these types of development applications. The project was reviewed by the Project Review Staff Committee as required by the City Municipal Code. Following subsequent revisions and reviews by staff, the project was determined to be complete with a recommendation to approve the project as designed and conditioned.

ENVIRONMENTAL

MIG, Inc. prepared an Initial Study in compliance with California Environmental Quality Act (CEQA) Guidelines. The Initial Study examined the potential impacts the proposed project may have on the environment and provided information in support of the findings for a Mitigated Negative Declaration. Studies for this project included the following: Air Quality Modeling Data, Biological Resources Analyses, Phase I Cultural Resources Technical Report and a Geotechnical Investigation Report.

Project impacts were found to be less than significant for most categories in the Initial Study. However, when impacts were identified, mitigation measures are included that reduce any potential impact to a less than significant level. The Mitigation Monitoring and Reporting Program prepared for the project will ensure implementation of the mitigation measures.

Notice of the Intent to Adopt a Mitigation Negative Declaration was released on June 5, 2020 through July 6, 2020. During the review period six responses were received; five identified either no comment or were for informational purposes only. The sixth comment was not environmentally related; it was received from a property owner located to the south of the tract requesting a block wall along the tract's southerly property line (their northerly property line) which is already proposed. Additionally, they expressed concern with their ability to see vehicle traffic heading southbound on Perris Boulevard; therefore, a condition of approval has been added which will ensure that line of sight from the existing driveways on Perris Boulevard south of the proposed tract map is maintained.

Based on the Initial Study, with mitigation, the Tentative Tract Map will not cause substantial impacts or environmental damage.

NOTIFICATION

Public notice was sent to all property owners of record within 600' 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 has coordinated with outside agencies and where applicable, as is the standard review process with these types of development applications. Throughout the review process, comments and proposed conditions of approval were provided in writing to the applicant.

STAFF RECOMMENDATION

Staff recommends that the Planning Commission

APPROVE Resolution No. 2020-38, and thereby:

1. **ADOPT** the Initial Study/Mitigated Negative Declaration prepared for Tentative Parcel Map 37725 PEN19-0188, on file with the Community Development Department, which is incorporated herein by this reference, and completed in compliance with the California Environmental Quality Act and the CEQA Guidelines, and that the Planning Commission reviewed and considered the information contained in the Initial Study/Mitigated Negative Declaration, which reflects the City's independent judgment and analysis; attached hereto as Exhibit A; and
2. **ADOPT** the Mitigation Monitoring and Reporting Program prepared for Tentative Parcel Map 37725 PEN19-0188 pursuant to the California Environmental Quality Act (CEQA) Guidelines, and included as Exhibit B;
3. **ADOPT** Resolution No. 2020-32 approving Tentative Tract Map 37725 (application PEN19-0188) based on the findings contained in this resolution and the administrative record of the proceedings, and subject to the attached conditions of approval included as Exhibit A.

Prepared by:
Julia Descoteaux
Associate Planner

Approved by:
Patty Nevins
Planning Official

ATTACHMENTS

1. Resolution 2020-38 MND
2. Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration

3. Exhibit A Initial Study Appendices
4. Exhibit B to 2020-38 MMRP
5. Resolution 2020-32 Tentative Tract Map 37725
6. Exhibit A to 2020-32 Conditions of Approval
7. Tentative Tract Map 37725
8. Location Map
9. Zoning Map
10. Hearing Notice

PLANNING COMMISSION RESOLUTION NO. 2020-38

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, ADOPTING THE MITIGATED NEGATIVE DECLARATION AND THE MITIGATION MONITORING AND REPORTING PROGRAM FOR TENTATIVE TRACT MAP 37725 (PEN19-0188).

WHEREAS, the PI Properties No. 67 LLC, (“Applicant”) has filed an application for the approval of Tentative Tract Map 37725, PEN19-0188, to subdivide a 20.18-acre site into sixty-six single family lots and two lettered lots (“Project”); 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 was prepared which determined that a Mitigated Negative Declaration for the Project should be prepared, consistent with the California Environmental Quality Act (CEQA); and

WHEREAS, a 30-day Notice of Intent to Adopt a Mitigated Negative Declaration with a public review period for the Initial Study and Mitigated Negative Declaration commenced on June 5, 2020 and concluded on July 6, 2020 with public notice published in the local newspaper on June 5, 2020; and

WHEREAS, the public hearing notice for the Project was published in the local newspaper on August 28, 2020, sent to all property owners of record within 600 feet of the project site on August 27, 2020, and posted on the project site on August 28, 2020;

WHEREAS, the City, in conducting its own independent analysis of the Initial Study, 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 Mitigation Monitoring and Reporting Program (MMRP) has been prepared in accordance with CEQA and the CEQA Guidelines, and is designed to 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 of Moreno Valley considered the Project, including all environmental documentation, at a public hearing held on September 10, 2020; 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 the CEQA Guidelines, and based on the Initial Study including all supporting technical evidence, it was determined that the Project's 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 this Resolution are true and correct.
- B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on September 10, 2020, including written and oral staff reports, and the record from the public hearing, this Planning Commission finds as follows:
 1. Independent Judgment and Analysis - The Mitigated Negative Declaration/Initial Study and related technical studies prepared for Tentative Tract Map 37725 were properly noticed and made available for public review in accordance with the California Environmental Quality Act and the CEQA Guidelines. The Initial Study and 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 California Environmental Quality Act and the CEQA Guidelines, reflects the independent judgment and analysis of the City.

BE IT FURTHER RESOLVED that the Planning Commission **HEREBY ADOPTS** Resolution No. 2020-38 and thereby:

1. **APPROVES** the Mitigated Negative Declaration attached hereto as Exhibit A, that was prepared for Tentative Tract Map 37725, PEN19-0189 on file with the Community Development Department, incorporated herein by this reference, which has been completed in compliance with the California Environmental Quality Act and the CEQA Guidelines, reviewed and considered by the Planning Commission based on its independent judgment and analysis; attached hereto as Exhibit A; and
2. **ADOPT** the Mitigation Monitoring and Reporting Program for Tentative Tract Map 37725 PEN19-0188, attached hereto as Exhibit B.

APPROVED this 10th day of September 2020.

 Patricia Korzec
 Chairperson, Planning Commission

ATTEST:

APPROVED AS TO FORM:

 Patty Nevins, Planning Official
 Secretary to the Planning Commission

 City Attorney

ATTACHMENTS:

- Exhibit A: Initial Study / Mitigated Negative Declaration
- Exhibit B: Mitigation Monitoring and Reporting Program

Attachment: Resolution 2020-38 MND [Revision 5] (4089 : PEN19-0188 Tentative Tract Map 37725)

**Krameria Avenue Tentative Tract Map No. 37725
Initial Study
Mitigated Negative Declaration**

State Clearinghouse No. 2020060101

Lead Agency:

City of Moreno Valley
Planning Division
14177 Frederick Street
P.O. Box 88005
Moreno Valley, California 92552



Prepared for:

Positive Investments
610 North Santa Anita Avenue
Arcadia, California 91006

Prepared by:

MIG, Inc.
1500 Iowa Avenue, Suite 110
Riverside, California 92507



Public Review Draft
June 3, 2020

- This document is designed for double-sided printing -

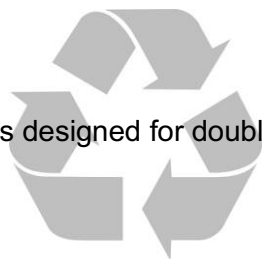


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Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188 Tentative Tract Map 37725)

1 Introduction

The City of Moreno Valley (Lead Agency) received an application from P.I. Properties No. 67 LLC (Project Proponent) for the subdivision of 20.18 gross acres (19.08 net acres) into sixty-six (66) single-family residential lots in the City of Moreno Valley, California. The approval of the application constitutes a *project* that is subject to review under the California Environmental Quality Act (CEQA) 1970 (Public Resources Code §§ 21000, *et seq.*), and the CEQA Guidelines (14 California Code of Regulations §§ 15000, *et seq.*).

This Initial Study was prepared to assess the short-term, long-term, and cumulative environmental impacts that could result from the proposed project.

This report was prepared to comply with CEQA Guidelines § 15063, which sets forth the required contents of an Initial Study. These include:

- A description of the project, including the location of the project (See Section 2);
- Identification of the environmental setting (See Section 2.11);
- Identification of environmental effects by use of a checklist, matrix, or other methods, provided that entries on the checklist or other form are briefly explained to indicate that there is some evidence to support the entries (See Section 4);
- Discussion of ways to mitigate significant effects identified, if any (See Section 4);
- Examination of whether the project is compatible with existing zoning, plans, and other applicable land use controls (See Section 4.10); and
- The name(s) of the person(s) who prepared or participated in the preparation of the Initial Study (See Section 5).

1.1 – Purpose of CEQA

CEQA § 21000 of the California Public Resources Code provides as follows:

The Legislature finds and declares as follows:

- a) The maintenance of a quality environment for the people of this state now and in the future, is a matter of statewide concern.
- b) It is necessary to provide a high-quality environment that at all times is healthful and pleasing to the senses and intellect of man.
- c) There is a need to understand the relationship between the maintenance of high-quality ecological systems and the general welfare of the people of the state, including their enjoyment of the natural resources of the state.
- d) The capacity of the environment is limited, and it is the intent of the Legislature that the government of the state take immediate steps to identify any critical thresholds for the health and safety of the people of the state and take all coordinated actions necessary to prevent such thresholds being reached.
- e) Every citizen has a responsibility to contribute to the preservation and enhancement of the environment.
- f) The interrelationship of policies and practices in the management of natural resources and waste disposal requires systematic and concerted efforts by public and private interests to enhance environmental quality and to control environmental pollution.
- g) It is the intent of the Legislature that all agencies of the state government which regulate activities of private individuals, corporations, and public agencies which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing

Introduction

environmental damage, while providing a decent home and satisfying living environment for every Californian.

The Legislature further finds and declares that it is the policy of the state to:

- h) Develop and maintain a high-quality environment now and in the future, and take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state.
- i) Take all action necessary to provide the people of this state with clean air and water, enjoyment of aesthetic, natural, scenic, and historic environmental qualities, and freedom from excessive noise.
- j) Prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities and examples of the major periods of California history.
- k) Ensure that the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian, shall be the guiding criterion in public decisions.
- l) Create and maintain conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of present and future generations.
- m) Require governmental agencies at all levels to develop standards and procedures necessary to protect environmental quality.
- n) Require governmental agencies at all levels to consider qualitative factors as well as economic and technical factors and long-term benefits and costs, in addition to short-term benefits and costs and to consider alternatives to proposed actions affecting the environment.

A concise statement of legislative policy, with respect to public agency consideration of projects for some form of approval, is found in CEQA § 21002, quoted below:

The Legislature finds and declares that it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects. The Legislature further finds and declares that in the event specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof.

1.2 – Tiering

Section 15152 of the State CEQA Guidelines allows the Lead Agency to “tier” the environmental analysis for separate but related projects. Per Section 15152(b) of the State CEQA Guidelines, tiering “can eliminate repetitive discussions of the same issues and focus the later EIR or Negative Declaration on the actual issues ripe for decision at each level of environmental review. Tiering is appropriate when the sequence of analysis is from an EIR prepared for a general plan, policy, or program to an EIR or Negative Declaration for another plan, policy, or program or lesser scope, or to a site-specific EIR or Negative Declaration.” Per Section 15152(d) of the State CEQA Guidelines, tiering “shall be limited to situations where the project is consistent with the general plan and zoning of the city or county in which the project is located, except that a project requiring a rezone to achieve or maintain conformity with a general plan may be subject to tiering.”

Section 15168 of the State CEQA Guidelines states that a Program EIR may be prepared when a series of actions that can be characterized as one Project and are related either: (1) geographically, (2) logical parts in the chain of contemplated actions, (3) in connection with issuance or rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

The City of Moreno Valley prepared a Program EIR (SCH# 200091075) to evaluate the environmental impacts of adopting and implementing the longer-range vision for development within the City. On July 11, 2006, the City Council approved a comprehensive update of the City's General Plan and certified the related Final Program Environmental Impact Report (Certified EIR). The 2014-2021 Housing Element (Chapter 8) was approved by the City Council on February 11, 2014.

Section 15168(c) of the State CEQA Guidelines allows subsequent activities identified in the Program EIR to be examined in light of the Program EIR to determine whether an additional environmental document must be prepared. Per Section 15168(c)(3), where "subsequent activities involve site-specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the Program EIR."

This IS/MND has been prepared in accordance with Sections 15162 and 15168 of the State CEQA Guidelines. The Tentative Tract Map subdividing the Project site into 66 single-family lots is the subject of this IS/MND, which builds on the impact findings of the Certified EIR to further analyze the site-specific impacts of the Tentative Tract Map. Where applicable, the analysis and mitigation measures identified in the Certified EIR are incorporated by reference into this IS/MND.

Based on the analysis presented in this IS/MND, the City of Moreno Valley has determined there are no new significant impacts resulting from the Tentative Tract Map after incorporation of mitigation, nor is there any substantial increase in the severity of any previously identified significant environmental impacts. As such, a tiered IS/MND is the appropriate environmental documentation for the proposed Project.

1.3 – Public Comments

Comments from all agencies and individuals are invited regarding the information contained in this Initial Study. Such comments should explain any perceived deficiencies in the assessment of impacts, identify the information that is purportedly lacking in the Initial Study or indicate where the information may be found. All materials related to the preparation of this Initial Study are available for public review. To request an appointment to review these materials, please contact:

Julia Descoteaux, Associate Planner
 Planning Division
 14177 Frederick Street
 P.O. Box 88005
 Moreno Valley, California 92552
 951-413-3209

Following a 30-day period of circulation and review of the Initial Study, all comments will be considered by the City of Moreno Valley prior to adoption. All materials related to the preparation of this Initial Study are available for public review. To request an appointment to review these materials, please contact the Planning Division.

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Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188 Tentative Tract Map 37725)

2 Project Description

2.1 – Project Title

Krameria Avenue Tentative Tract Map (TTM) No. 37725

2.2 – Lead Agency Name and Address

City of Moreno Valley
 Planning Division
 14177 Frederick Street
 P.O. Box 88005
 Moreno Valley, California 92552
 951-413-3206

2.3 – Contact Person and Phone Number

Julia Descoteaux, Associate Planner
 951-413-3209

2.4 – Project Location

The project site is located at the southwest corner of Krameria Avenue and Perris Boulevard in the City of Moreno Valley, Riverside County, California (See Exhibit 1, Regional Context Map and Exhibit 2, Project Vicinity Map). The project site is bounded by residential uses on all sides.

- Latitude 33° 52' 48.96" North, Longitude 117° 13' 42.00" West
- APNs: 316-110-024; 316-110-023; 316-110-005; 316-110-006; and 316-110-022

2.5 – Project Sponsor's Name and Address

P.I. Properties No. 67 LLC
 c/o Thatcher Engineering & Associates, Inc.
 1461 Ford Street, Suite 105
 Redlands, California 92373

2.6 – General Plan Land Use Designation

Residential (5 du/ac)

2.7 – Zoning District

Residential 5 (R5) District

2.8 – Project Description

The Project site is approximately 20.18 gross acres (19.08 net acres) and is currently vacant. The project includes the subdivision of the site into sixty-six (66) single-family residential lots ranging in size from 7,212 square feet to 15,950 square feet. (see Exhibit 3, Tentative Tract Map). The Project also includes one (1) lettered lot at the southwest corner of the site, which would be designated for future use as an infiltration basin. Access to the site would be provided via a local street extension (shown as “E” Street on the TTM) on Krameria Avenue just west of Perris Boulevard, and via the extension of the existing Kettenburg Lane on the south side of the site. Interior circulation will be provided via a roadway connecting both site access points. The Project will also include a stormwater infiltration basin at the southwest corner of the site, landscape and utility easements, street and sidewalk improvements, drainage improvements, and a six-foot high block wall along the north, east and southern boundaries of the TTM. The block wall will be conditioned to be a decorative block wall. The proposed project will connect to existing water, sanitary sewer, electricity, and gas facilities. Water and sewer service are provided by the Eastern Municipal Water District. Electricity would be provided by Moreno Valley Electric Utility and natural gas will be provided by the Southern California Gas Company. Utility undergrounding would be required.

2.9 – Surrounding Land Uses

The project site is bounded by residential uses on all sides. Surrounding uses are summarized in Table 1 (Surrounding Land Uses).

Table 1
Surrounding Land Uses

Direction	General Plan Designation	Zoning District	Existing Land Use
Project Site	Residential (5 du/ac)	Residential 5 (R5) District	Single-Family Homes
North	Residential (5 du/ac)	Residential 5 (R5) District	Single-Family Homes
South	Residential (5 du/ac)	Residential 5 (R5) District	Single-Family Homes
East	Residential (10 du/ac)	Residential 5 (R5) District	Single-Family Homes
West	Residential (5 du/ac)	Residential 5 (R5) District	Single-Family Homes

2.10 – Environmental Setting

The project is located on a vacant site in a developed area in the City of Moreno Valley, Riverside County, California. The project site is surrounded by residential uses and the area is built-out and urbanized. Disturbed non-native vegetation is located on the site. An existing storm drain daylights onto the site near the intersection of Krameria Avenue and Tarano Lane, and flows into an unnamed, ephemeral drainage running north to south along the western boundary of the project site. The ephemeral drainage potentially includes jurisdictional waters of the U.S. and the State and is discussed further under the Biological Resources section of this document.

The site is bound to the west by Tarano Lane, to the south by single-family homes, to the north by Krameria Avenue, and to the east by Perris Boulevard. There are single-family homes located on the opposite side of Tarano Lane, Krameria Avenue, and Perris Boulevard from the Project site. Interstate 215 is located approximately 2.1 miles to the west of the project site. The project site is relatively flat with an elevation ranging between approximately 1,484 to 1,490 feet above mean sea level (AMSL).

- The site does not contain scenic resources.
- The site is not currently being used for agricultural purposes.

2.11 – Required Approvals

The City of Moreno Valley is the only land use authority for this project requiring the following approvals:

- Tentative Tract Map

2.12 – Other Public Agency Whose Approval is Required

- United States Army Corps of Engineers (USACE)
- California Department of Fish and Wildlife (CDFW)
- Regional Water Quality Control Board (RWQCB)
- Western Riverside County Regional Conservation Authority (RCA)

Project Description

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Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188 Tentative Tract Map 37725)



Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188



Not to Scale



Exhibit 1 Regional Context Map

Thatcher Engineering Krameria Avenue TTM No. 37725
Moreno Valley, California

Project Description

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Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188



Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188



Exhibit 2 Project Vicinity Map

Thatcher Engineering Krameria Avenue TTM No. 37725
Moreno Valley, California



Project Description

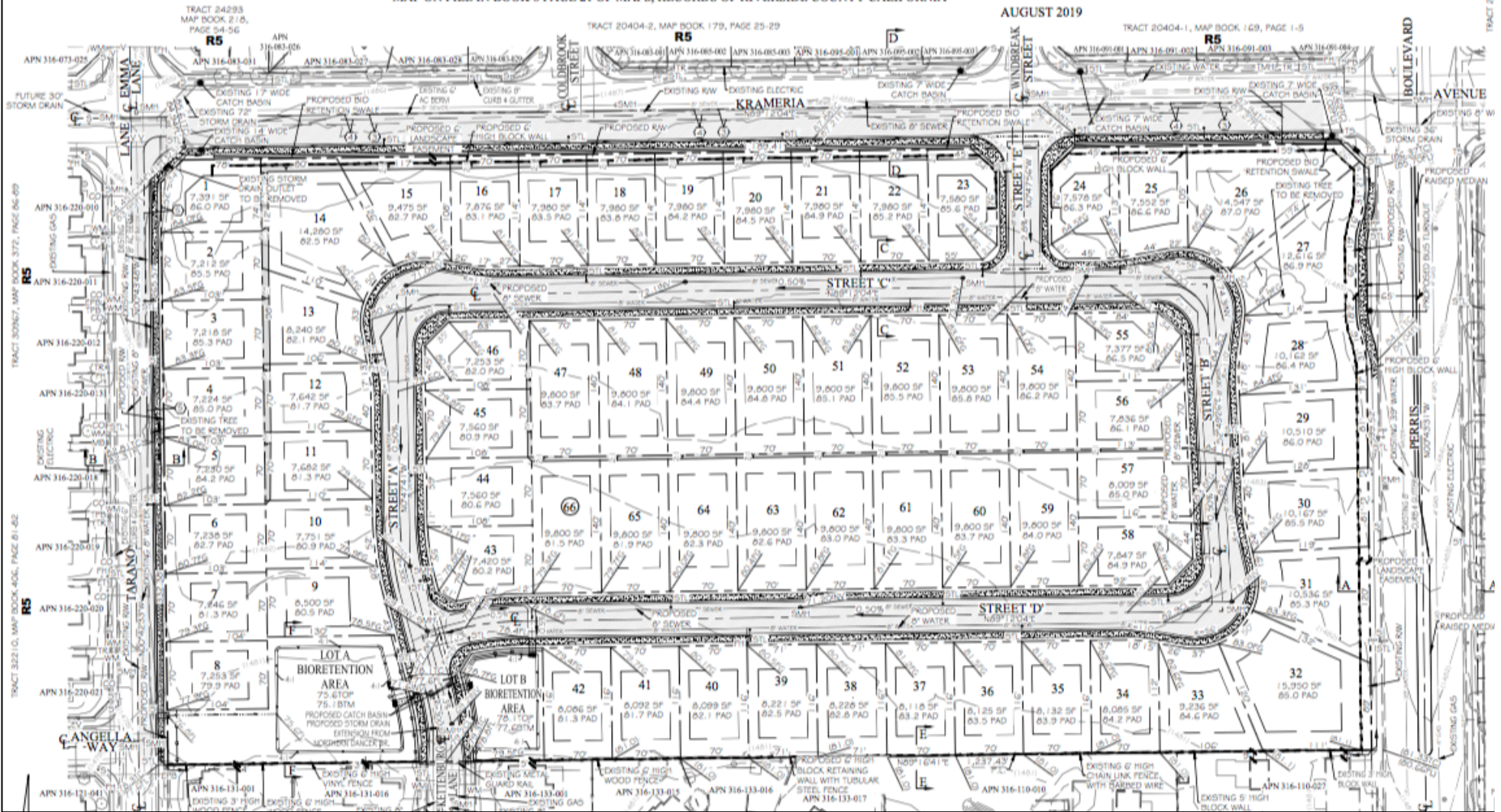
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Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188

TENTATIVE TRACT MAP NO. 37725

BEING A SUBDIVISION OF A PORTION OF LOT 17, IN BLOCKS 2 OF RIVERSIDE ALFALFA ACRES, AS SHOWN BY MAP ON FILE IN BOOK 8 PAGE 21 OF MAPS, RECORDS OF RIVERSIDE COUNTY CALIFORNIA

AUGUST 2019



PROJECT NOTES

1. ASSASSORS PARCEL NUMBERS: 316-110-005, 006, 022, 023, * 024
2. GROSS AREA: 20.18 AC
EXISTING NET AREA: 19.08 AC
PROPOSED NET AREA: 17.59 AC
AREA OF DEDICATION: 1.49 AC
3. EXISTING NUMBER OF LOTS: 5
4. PROPOSED NUMBER OF LOTS: 66 SINGLE FAMILY LOTS, * 2 COMMON LETTERED LOTS
5. DRAINAGE AND GRADING SHOWN ON THIS PLAN IS CONCEPTUAL ONLY.
6. EXISTING PROPOSED ZONING DESIGNATION: RS, SUBURBAN RESIDENTIAL.
7. EXISTING USE: VACANT
8. PROPOSED USE: SINGLE FAMILY RESIDENTIAL
9. PROJECT SITE IS LOCATED WITHIN FEMA ZONE X; AREA OF MINIMAL FLOOD HAZARD PER MAP PANEL NO. 06065C0745G, DATED AUGUST 28, 2008
10. THE TENTATIVE TRACT MAP INCLUDES THE ENTIRE CONTIGUOUS OWNERSHIP OF THE LAND DIVIDER.
11. NO EXISTING STRUCTURES ON SITE.
12. SLOPES GREATER THAN 2 FEET IN HEIGHT ARE SHOWN ON THIS PLAN.
13. ADDITIONAL RW WILL BE DEDICATED ALONG PERRIS BOULEVARD TO ACCOMMODATE NEW BUS TURNOUT.
14. ALL EXISTING FENCING ON ADJACENT PROPERTY TO REMAIN.
15. ALL OVERHEAD UTILITIES SHALL BE UNDERGROUND PER CITY MUNICIPAL CODE.

<http://www.migcom.com> • 951-787-9222



Not to Scale

Exhibit 3 Tentative Tract Map

Thatcher Engineering Krameria Avenue TTM No. 37725
Moreno Valley, California

Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089) : PEN19-0188

Project Description

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Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188

3 Determination

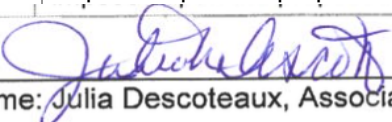
3.1 – Environmental Factors Potentially Affected

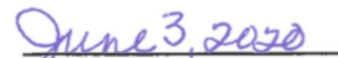
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a 'Potentially Significant Impact' as indicated by the checklist on the following pages.

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture Resources	<input type="checkbox"/>	Air Quality
<input type="checkbox"/>	Biological Resources	<input type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Energy
<input type="checkbox"/>	Geology /Soils	<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards & Hazardous Materials
<input type="checkbox"/>	Hydrology / Water Quality	<input type="checkbox"/>	Land Use / Planning	<input type="checkbox"/>	Mineral Resources
<input type="checkbox"/>	Noise	<input type="checkbox"/>	Population / Housing	<input type="checkbox"/>	Public Services
<input type="checkbox"/>	Recreation	<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Tribal Cultural Resources
<input type="checkbox"/>	Utilities / Service Systems	<input type="checkbox"/>	Wildfire	<input type="checkbox"/>	Mandatory Findings of Significance

3.2 – Determination

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	I find that the proposed project MAY have a 'potentially 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.
<input type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately 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.


 Name: Julia Descoteaux, Associate Planner


 Date

Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188 Tentative Tract Map 37725)

Determination

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Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188 Tentative Tract Map 37725)

4 Evaluation of Environmental Impacts

4.1 – Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within view from a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public view are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) **Less than Significant Impact.** Scenic vistas can be impacted by development in two ways. First, a structure may be constructed that blocks the view of a vista. Second, the vista itself may be altered (i.e., development on a scenic hillside). The natural mountainous setting of the Moreno Valley area is critical to its overall visual character and provides scenic vistas for the community. Topography and a lack of dense vegetation or urban development offer scenic views throughout the City, including to and from hillside areas. Scenic features include gently sloping alluvial fans, rugged mountains and steep slopes, mountain peaks and ridges, rounded hills with boulder outcrops, farmland and open space. Scenic vistas provide views of these features from public spaces.

The City of Moreno Valley lies on a relatively flat valley floor surrounded by rugged hills and mountains. The topography of the study area is defined by the Box Springs Mountains and Reche Canyon area to the north, the "Badlands" to the east, and the Mount Russell area to the south. These features provide

the City with outstanding vistas. The Perris Reservoir and Lake Perris Recreation area is adjacent to the City's southeastern boundary. Many of these scenic vistas are outside the City limits and beyond the project area boundary so views of these vistas vary given their distance from the project area. The project is located at the southwest corner of the intersection of Krameria Avenue and Perris Boulevard, in the southern portion of the City. The major aesthetic resources within the study area include views of the mountains and southerly views of the valley. The manmade environment is equally important in terms of scenic values. Buildings, landscaping and signs often dominate the view. Agricultural uses such as citrus groves are less common, but visually pleasing features.

Scenic resources within Moreno Valley are visible from State Route 60, the major transportation route in the area. Upon entering the Moreno Valley from the west, the dominant view is of the Box Springs Mountains to the immediate north and the Mount Russell foothills to the south. Both mountain ranges display numerous rock outcroppings and boulders that add visual character to these landforms. Moreno Peak is part of a prominent landform located south of State Route 60 along Moreno Beach Drive. This landform only rises a few hundred feet above the valley floor but has a unique location near the center of the valley. Moreno Beach Drive, the main route to Lake Perris from State Route 60, offers views of Moreno Peak and a panoramic view of Moreno Valley. Panoramic views of the valley can be seen from elevated segments of some local roads and from hillside residences. The views are particularly attractive on clear days and at night when the glow of city lights can be seen. As State Route 60 traverses east through Moreno Valley, it passes through the Badlands area. Characterized by steep and eroded hillsides, the Badlands form the eastern boundary of the study area and provide a sweeping range of hills that act as a visual backdrop to the valley. Expanses of open land are found throughout the eastern portion of the study area. These tracts of land allow for uninterrupted scenic vistas from State Route 60, Gilman Springs Road and other roadways and provide views of the San Jacinto Valley and the ephemeral Mystic Lake. Views of the San Bernardino and San Gabriel mountains are evident at times from the valley floor. Winter snows in the San Bernardino and San Jacinto Mountains often provide a striking view. As discussed in the General Plan Draft EIR, implementation of General Plan policies 7.7.1 through 7.7.6 will ensure that areas that are designated for development will minimize impacts on scenic vistas by preserving the undisturbed hillsides and other natural landforms.¹ Moreover, the project itself won't alter an existing scenic vista within or outside the City.

Impacts on scenic vistas by the proposed Project will not occur because the project will preserve the undisturbed hillsides and other natural landforms in the area. The project itself won't alter an existing scenic vista within or outside the City. General Plan Objectives 2.10 and 7.7 and associated policies foster development that is visually attractive. Policy 7.7.1 discourages development along prominent ridgelines. Policies 7.7.2 and 7.7.6 minimize the visual impact of overhead utility lines and wireless communication facilities. Policy 7.7.3 calls for reasonable controls to reduce the impact of signs on visual quality. Policies 7.7.4 and 7.7.5 require development along designated scenic roadways to be visually attractive and to allow for views of the surrounding mountains and Mystic Lake. Objective 2.10 and the associated policies ensure that new developments, including new buildings, walls and landscaping, are visually attractive. Moreover, Section 9.03.040(A)(4) of the Moreno Valley Municipal Code states that Dwellings and other accessory structures shall not exceed thirty (30) feet in overall height, provided that on slopes of less than ten (10) percent, the overall height shall not exceed thirty-five (35) feet. According to height requirements and exceptions included in the Municipal Code, all buildings will be consistent with City design and building height requirements and limitations. The proposed Project will be subject to City Design Guidelines, which regulate the height and bulk of the buildings. Therefore, impacts to scenic vistas would be less than significant, and no mitigation is required.

b) **No Impact.** The project site is located on undeveloped land within an area comprised of residential uses, vacant land, and surface street features. The project site is not adjacent to an officially designated

state scenic highway as identified by the California Scenic Highway Mapping System.² The site is also not identified in the Moreno Valley General Plan Conservation Element as being located within or adjacent to a “scenic route” or “view corridor”.³ The Project site is undeveloped and comprised of non-native grasses and two small trees. One tree is a willow tree (*Salix goodingii*) and the other is a Brazilian peppercorn tree (*Schinus molle*). Neither tree is mature nor is considered a scenic resource. There are no rock outcroppings on the Project site and there are no structures. Therefore, the Project would not damage any scenic resources within a State Scenic Highway. No impact will occur.

c) **Less than Significant Impact.** Development of the proposed Project could result in a significant impact if it resulted in substantial degradation of the existing visual character or quality of the project site and its surroundings. Degradation of visual character or quality is defined by substantial changes to the existing site appearance through construction of structures that are poorly designed or conflict with the project site’s existing surroundings. Construction of the proposed project would result in short-term impacts to the existing visual character and quality of the area. Construction activities would require the use of equipment and storage of materials within the project site. However, construction activities are temporary and will not result in any permanent visual impact. The Project site is currently undeveloped. The area surrounding the site is comprised of residential uses, and surface street features. The Project site is located approximately 2 miles east of I-215 and approximately 4 miles south of SR-60.

Similar to residential subdivisions located immediately adjacent to the Project site on all sides, the proposed development will include a 6-foot block wall along the northern, eastern, and southern site boundaries. This block wall will be similar in design to other block walls in the area, giving the project visual continuity with surrounding uses. Further, the conceptual landscape plan for the project identifies the inclusion of unifying streetscape elements, including coordinating streetlights, common landscaped open space, public signage, and hardscaping. These design features would be consistent with the streetscape elements along Krameria Avenue and Perris Boulevard as well as the existing residential subdivisions in the area. The proposed project will change the visual character of the project site by adding structures and landscaping; however, the development will blend with the characteristics of the existing residential uses in the area. The proposed Project is consistent with General Plan Community Design policies. The project will have less than significant impacts on the visual character of the site and its surroundings.

d) **Less than Significant Impact.** Excessive or inappropriately directed lighting can adversely impact night-time views by reducing the ability to see the night sky and stars. Glare can be caused from unshielded or misdirected lighting sources. Reflective surfaces (i.e., polished metal) can also cause glare. Impacts associated with glare range from simple nuisance to potentially dangerous situations (i.e., if glare is directed into the eyes of motorists). Sources of daytime glare are typically concentrated in commercial areas and are often associated with retail uses. Glare results from development and associated parking areas that contain reflective materials such as hi-efficiency window glass, highly polished surfaces, and expanses of pavement.

There are lighting sources adjacent to the site, including free-standing street lights, light fixtures on buildings, and pole-mounted lights. The proposed project includes exterior street lighting and interior lighting. Light prohibiting spillover and glare would be avoided by requiring that light be designed to project downward and the creation of glare on adjacent properties per the requirements of Municipal Code Section 9.10.110. Section 9.10.110 of the Municipal Code prohibits illumination that exceeds 0.5 foot-candles at adjacent properties. Further, Policy 2.10.7 discourages lighting that causes excessive light and glare on adjacent properties. Compliance with the Municipal Code standards for lighting and glare would ensure that lighting and glare impacts would be less than significant.

4.2 – Agriculture and Forest 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. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) **Less than Significant Impact.** The proposed Project is located on an undeveloped site, and the surrounding parcels are comprised of single-family residential uses similar to the Project. There are no signs the site has been historically used for agriculture. The map of Important Farmland in California (2014) prepared by the Department of Conservation does not identify the site as being *Prime Farmland*, *Unique Farmland*, or *Farmland of Statewide Importance*.⁴ The Project site is designated as *Farmland*

of *Local Importance* by the Farmland Mapping and Monitoring Program (FMMP), which means the site had been designated for agricultural use in previous local plans.⁵ However, the site is not designated as being *Prime Farmland*, *Unique Farmland*, or *Farmland of Statewide Importance*, and it has since been re-designated for residential use in local plans. The project site is designated for Residential (5 du/ac) in the City's General Plan and is zoned Residential 5 (R5) District. The City's General Plan EIR Agricultural Resources section states that implementation of the General Plan will result in the eventual conversion of the majority of the agricultural uses within the City to urban uses. Further, none of the General Plan Land Use alternatives in the General Plan proposes a land use designation that would provide for the permanent preservation of agricultural land. While a majority of the planning area will eventually be converted to non-agricultural urban uses, some of the existing agricultural activities will continue as interim uses, as allowed under the City's existing Development Code for all zoning categories. The conversion of agricultural land to urban uses is a long and continuing trend within the City. Although it is difficult to quantify the amount of agricultural land that is under development pressure, such pressure exists and will continue with or without implementation of the proposed Project. Thus, Moreno Valley's future development emphasizes mixed-use, commercial, industrial, and residential projects rather than supporting the continuation of agricultural uses, which are becoming less economically viable.⁶ Therefore, impacts to Farmland will be less than significant, and no mitigation is required.

b) **No Impact.** No Williamson Act contracts are active for the project site.⁷ The site is designated for residential use in the City's General Plan and Zoning Code. Therefore, there would be no conflict with existing zoning for agricultural use or a Williamson Act contract. No impact would occur.

c) **No Impact.** Public Resources Code § 12220(g) identifies forest land as *land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.* The Project site and surrounding properties are not currently being managed or used for forest land as identified in Public Resources Code § 12220(g). The Project site has already been disturbed and is surrounded by development on all sides. Therefore, development of this Project would have no impact to any timberland zoning.

d) **No Impact.** The Project site is vacant, disturbed land with limited non-native vegetation including grasses and two non-mature trees. Thus, there would be no loss of forest land or conversion of forest land to non-forest use as a result of this project. No impact would occur.

e) **No Impact.** The Project site is a vacant site within an urbanized environment. The Project is surrounded by similar single-family residential developments on all sides. None of the surrounding sites contain existing forest uses. Development of this proposed Project would not change the existing environment in a manner that would result in the conversion of forest land to a non-forest use. No impact would occur.

4.3 – Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) **Less than Significant Impact.** A significant impact could occur if the proposed Project conflicts with or obstructs implementation of the South Coast Air Quality Management District (SCAQMD) - South Coast Air Basin 2016 Air Quality Management Plan (AQMP). Conflicts and obstructions that hinder implementation of the AQMP could delay efforts to meet attainment deadlines for criteria pollutants and maintaining existing compliance with applicable air quality standards. Pursuant to the methodology provided in Chapter 12 of the 1993 SCAQMD CEQA Air Quality Handbook, consistency with the South Coast Air 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.⁸

Consistency review is presented below:

(1) The proposed Project will result in short-term construction and long-term pollutant emissions that are less than the CEQA significance emissions thresholds established by the SCAQMD, as demonstrated by the CalEEMod analysis conducted for the proposed site (See Appendix A, Air Quality Modeling Data), summarized in Section III et seq. of this report; therefore, the Project will 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.

(2) The CEQA Air Quality Handbook indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan Elements, Specific Plans, and significant projects. Significant projects include airports, electrical generating facilities, petroleum and gas

refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and off-shore drilling facilities. This Project does not involve a General Plan or Specific Plan Amendment and is not considered a significant project. The proposed Project, a 66-unit residential subdivision, would support a population increase of approximately 224 persons, based on 3.4 persons per dwelling unit. (Moreno Valley 2014-2021 Housing Element). According to the Southern California Associated Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), the City of Moreno Valley is anticipated to increase in population from 197,600 in 2012 to 256,600 in 2040, an increase of 59,000. Additionally, it is anticipated that the number of households in Moreno Valley will increase by 21,200 units, and the number of employees in Moreno Valley will increase by 51,800 over that same period. Housing does not directly generate employment. The addition of 66 dwelling units and approximately 242 persons as a result of the proposed Project would be well within the anticipated growth in the City and region. Therefore, the Project would not have an impact on AQMP growth assumptions.

According to the Air Quality Analysis prepared for the proposed Project and the consistency analysis presented above, the proposed Project would not conflict with the AQMP; no impact would occur.

b) **Less than Significant Impact.** A project may have a significant impact if project-related emissions would exceed federal, state, or regional standards or thresholds, or if project-related emissions would substantially contribute to existing or project air quality violations. The proposed project is located within the South Coast Air Basin, where efforts to attain state and federal air quality standards are governed by the South Coast Air Quality Management District (SCAQMD). Both the state of California (state) and the federal government have established health-based ambient air quality standards (AAQS) for seven air pollutants (known as 'criteria pollutants'). These pollutants include ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), inhalable particulate matter with a diameter of 10 microns or less (PM₁₀), fine particulate matter with a diameter of 2.5 microns or less (PM_{2.5}), and lead (Pb). The state has also established AAQS for additional pollutants. The AAQS are designed to protect the health and welfare of the populace within a reasonable margin of safety. Where the state and federal standards differ, California AAQS are more stringent than the national AAQS.

Air pollution levels are measured at monitoring stations located throughout the air basin. Areas that are in nonattainment with respect to federal or state AAQS are required to prepare plans and implement measures that will bring the region into attainment. Table 2 (South Coast Air Basin Attainment Status) summarizes the attainment status in the project area for the criteria pollutants. Discussion of potential impacts related to short-term construction impacts and long-term area source and operational impacts are presented below.

Table 2
South Coast Air Basin Attainment Status

Pollutant	Federal	State
O ₃ (1-hr)	--	Nonattainment
O ₃ (8-hr)	Nonattainment	Nonattainment
PM ₁₀	Attainment	Nonattainment
PM _{2.5}	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO ₂	Attainment	Attainment
SO ₂	Attainment	Attainment
Pb	Nonattainment	Attainment
Sources: ARB		

Construction Emissions

The proposed Project would result in construction-related and operational emissions of criteria pollutants and toxic air contaminants. A project may have a significant impact if project-related emissions exceed federal, state, or regional standards or thresholds, or if project-related emissions will substantially contribute to existing or project air quality violations. The California Emissions Estimator Model (CalEEMod) version 2013.3.2 was utilized to estimate emissions from the proposed construction activities (see Appendix A, Air Quality Modeling Data). This modeling was conducted in September 2019. CalEEMod default settings for construction phases were utilized. Table 3 (Estimated Maximum Daily Construction Emissions) summarizes the results of the CalEEMod outputs. Based on the results of the model, maximum daily emissions from the construction of the proposed Project would not exceed established SCAQMD thresholds. Impacts would be less than significant.

Table 3
Estimated Maximum Daily Construction Emissions

Year	ROG*	NO _x	CO	SO ₂	PM ¹⁰	PM ^{2.5}
Summer 2020	4.81	62.10	34.23	0.10	9.45	5.95
Winter 2020	4.82	62.20	34.32	0.10	9.45	5.95
Summer 2021	37.41	18.14	17.58	0.03	1.27	0.99
Winter 2021	37.41	18.14	17.43	0.03	1.27	0.99
SCAQMD Threshold	75	100	550	150	150	55
Potential Impact?	No	No	No	No	No	No
* Reactive Organic Gases						

Localized Significance Thresholds

As part of SCAQMD's environmental justice program, attention has recently been focusing more on the localized effects of air quality. Although the region may be in attainment for a particular criteria pollutant, localized emissions from construction activities coupled with ambient pollutant levels can cause localized increases in criteria pollutant that exceed national and/or state air quality standards. The General Plan EIR does not provide a localized significance analysis for construction or operation. The analysis below is based on the CalEEMod emissions modeling that was conducted for the Project (Appendix A).

Construction-related criteria pollutant emissions and potentially significant localized impacts were evaluated pursuant to the SCAQMD Final Localized Significance Thresholds Methodology. This methodology provides screening tables for one through five-acre project scenarios, depending on the amount of site disturbance during a day. Maximum daily oxides of nitrogen (NO_x), carbon monoxide (CO), and particulate matter (PM₁₀ and PM_{2.5}) emissions would occur during construction of the project, grading of the project site, and paving. It should be noted that the results summarized in Table 4 (Five Acre Localized Significance Threshold Analysis) include application of SCAQMD Rule 403 and requires (the utilization of applicable best management practices to minimize fugitive dust emissions. A 61 percent reduction in fugitive dust emissions is assumed based on rule requirements. Table 4 summarizes on-site emissions as compared to the local thresholds established for Source Receptor Area (SRA) 24 (Perris Valley). A 25-meter receptor distance was used to reflect the proximity of nearby residential uses to the Project site. No construction phase would exceed any localized threshold as summarized in Table 4.

Table 4
Five Acre Localized Significance Threshold Analysis

Construction Activity	CO	NO_x	PM₁₀	PM_{2.5}
Site Preparation	21.51	42.42	9.24	5.89
Grading	31.96	50.20	5.58	3.41
Building Construction (2020)	16.85	19.19	1.12	1.05
Building Construction (2021)	16.58	17.43	0.96	0.90
Paving	14.65	12.92	0.68	0.62
Architectural Coating	1.82	1.53	0.09	0.09
Maximum	31.96	50.20	9.24	5.89
Threshold	1,577	270	13	8
Potentially Significant?	No	No	No	No
<i>Source: MIG 2019</i>				

Operational Emissions

Long-term emissions are evaluated at build-out of a project. The proposed Project is assumed to be operational in 2022. Mobile source emissions refer to on-road motor vehicle emissions generated from the Project's traffic and are based on CalEEMod default assumptions for emissions rates and vehicle trip lengths. Area source emissions from the Project include stationary combustion emissions of natural gas used for space and water heating (shown in a separate row as energy), yard and landscape maintenance, and an average building square footage to be repainted each year. CalEEMod computes area source emissions based upon default factors and land use assumptions. CalEEMod defaults were used and reflect the 2016 Title 24 standards. Separate emissions were computed for both the summer and winter. The estimated maximum daily operation emissions are summarized in Table 5 (Unmitigated Estimated Maximum Daily Project Operation Emissions (Summer)), and Table 6 (Unmitigated Estimated Maximum Daily Project Operation Emissions (Winter)). As shown in Tables 5 and 6, criteria pollutant emissions from operation of the Project will not exceed the SCAQMD regional daily thresholds for any criteria pollutant emissions. Impacts will be less than significant.

Table 5
Estimated Maximum Daily Project Emissions (Summer)

Activity	Peak Daily Emissions (lbs/day)					
	VOC	NO_x	CO	SO₂	PM₁₀	PM_{2.5}
Area	2.83	0.99	5.84	0.01	0.11	0.11
Energy	0.06	0.51	0.22	0.00	0.04	0.04
Mobile	1.23	8.84	14.67	0.06	4.81	1.31
Total	4.12	10.35	20.74	0.07	4.95	1.46
SCAQMD Daily Threshold	55	55	550	150	150	55
Exceeds Threshold?	No	Yes	No	No	No	No
Note: Emissions reported as zero are rounded and not necessarily equal to zero.						

Table 6
Estimated Maximum Daily Project Emissions (Winter)

Activity	Peak Daily Emissions (lbs/day)					
	VOC	NO_x	CO	SO₂	PM₁₀	PM_{2.5}
Area	2.83	0.99	5.85	0.01	0.11	0.11
Energy	0.06	0.51	0.22	0.00	0.04	0.04
Mobile	1.04	8.84	12.68	0.06	4.81	1.31
Total	3.93	10.34	18.74	0.07	4.95	1.46

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SCAQMD Daily Threshold	55	55	550	150	150	55
Exceeds Threshold?	No	Yes	No	No	No	No
Note: Emissions reported as zero are rounded and not necessarily equal to zero.						

c) **Less than Significant Impact.** The General Plan EIR determined that future development according to any of the three General Plan Alternatives would have the potential to increase the exposure of sensitive receptors, including residents, in the planning area to increased air pollutant levels associated with carbon monoxide (CO). Section 5.2 *Traffic/Circulation* of the General Plan EIR provides an analysis of roadway and intersection operations for General Plan buildout. As depicted in Section 5.2, it was determined that implementation of the General Plan would result in several intersections operating at Level of Service (LOS) E or worse. These intersections would have the potential to create localized CO “hot spot” impacts. Typically, if a sensitive receptor is located within 500 feet of an intersection operating at LOS worse than E, a significant impact would occur. Therefore, it was determined that implementation of the General Plan could result in a significant impact associated with sensitive receptors.

The General Plan EIR notes that concentrations of air pollutants such as carbon monoxide and particulates are much higher adjacent to freeways than concentrations of pollutants in areas located far from freeways. The General Plan EIR notes that the land use plan for Alternatives 1 and 3 would allow new residential development adjacent to State Route 60 (from Moreno Beach Drive east), while Alternative 2 would allow commercial, office and business park development adjacent to the freeway. Therefore, it was found that both Alternatives 1 and 3 would expose more sensitive receptors to air pollution from freeway traffic than would be the case under Alternative 2. The General Plan EIR further notes that implementation of Mitigation Measure AQ10 would reduce the impact. Mitigation Measure AQ10 requires that studies be conducted on the identified street segments to determine if any additional traffic controls, pavement width or other operational system improvements are needed to achieve the desired level of service. However, it was determined that the impact associated with sensitive receptors would remain significant and unavoidable.

The proposed Project is located approximately 2.2 miles east of Interstate 215 and approximately 4.1 miles south of State Route 60. While the General Plan EIR identified significant and unavoidable impacts related to exposure of sensitive receptors to substantial pollutant concentrations, the proposed Project is located far enough away from I-215 and SR-60 as to not be directly impacted. Therefore, the Project will not result in any new significant and unavoidable impacts that were not previously analyzed and accounted for in the General Plan EIR. The Project is consistent with the Residential (5 du/ac) General Plan land use designation, the Residential 5 (R5) District zoning designation, and the allowable development density permitted by those designations. Therefore, the proposed Project will result in a less than significant impact.

d) **Less than Significant Impact.** The General Plan EIR notes that future construction activity allowed according to the three proposed General Plan Alternatives could generate objectionable odors. These odors, however, would be short-term in nature. The General Plan EIR also notes that future industrial and commercial uses could generate objectionable odors. However, odors are not expected from residential developments such as the proposed Project. Any objectionable odor may be reported to the AQMD, which resolves complaints through investigation within one business day of the received complaint, and issuance of Notices to Comply/Notices of Violation, when necessary. The proposed development would not generate any odors. Existing regulations will avoid any significant impacts associated with objectionable odors associated with the proposed Project. Therefore, the Project will not result in a significant objectionable odors impact.

4.4 – Biological Resources

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial 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 US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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A Determination of Biologically Equivalent or Superior Preservation Report (DBESP) analysis was performed by MIG (January 2020) as required under the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*. (See Appendix B)

A Biological Resource Assessment, Burrowing Owl Survey, and MSHCP Consistency Analysis (GBRA-BUOW) was completed by MIG (February 2020) to verify the type, location, and extent of potential sensitive biological resources within the site and vicinity. (See Appendix B)

Environments and habitats associated with wetlands and other aquatic features are regulated under federal, state, and local laws. Each of the laws is administered independently and in coordination with the following agencies: USACE, US Fish and Wildlife Service (USFWS), the US Environmental Protection Agency (EPA), CDFW, RWQCB, and the Western Riverside MSHCP. A Jurisdictional Delineation (JD) was conducted by MIG (February 2020) in order to determine the location and extent of wetland and/or water features within the Project Site that are potentially regulated by the US Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA). (See Appendix B)

A California Rapid Assessment Method (CRAM) Report was prepared by MIG (February 2020) in order to evaluate existing wetland conditions and to assess project impacts and mitigation approaches. (See Appendix B)

a) **Less than Significant Impact with Mitigation Incorporated.**

Special-Status Plants

No special-status plant species were detected on the Project Site during the April 1, 2019 field survey. None of the sixty-four (64) special-status plant species found in the vicinity of the Project Site (refer to Appendix A of the GBRA-BUOW) are expected due to a lack of suitable habitat.

Special-Status Wildlife

The MSHCP has determined that all of the sensitive species potentially occurring onsite have been adequately covered (MSHCP Table 2-2, Species Considered for Conservation Under the MSHCP Since 1999, 2004). No special-status wildlife species were detected on the Project Site during the April 1, 2019 field survey. Of the 62 special-status wildlife species found in the vicinity of the Project Site (refer to Appendix B of the GBRA-BUOW), suitable habitat is only present for burrowing owl.

Burrowing Owl

A burrowing owl habitat assessment and focused burrow survey was performed during the April 1, 2019 field survey, per the Western Riverside County MSHCP Burrowing Owl Survey Instructions (MSHCP 2006). During this survey, it was determined that no suitable burrowing owl burrows were present onsite. However, because there is suitable burrowing owl habitat on-site, implementation of

Mitigation Measure BIO-1 is required to reduce potential impacts to burrowing owl to a less than significant level.

Nesting Birds

Vegetation communities on the Project Site have the potential to provide nesting habitat for bird species protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFGC) Sections 3503 and 3513. Although no active nests were observed during the April 1, 2109 field survey, there is potential for ground- and tree-nesting birds to establish nests on the Project Site prior to project construction. Destruction of, or disturbance to, an active nest is prohibited. Construction activities including site mobilization, tree removal other vegetation clearing activities, grubbing, grading, and noise/vibration from the operation of heavy equipment also has the potential to result in significant direct (i.e., death or physical harm) and/or indirect (i.e., nest abandonment) impacts to nesting birds. Implementation of Mitigation Measure BIO-2 would be required to reduce potential impacts to nesting birds to a less than significant level.

Mitigation Measures

BIO-1 Pre-Construction Burrowing Owl Survey. Burrowing owl pre-construction surveys shall be conducted within thirty (30) days prior to ground disturbance to avoid direct take of burrowing owls. Pre-construction surveys will follow the guidance outlined in Burrowing Owl Survey Instructions for the Western Riverside MSHCP (2006).

BIO-2: Pre-Construction Nesting Bird Survey. If vegetation removal is scheduled during the nesting season (typically February 1 to September 1), then a focused survey for active nests shall be conducted by a qualified biologist (as determined by a combination of academic training and professional experience in biological sciences and related resource management activities) no more than five (5) days prior to the beginning of project-related activities (including but not limited to equipment mobilization and staging, clearing, grubbing, vegetation removal, and grading). Surveys shall be conducted in proposed work areas, staging and storage areas, and soil, equipment, and material stockpile areas. For passerines and small raptors, surveys shall be conducted within a 250-foot radius surrounding the work area (in areas where access is feasible). For larger raptors, such as those from the genus *Buteo*, the survey area shall encompass a 500-foot radius. Surveys shall be conducted during weather conditions suited to maximize the observation of possible nests and shall concentrate on areas of suitable habitat. If a lapse in project-related work of five (5) days or longer occurs, an additional nest survey shall be required before work can be reinitiated. If nests are encountered during any preconstruction survey, a qualified biologist shall determine if it may be feasible for construction to continue as planned without impacting the success of the nest, depending on conditions specific to each nest and the relative location and rate of construction activities. If the qualified biologist determines construction activities have potential to adversely affect a nest, the biologist shall immediately inform the construction manager to halt construction activities within minimum exclusion buffer of 50 feet for songbird nests, and 200 to 500 feet for raptor nests, depending on species and location. Active nest(s) within the Project Site shall be monitored by a qualified biologist during construction if work is occurring directly adjacent to the established no-work buffer. Construction activities within the no-work buffer may proceed after a qualified biologist determines the nest is no longer active due to natural causes (e.g. young have fledged, predation, or other non-anthropogenic nest failure).

b) **No Impact.** Ruderal vegetation communities, exotic trees, and developed areas are present throughout the entirety of the Project Site. No sensitive natural vegetation communities or riparian

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habitat are present on the Project Site. Therefore, no impacts to riparian habitat or other sensitive natural vegetation communities are anticipated.

c) **Less than Significant with Mitigation Incorporated.** A jurisdictional delineation was performed on the Project Site on June 13, 2019. An unnamed ephemeral drainage (D1) flowing north to south along the western Project Site boundary represents an aquatic feature subject to the jurisdiction of the Regional Water Quality Control Board (RWQCB) and California Department of Fish and Wildlife (CDFW) (Attachment E-6, *Biological Resources Map* and Attachment E-8, *Current Project Site Photographs, MIG Jurisdiction Delineation Report 2020*). The CDFW regulates not only the discharge of dredged or fill material into streambeds, but all activities that alter streams and lakes and their associated riparian vegetation habitats. The drainage is an ephemeral feature that flows only in response to rainfall events and is therefore not subject US Army Corps of Engineers (USACE) jurisdiction. Implementation of Mitigation Measure BIO-3 would be required to reduce impacts to aquatic resources to a less than significant level.

Mitigation Measures

BIO-3 Regulatory Agency Permits. A “No Permit Required Letter” shall be obtained from the United States Army Corps of Engineers (USACE) prior to ground disturbing activities. A Section 401 Water Quality Certification or Waste Discharge Requirement (WDR) shall be obtained from the Regional Water Quality Control Board (RWQCB) prior to ground disturbing activities. A Section 1602 Lake and Streambed Alteration Agreement (LSAA) shall be obtained from the California Department of Fish and Wildlife (CDFW) prior to ground-disturbing activities.

d) **No Impact.** The Project Site is surrounded on all sides by residential development and is not located within an established wildlife movement corridor. The Project Site is not located within a known wildlife nursery site. Thus, no impacts to wildlife species, migratory corridors, or native wildlife nursery sites are anticipated.

e) **No Impact.** Section 9.17.030 (Landscape and Irrigation Design Standards) of the Moreno Valley Municipal Code requires that trees over 4-inches in diameter must be replaced at a ratio of 1:1 with 36-inch box trees or 3:1 for 24-inch box trees. The Project site is undeveloped and comprised of non-native grasses and two small trees. One tree is a willow tree (*Salix goodingii*) and the other is a Brazilian peppercorn tree (*Schinus molle*). The willow tree is a multi-trunked tree with diameters at breast height (DBH) of 6-inches, 8-inches, 9-inches, and 10-inches. The peppercorn tree has a DBH of 33-inches. These two trees would be removed during project development. However, the single-family homes that would be constructed as a result of the proposed Project would presumably include box trees and or planted landscape trees of a similar type and would far exceed the City’s required replacement ratios. The Project will not conflict with local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance. No impacts are anticipated.

f) **Less than Significant with Mitigation Incorporated.** The Project Site is located within the Western Riverside County MSHCP Reche Canyon/Badlands Area Plan. The Project Site is not located within an MSHCP Criteria Area or Area Plan subunit. The Project Site does not occur within a predetermined Survey Area for narrow endemic plant species, criteria area plant species, amphibian species, or mammal species. No surveys are required for these species. The Project Site occurs within a predetermined Survey Area for the burrowing owl. Although suitable burrowing owl habitat is present onsite in the ruderal vegetation communities, burrowing owls are not expected to occur in or around the Project Site due to the lack of suitable burrows. The Project Site does not occur within or adjacent to an MSHCP Core, Linkage, Constrained Linkage, or Non-

Contiguous Habitat Block. Therefore, an Urban/Wildland Interface analysis pursuant to Section 6.1.4 of the MSHCP is not required.

MSHCP Riparian/Riverine Resources

The onsite drainage contains both MSHCP riparian (0.010 ac) and riverine (0.108 ac) resources pursuant to Section 6.1.2 of the MSHCP (2004) (Attachment E-6, *Biological Resources Map* and Attachment E-8, *Current Project Site Photographs*, MIG Jurisdiction Delineation Report 2020). The Project will be required to purchase 0.118 acres of re-establishment credits at the Riverpark Mitigation Bank at a mitigation ratio of 1:1. Due to the comparatively low biological value of the current onsite drainage (overall CRAM score = 41), this purchase will result in the re-establishment of biologically equivalent or superior MSHCP riparian/riverine resources and will be mitigated to an equivalent or superior level (MIG CRAM Report, 2020 and MIG DBESP Report 2020). No vernal pool resources were observed on the Project Site. Implementation of Mitigation Measure BIO-4 would be required to reduce impacts to MSHCP riparian/riverine resources to a less than significant level.

Stephen's Kangaroo Rat Fee Area

The Project Site is located within the Stephens' kangaroo rat (SKR) HCP Fee Area which is administered by the RCHCA. Implementation of Mitigation Measure BIO-5 would be required to reduce impacts to Stephen's kangaroo rat to a less than significant level.

Mitigation Measures

BIO-4 MSHCP Riparian/Riverine Resources. All onsite MSHCP riparian (0.010 ac) and riverine (0.108 ac) resources will be impacted as a result of project implementation. In order to mitigate to an equivalent or superior level, 0.118 acres of re-establishment credits will be purchased at the Riverpark Mitigation Bank (1:1 mitigation ratio).

BIO-5 SKR Fee Area. The Project Site is located within the Stephens' kangaroo rat (SKR) HCP Fee Area which is administered by the RCHCA. The SKR Fee is established at \$500 per acre. Based on a Project site size of 20.18 acres, the applicant shall pay an SKR Fee in the amount of \$10,090.

4.5 – Cultural Resources

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to '15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A Phase I Cultural Resources Assessment for the proposed Project was prepared by MIG, and is attached as Appendix C. The Report was compiled, and record searches and site surveys were conducted by Mr. Christopher Purtell, M.A., RPA of MIG.

a) **No Impact.** The Project site does not satisfy any of the criteria for a historic resource defined in Section 15064.5 of the State CEQA Guidelines. The site is not listed with the State Office of Historic Preservation (SHPO) or the National Register of Historic Places.^{9, 10} The Project site is vacant and there are no known historically or culturally significant resources, structures, buildings, or objects located on the Project site. Results of the records research conducted at the CHRIS-EIC indicate that no archaeological resources (prehistoric and historic) exist within the Project boundaries. There are two (2) historic trash refuse (P-33-028072 and P-33-028073) and one (1) historic structure: a concrete foundation and floor from a demolished grain milling facility (P-33-021503) located within a one-mile radius of the Study Area. However, none of these historic resources will be impacted by the proposed Project. As such, the proposed Project would not cause an adverse change in the significance of a historical resource and impacts to historic resources are not anticipated. Therefore, no impact will occur, and no mitigation is required.

b) **Less than Significant with Mitigation Incorporated.** The project site has been previously disturbed by past activities. On April 5, 2019, Mr. Purtell of MIG conducted a records search of the Study Area at the CHRIS-EIC. The records search included a review of all recorded archaeological and historical resources within a one-mile radius of the Study Area, as well as a review of cultural resource reports and historic topographic maps on file. In addition, MIG reviewed the California Points of Historical Interest (CPHI), the California Historical Landmarks (CHL), the California Register, the National Register, and the California State Historic Resources Inventory (HRI) listings. The purpose of the records search is to determine whether previously recorded archaeological or historical resources exist within the Study Area that require evaluation and treatment. The results also provide a basis for assessing the sensitivity of the Study Area for additional cultural resources.

According to the Phase I Cultural Resources Assessment, results of the records research conducted at the CHRIS-EIC indicate that no archaeological resources (prehistoric and historic) exist within the

Project boundaries Further, there were no archaeological resources identified during the pedestrian survey; therefore, no evaluation of archaeological resources is necessary.

Nevertheless, a review of the City of Moreno Valley's General Plan indicates that the Project site is located within a one and one-half-mile radius from the Wolfskill Ranch West Complex, approximately four and one-half miles northeast from the Wolfskill Ranch North Complex and is approximately five miles southeast of the Moreno Hills Complex. These archaeological complexes are comprised of a series of hills and drainages that stretch into Moreno Valley and are characterized as prehistoric habitation areas consisting of bedrock milling stations, cupule rocks, petroglyphs, and pictographs. Additionally, the City's General Plan has identified archaeological sites located at the Moreno School and at the intersection of Lassalle Street & Brodiaea Avenue. These archaeological sites are located approximately four and one-half miles northeast of the Project site and have been classified as rocky outcrops containing bedrock milling stations (City of Moreno Valley General Plan 2006).¹¹

Consequently, the Project Area has a moderately high sensitivity level to encounter subsurface archaeological resources during project implementation given the proven prehistoric occupation of the region, the identification of multiple surface archaeological resources within the vicinity of the Study Area and the favorable natural conditions (e.g., ephemeral drainages, natural spring, and vegetation communities) that would have attracted prehistoric inhabitants to the area. Therefore, despite the disturbances of the Project site caused by plowing/disking that may have displaced archaeological resources on the surface, it is possible that intact archaeological resources exist at depth. As a result, Mitigation Measures CUL-1 through CUL-5 have been incorporated to reduce potentially significant impacts to previously undiscovered archaeological resources that may be accidentally encountered during project implementation to a less than significant level. Mitigation Measure CUL-1 requires the applicant to retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. Mitigation Measure CUL-2 requires the developer secure agreements with the Rincon Band of Luiseño Indians, 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. Mitigation Measure CUL-3 requires either preservation-in-place or onsite reburial in the event that Native American cultural resources are discovered during grading. Mitigation Measure CUL-4 requires inclusion of a note on the Grading Plan stating that cessation of work within a 100-foot buffer around inadvertent discoveries will occur until the Project Archaeologist and Tribal Representatives can be contacted in order to determine the significance of the find. Mitigation Measure CUL-5 requires immediate cessation of work in the area of inadvertent discoveries, evaluation of the find, and, as appropriate, recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. With implementation of Mitigation Measures CUL-1 through CUL-5, impacts would be less than significant.

Mitigation Measures

In the event of the unanticipated discovery of archaeological or cultural resources relating to TCRs during earthmoving operations, the following mitigation measures are required to reduce potentially significant impacts to archaeological resources that are accidentally discovered during implementation of the proposed project to a less than significant level.

CUL-1 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 Assembly Bill 52 (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 California Public Resources Code Section 21080.3.2(b)(1) of AB52. Details in the CRMP 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 for 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 Prior to the issuance of a grading permit, the Developer shall secure agreements with the Rincon Band of Luiseño Indians, 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.

CUL-3 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 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 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.

CUL-4 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 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.

c) **Less than Significant with Mitigation Incorporated.** Because the project site has been disturbed, no human remains or cemeteries are anticipated to be disturbed by the proposed project. Any buried human remains would have been uncovered, collected, and/or destroyed at that time of initial development of the site. However, these findings do not preclude the existence of previously unknown human remains located below the ground surface, which may be encountered during construction excavations associated with the proposed project. Similar to the discussion regarding archaeological resources above, it is also possible to encounter buried human remains during construction. As a result, Mitigation Measure CUL-6 has been implemented to reduce potentially significant impacts to previously unknown human remains that may be unexpectedly discovered during project implementation to a less than significant level. Mitigation Measure CUL-6 requires that in the unlikely event that human remains are uncovered the contractor shall be required to halt work in the immediate area of the find and to notify the County Coroner, in accordance with Health and Safety Code § 7050.5, who must then determine whether the remains are of forensic interest. If the Coroner, with the aid of a supervising archaeologist, determines that the remains are or appear to be of a Native American, he/she shall contact the Native American Heritage Commission for further investigations and proper recovery of such remains, if necessary. Impacts would be less than significant with implementation of mitigation.

Mitigation Measure

CUL-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

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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 A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188 Tentative Tract Map 37725)

4.6 – Energy

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption or energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note: This issue area was added to the State CEQA Guidelines in 2018 and was not analyzed in the 2006 General Plan EIR. As such, the analysis provided below is based on use of the California Emissions Estimator Model (CalEEMod) Version 2016.3.2, performed by MIG on September 4, 2019 (See Appendix A, Air Quality Modeling Data).

a) **Less than Significant Impact.** Implementation of the Project would increase the demand for electricity and natural gas at the project site and gasoline consumption in the region during construction and operation.

Electricity

Construction. Temporary electric power would be required for lighting and electronic equipment (e.g., computers) located in trailers used by the construction crew. However, the electricity used for such activities would be temporary and would have a negligible contribution to the project's overall energy consumption.

Operational. During operation of the Project, the single-family homes would require electricity for multiple purposes, such as: building heating and cooling, lighting, appliances, and electronics.

As described above, CalEEMod was used to estimate project emissions from energy uses. Default electricity generations in CalEEMod were used for the proposed land use and climate zone based on compliance with the 2016 Title 24 Building Code.¹ Modifications were made to the model, based on the County's GHG DRP checklist. Such measures that would reduce electricity consumption include, but are not limited to: an improved efficiency heating, ventilation, and air conditioning (HVAC) system, high efficiency lights, water efficient faucets, and water efficient irrigation systems. Based on the Project design and mitigations applied, the Project is estimated to consume approximately 543,883 kWh/yr,

¹ Based on the timing of construction, the Project would be constructed to the 2019 Title 24 CALGreen Building Code requirements, which are more efficient than the 2016 standards. Thus, the values presented reflect conservative assumptions, and likely overestimate energy that would be consumed by the Project.

with approximately 435,106 kWh/yr attributable to building electricity consumption and approximately 108,776 kWh/yr attributable to water conveyance/consumption.

Although electricity consumption would increase at the site under implementation of the Project, the building envelopes, HVAC, lighting, and other systems, would be designed to maximize energy performance. The project would be subject to statewide mandatory energy requirements as outlined in the CALGreen Code. In addition, the project would implement additional measures, as detailed in the air quality modeling data presented in Appendix A, that would further reduce electricity consumption. Electricity that would be consumed by the Project would also be subject to the cap-and-trade regulation. For these reasons, the electricity that would be consumed by the Project is not considered to be inefficient or wasteful, and impacts would be less than significant.

Natural Gas

Construction. Natural gas consumption is not anticipated during construction of the Project. Fuels used for construction would generally consists of diesel and gasoline, which are discussed in the next subsection. Any amounts of natural gas that may be consumed during Project construction would be nominal and would have a negligible contribution to the Project's overall energy consumption.

Operational. Natural gas consumption would be required during operation of the Project for various purposes, such as building heating and cooling, cooking, and natural gas automobiles.

Similar to the estimates derived for electricity consumption, CalEEMod was also used to estimate natural gas consumption associated with the Project. The demand calculations assumed the proposed single-family homes would be built to the 2016 Title 24 CALGreen efficiency requirements. Based on the Project design, the Project is estimated to consume approximately 2,019,350 kBtu/yr, as detailed in the air quality modeling data presented in Appendix A.

Although natural gas consumption would increase at the site under implementation of the Project, the building envelopes, HVAC, lighting, and other systems, would be designed to maximize energy performance. The project would be subject to statewide mandatory energy requirements as outlined in the CALGreen Code. In addition, the project would implement additional measures, as detailed in the air quality modeling data presented in Appendix A, that would further reduce natural gas consumption. Natural gas that would be consumed by the Project would also be subject to the cap-and-trade regulation. For these reasons, the natural gas that would be consumed by the Project is not considered to be inefficient or wasteful, and impacts would be less than significant.

Diesel and Gasoline Fuel

Construction. Diesel and gasoline fuels, also referred to as petroleum in this subsection, would be consumed throughout construction of the Project. Fuel consumed by construction equipment would be the primary energy resource consumed over the course of construction, and vehicle miles traveled (VMT) associated with the transportation of construction materials (e.g., deliveries to the site) and worker trips to and from the site would also result in petroleum consumption. Whereas on-site, heavy-duty construction equipment and delivery trucks would predominantly use diesel fuel, construction workers would generally rely on gasoline-powered vehicles. However, the diesel and gasoline used for construction activities would be temporary and would have a negligible contribution to the project's overall energy consumption. In addition, the project would be required to comply with CARB's Airborne Toxic Control Measures, which restricts heavy-duty diesel vehicle idling to five minutes. Since petroleum use during construction would be temporary and required to conduct development activities, it would not be wasteful or inefficient, and impacts would be less than significant.

Operational. Fuel consumption associated with the Project's operational phase would primarily be attributable to residents commuting to and from the Project and the operation of large, diesel-powered trucks (e.g., semi-trucks) needed for mail deliveries to the residences. Over the lifetime of the Project, the fuel efficiency of the vehicles being used by residences and delivery services is expected to increase. As such, the amount of petroleum consumed as a result of vehicular trips to and from the Project site during operation is anticipated to decrease over time. In addition, there are numerous regulations in place that require and encourage fuel efficiency. For example, CARB has adopted an approach to passenger vehicles by combining the control of smog-causing pollutants and GHG emissions into a single, coordinated package of standards. The approach also includes efforts to support and accelerate the number of plug-in hybrids and ZEVs in California. In addition, per the requirements identified in SB 375, CARB adopted a regional goal for the SCAG region of reducing per-capita GHG emissions from 2005 levels by 8% by 2020 and 19% by 2035 for light-duty passenger vehicles. Accordingly, operation of the Project is expected to decrease the amount of petroleum it consumes in the future due to advances in fuel economy.

Although the Project would increase petroleum use in the region during construction and initial operation, the use would be a small fraction of the statewide use and, due to efficiency increase, would diminish over time. As such, petroleum consumption associated with the Project would not be considered inefficient or wasteful and would result in a less-than-significant impact.

b) **Less than Significant Impact.** The Project would not conflict with or obstruct a state or local plan adopted for the purposes of increasing the amount of renewable energy or energy efficiency. The California Title 24 Building Code contains energy efficiency standards for residential buildings. These standards address electricity and natural gas efficiency in lighting, water, heating, and air conditioning, as well as the effects of the building envelopes (e.g., windows, doors, walls and rooves, etc.) on energy consumption. As described under Impact ENG-1, the Project would be required to comply with the 2019 Title 24 CALGreen standards, and would implement additional measures as identified in the Air Quality Modeling Data (see Appendix A). Since the Project would comply with applicable State standards and adhere to the County's energy reductions measures identified in the GHG Emissions Reduction Plan, the Project would not conflict with nor obstruct a state or local plan for renewable energy or energy efficiency. This impact would be less than significant.

4.7 – Geology and Soils

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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a.i) **Less than Significant Impact.** According to the General Plan EIR, an Alquist-Priolo Special Fault Zone has been established for the San Jacinto fault.¹² The major source of potential damage due to fault rupture is from activity along the San Jacinto fault. The San Jacinto Fault Zone underlies portions of General Plan Land Use Alternatives 1, 2, and 3, planned for residential, business park, commercial, and public land uses. The General Plan EIR determined that this issue is considered a significant impact. However, each development project considered for approval by the City under the General Plan would be required to comply with seismic safety provisions of the CBC (Title 24, Part 2 of the California Code of Regulations) and have a geotechnical investigation conducted for the affected project site. The Project Geotechnical Investigation Report (See Appendix D) calculates seismic design parameters pursuant to CBC requirements and would include foundation and structural design recommendations, as needed, to reduce hazards to people and structures arising from fault rupture. With adherence to the recommendations of the Project Geotechnical Investigation Report, which are calculated pursuant to CBC seismic design requirements, impacts would be less than significant.

a.ii) **Less than Significant Impact.** The General Plan EIR notes that the Project is located in a region with several active fault lines and it was noted that the entire area is at risk for damage caused by groundshaking and seismic activity. The seismic risk in the project area is similar to other portions of Riverside County. With the increase of development and population allowed under the General Plan Alternatives, it was shown that the number of people and buildings exposed to seismic ground shaking will increase. As such, this was considered a significant impact in the General Plan EIR. However, each development project considered for approval by the City under the General Plan would be required to comply with seismic safety provisions of the CBC (Title 24, Part 2 of the California Code of Regulations) and have a geotechnical investigation conducted for the affected project site. The Project Geotechnical Investigation Report includes calculations seismic design parameters pursuant to CBC requirements and would include foundation and structural design recommendations, as needed, to reduce hazards to people and structures arising from ground shaking. With adherence to the recommendations of the Project Geotechnical Investigation Report, which are calculated pursuant to CBC seismic design requirements, impacts would be less than significant.

a.iii) **Less than Significant Impact.** As described in the General Plan EIR, the Riverside County General Plan identifies a range of liquefaction susceptibility in Moreno Valley ranging from very low with deep groundwater in the northern and eastern portions of the community to very high with shallow groundwater generally west of Perris Boulevard. The General Plan EIR notes that the area subject to high and very high liquefaction potential according to the County's mapping is largely developed, and the new General Plan policies and land uses would not affect existing development at the time of certification. Although no new residential development was expected in this area under the General Plan, new non-residential development was anticipated to occur in the vacant lands in this area. Because development would be allowed in the high susceptibility areas, this was considered a significant impact in the General Plan EIR. In light of this, the General Plan EIR notes that the City Engineer routinely requires project proponents to evaluate the potential for land settlement when conducting foundation investigations, which would partially address this potential impact. Moreover, each development project considered for approval by the City under the General Plan would be required to comply with seismic safety provisions of the CBC (Title 24, Part 2 of the California Code of Regulations) and have a geotechnical investigation conducted for the affected project site. The Project Geotechnical Investigation Reports calculates seismic design parameters pursuant to CBC requirements and would include foundation and structural design recommendations, as needed, to

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reduce hazards to people and structures arising from liquefaction. With adherence to the recommendations of the Project Geotechnical Investigation Report, which are calculated pursuant to CBC seismic design requirements, impacts would be less than significant.

a.iv) **Less than Significant Impact.** The General Plan EIR notes that some of the soils that occur within the planning area are susceptible to collapse which may pose a hazard to new development. As such, this was considered a potentially significant impact. However, each development project considered for approval by the City under the General Plan would be required to comply with seismic safety provisions of the CBC (Title 24, Part 2 of the California Code of Regulations) and have a geotechnical investigation conducted for the affected project site. The geotechnical investigation would calculate seismic design parameters pursuant to CBC requirements and would include foundation and structural design recommendations, as needed, to reduce hazards to people and structures arising from landslides. With adherence to CBC seismic design requirements, impacts would be less than significant.

b) **Less than Significant Impact.** The General Plan EIR notes that some of the soils that occur within the city are susceptible to collapse which may pose a hazard to new development. As such, this was considered a potentially significant impact. However, each development project considered for approval by the City under the General Plan would be required to comply with seismic safety provisions of the CBC (Title 24, Part 2 of the California Code of Regulations) and have a geotechnical investigation conducted for the affected project site. The geotechnical investigation would calculate seismic design parameters pursuant to CBC requirements and would include foundation and structural design recommendations, as needed, to reduce hazards to people and structures arising from soil erosion and/or loss of topsoil. With adherence to CBC design requirements, impacts would be less than significant.

c) **Less than Significant Impact.** Impacts related to liquefaction and landslides are discussed above in Sections 4.6.a and 4.6.b. Lateral spreading is the downslope movement of surface sediment due to liquefaction in a subsurface layer. The downslope movement is due to gravity and earthquake shaking combined. Such movement can occur on slope gradients of as little as one degree. Lateral spreading typically damages pipelines, utilities, bridges, and structures. Lateral spreading of the ground surface during a seismic activity usually occurs along the weak shear zones within a liquefiable soil layer and has been observed to generally take place toward a free face (i.e. retaining wall, slope, or channel) and to lesser extent on ground surfaces with a very gentle slope. Due to the absence of any channel within or near the subject site, and the subsurface soil conditions that are not conducive to liquefaction, the potential for lateral spread occurring on the project site is considered to be negligible. The proposed project is required to be constructed in accordance with the CBC. Compliance with existing CBC regulations would limit hazard impacts arising from unstable soils to less than significant levels.

d) **Less than Significant Impact.** The CBC requires special design considerations for foundations of structures built on soils with expansion indices greater than 20. The project is required to be constructed in accordance with the CBC. Compliance with existing CBC regulations would limit hazard impacts arising from unstable soils to less than significant levels. Impacts would be less than significant.

e) **No Impact.** The Project proposes to connect to the existing municipal sewer system. The proposed Project would connect to this system and would not require use of septic tanks. No impact will occur.

f) **Less than Significant with Mitigation Incorporated.** On April 4, 2019, Christopher Purtell of MIG commissioned a paleontological resources records search through the Vertebrate Paleontological Department of the Natural History Museum of Los Angeles County in Los Angeles, California. This institution maintains files of regional paleontological site records as well as supporting maps and documents. This records search entailed an examination of current geologic maps and known fossil

localities inside and within the general vicinity of the Project site. The objective of the records search was to determine the geological formations underlying the Study Area, whether any paleontological localities have previously been identified within the Project area or in the same or similar formations near the Project area, and the potential for excavations associated with the Project area to encounter paleontological resources. The results also provide a basis for assessing the sensitivity of the Project area for additional and buried paleontological resources. Results of the paleontological resources records search through NHMLAC indicate that no vertebrate fossil localities from the NHMLAC records have been previously recorded within the Project area or within a one-mile radius.¹³ Moreover, no paleontological resources were identified by MIG during the pedestrian survey. Additionally, a review of the City of Moreno Valley's General Plan indicate that the Study Area is located within a vicinity of low paleontological potential, based on extensive field work (City of Moreno Valley 2006).¹⁴

Moreover, no paleontological resources were identified by MIG during the pedestrian survey. The literature review and the search at the NHMLAC indicate that the Project area is situated upon younger and older Quaternary alluvial fan deposits, derived from the more elevated terrain to the north. These sedimentary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but they may be underlain by older Quaternary deposits that do contain significant vertebrate fossils at unknown depths (McLeod 2019).¹⁵ A review of the City of Moreno Valley's General Plan (see Figure 4. City of Moreno Valley, Locations Paleontologic Resources Sensitive Areas) indicates that the Study Area is located within a vicinity of low paleontological potential, based on extensive field work (City of Moreno Valley 2006).¹⁶ Consequently, the Project site has moderately low sensitivity level to encounter subsurface paleontological fossils or unique geological features during project implementation. As a result, Mitigation Measure GEO-1 through GEO-4 have been implemented to reduce potentially significant impacts to previously undiscovered paleontological resources and/or unique geological features that may be accidentally encountered during project implementation to a less than significant level. Mitigation Measure GEO-1 requires the applicant to conduct paleontological sensitivity training for construction personnel. Mitigation Measure GEO-2 requires periodic paleontological spot-checks during grading and earth-moving activities. Mitigation Measure GEO-3 requires that ground-disturbing activities be halted, and a treatment plan be implemented should paleontological resources be encountered. Mitigation Measure GEO-4 requires preparation of a report upon completion of paleontological monitoring or salvage services. With implementation of Mitigation Measure GEO-1 through GEO-4 impacts to paleontological resources will be less than significant.

Mitigation Measures

- GEO-1 Conduct Paleontological Sensitivity Training for Construction Personnel.** The applicant shall retain a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology and shall conduct a paleontological sensitivity training for construction personnel prior to commencement of excavation activities. The training will include a handout and will focus on how to identify paleontological resources that may be encountered during earthmoving activities and the procedures to be followed in such an event, the duties of paleontological monitors, notification and other procedures to follow upon discovery of resources, and the general steps a qualified professional paleontologist would follow in conducting a salvage investigation if one is necessary.
- GEO-2 Conduct Periodic Paleontological Spot Checks during Grading and Earth-moving Activities.** The applicant shall retain a professional paleontologist who meets the qualifications set forth by the Society of Vertebrate Paleontology and shall conduct periodic Paleontological Spot Checks beginning at depths below five feet to determine if construction excavations have extended into older Quaternary deposits. After the initial paleontological spot check, further periodic checks will be conducted at the discretion of the qualified

paleontologist. If the qualified paleontologist determines that construction excavations have extended into the older Quaternary deposits, construction monitoring for paleontological resources will be required. The applicant shall retain a qualified paleontological monitor, who will work under the guidance and direction of a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology. The paleontological monitor shall be present during all construction excavations (e.g., grading, trenching, or clearing/grubbing) into the older Pleistocene alluvial deposits. Multiple earth-moving construction activities may require multiple paleontological monitors. The frequency of monitoring shall be based on the rate of excavation and grading activities, proximity to known paleontological resources and/or unique geological features, the materials being excavated (native versus artificial fill soils), and the depth of excavation, and if found, the abundance and type of paleontological resources and/or unique geological features encountered. Full-time monitoring can be reduced to part-time inspections if determined adequate by the qualified professional paleontologist.

- GEO-3 Cease Ground-Disturbing Activities and Implement Treatment Plan if Paleontological Resources Are Encountered.** If paleontological resources and or unique geological features are unearthed during ground-disturbing activities, ground-disturbing activities shall be halted or diverted away from the vicinity of the find so that the find can be evaluated. A buffer area of at least 50 feet shall be established around the find where construction activities shall not be allowed to continue until appropriate paleontological treatment plan has been approved by the applicant and the City. Work shall be allowed to continue outside of the buffer area. The applicant and City shall coordinate with a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology, to develop an appropriate treatment plan for the resources. Treatment may include implementation of paleontological salvage excavations to remove the resource along with subsequent laboratory processing and analysis or preservation in place. At the paleontologist's discretion and to reduce construction delay, the grading and excavation contractor shall assist in removing rock samples for initial processing.
- GEO-4 Prepare Report Upon Completion of Paleontological Monitoring or Salvage Services.** Upon completion of monitoring and/or salvage activities (if required by Mitigation Measures GEO-2 or GEO-3), the professional paleontologist shall prepare a report summarizing the results of the monitoring and salvaging efforts, the methodology used in these efforts, as well as a description of the fossils collected and their significance. The report shall be submitted to the applicant, the City, the Natural History Museum of Los Angeles County, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the project and required mitigation measures.

4.8 – Greenhouse Gas Emissions

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note: This issue area was not analyzed in the 2006 General Plan EIR. As such, the analysis provided below is based on use of the California Emissions Estimator Model (CalEEMod) Version 2016.3.2, performed by MIG on September 4, 2019 (See Appendix A, Air Quality Modeling Data).

To provide guidance to local lead agencies on determining the significance of GHG emissions in their CEQA documents, the SCAQMD convened the first GHG Significance Threshold Working Group (Working Group) meeting on April 30, 2008. To date, the Working Group has convened a total of 15 times, with the last meeting taking place on September 28, 2010. Based on the last Working Group meeting, the SCAQMD identified an interim, tiered approach for evaluating GHG emissions intent on capturing 90% of development projects where the SCAQMD is not the lead agency. The following describes the basic structure of the SCAQMD's tiered, interim GHG significance thresholds:

- A. **Tier 1** consists of evaluating whether or not the project qualifies for applicable CEQA exemptions.
- B. **Tier 2** consists of determining whether or not a project is consistent with a greenhouse gas reduction plan. If a project is consistent with a greenhouse gas reduction plan, it would not have a significant impact.
- C. **Tier 3** consists of using screening values at the discretion of the Lead Agency; however, the Lead Agency should be consistent for all projects within its jurisdiction. The following thresholds were proposed for consideration:
 - a. 3,000 MTCO₂e/yr for all land use types; or
 - b. 3,500 MTCO₂e/yr for residential; 1,400 MTCO₂e/yr for commercial; 3,000 MTCO₂e/yr for mixed use projects.
- D. **Tier 4** has three options for projects that exceed the screening values identified in Tier 3:
 - a. Option 1: Reduce emissions from business as usual by a certain percentage (currently undefined)
 - b. Option 2: Early implementation of applicable AB 32 Scoping Measures
 - c. Option 3: For plan-level analyses, analyze a project's emissions against an efficiency value of 6.6 MTCO₂e/yr/SP in 2020 and 4.1 MTCO₂e/yr/SP by 2035. For project-level analyses, analyze a project's emissions against an efficiency value of 4.8 and 3.0 MTCO₂e/yr/SP for the 2020 and 2035 calendar years, respectively

a) **Less than Significant Impact.** Climate change is the distinct change in measures of climate for a long period of time.¹⁷ Climate change is the result of numerous, cumulative sources of greenhouse gas emissions all over the world. Natural changes in climate can be caused by indirect processes such as changes in the Earth's orbit around the Sun or direct changes within the climate system itself (e.g., changes in ocean circulation). Human activities can affect the atmosphere through emissions of greenhouse gases (GHG) and changes to the planet's surface. Human activities that produce GHGs are the burning of fossil fuels (coal, oil and natural gas for heating and electricity, gasoline and diesel for transportation); methane from landfill wastes and raising livestock, deforestation activities; and some agricultural practices.

Greenhouse gases differ from other emissions in that they contribute to the "greenhouse effect." The greenhouse effect is a natural occurrence that helps regulate the temperature of the planet. The majority of radiation from the Sun hits the Earth's surface and warms it. The surface in turn radiates heat back towards the atmosphere, known as infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping back into space and re-radiate it in all directions. This process is essential to supporting life on Earth because it warms the planet by approximately 60° Fahrenheit. Emissions from human activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect by increasing the gases in the atmosphere that trap heat, thereby contributing to an average increase in the Earth's temperature. Greenhouse gases occur naturally and from human activities. Greenhouse gases produced by human activities include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Since 1750, it is estimated that the concentrations of carbon dioxide, methane, and nitrous oxide in the atmosphere have increased over 36 percent, 148 percent, and 18 percent, respectively, primarily due to human activity. Emissions of greenhouse gases affect the atmosphere directly by changing its chemical composition while changes to the land surface indirectly affect the atmosphere by changing the way the Earth absorbs gases from the atmosphere.

Operational emissions associated with the proposed Project would include GHG emissions from mobile sources (transportation), energy, water use and treatment, and waste disposal. GHG emissions from electricity use are indirect GHG emissions from the energy (purchased energy) that is produced offsite. Construction activities are short term and cease to emit greenhouse gases upon completion, unlike operational emissions that are continuous year after year until operation of the use ceases. Because of this difference, SCAQMD recommends amortizing construction emissions over a 30-year operational lifetime. This normalizes construction emissions so that they can be grouped with operational emissions in order to generate a precise project-based GHG inventory.

Projects that exceed the 3,000 MTCO_{2e} per year threshold are required to either achieve a minimum 100 points per the Screening Tables or a 31% reduction over 2007 emissions levels. Consistent with CEQA guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions. GHG emissions for the proposed Project were quantified utilizing CalEEMod to determine if it could have a cumulatively considerable impact related to greenhouse gas emissions (see Appendix A, Air Quality Modeling Data), and summarized in Table 7 (Greenhouse Gas Emissions Inventory). The emissions inventory accounts for GHG emissions from construction activities, operational activities, and existing emissions. As shown in Table 7, the proposed Project will generate approximately 1,239 MTCO_{2e} per year, and greenhouse gas emissions associated with the proposed Project would not exceed the 3,000 MTCO_{2E} threshold with implementation of existing standards and regulations; therefore, impacts would be less than significant.

**Table 7
Greenhouse Gas Emissions Inventory**

Source	GHG Emissions (MT/YR)			
	CO2	CH4	N2O	TOTAL*
Construction				
Total	482	<1	0.00	484
30-Year Amortization	16	<1	0.00	16
Operational				
Area	15	<1	<1	15
Energy	213	<1	<1	214
Mobile	970	<1	0.00	971
Waste	0.00	0.00	0.00	0.00
Water	18	<1	<1	23
Total	1,216	<1	<1	1,223
Project Construction + Operational Total	1,232	<1	<1	1,239
Total Emissions				1,239
Proposed SCAQMD Screening Threshold				3,000
Exceeds Screening Threshold?				No
Source: MIG 2019 * MTCO ₂ E/YR Note: Slight variations may occur due to rounding. Construction emissions amortized over 30 years.				

b) **Less than Significant Impact.** As shown above, the Project would not exceed the 3,000 MTCO₂E threshold, and would therefore be consistent with the County of Riverside GHG Reduction Plan. Additionally, the Project's consistency with AB 32 and Senate Bill (SB) 32 are discussed below.

AB 32 Consistency. AB 32 was adopted in 2006 and requires California to reduce its GHG emissions to 1990 levels by 2020. CARB identified reduction measures to achieve this goal as set forth in the CARB Scoping Plan. Thus, projects that are consistent with the CARB Scoping Plan are also consistent with AB 32 goal. The Project would generate GHG emissions, directly and indirectly, from a variety of sources. The CARB Scoping Plan includes strategies for implementation at the statewide level to meet the goals of AB 32. These strategies serve as statewide measures to reduce GHG emissions levels. The Project would be subject to the applicable measures established in the Scoping Plan because these measures are implemented at the state level. Therefore, the Project would not conflict or otherwise interfere with implementation of AB 32.

SB 32 Consistency. SB 32 was adopted in 2016 and requires the state to reduce statewide GHG emissions 40% below 1990 levels by 2030. SB 32 codifies the reduction target issued in Executive Order B-30-15. SB 32 builds upon the AB 32 goal of 1990 levels by 2020 and provides an interim goal to achieving Executive Order S-3-05's 2050 reduction goal of 80% below 1990 levels. The CARB 2017 Scoping Plan identified reduction measures to achieve the SB 32 GHG reduction goal. Like the previously adopted Scoping Plans, the 2017 Scoping Plan includes statewide reduction measures that are implemented at the state level. The Project would be subject to the applicable measures established in the 2017 Scoping Plan because these measures are implemented at the state level. Additionally, the 2014 Scoping Plan Update indicates "California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32"; and it recognizes the potential for California to "reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050."

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Moreover, the Project does not propose facilities or operations that would substantively interfere with any future County-mandated, state-mandated, or federally-mandated regulations enacted or promulgated to legally require development to assist in meeting state-adopted GHG emissions reduction targets, including those established under Executive Order S-3-05, Executive Order B-30-15, SB 32, or the 2017 Scoping Plan.

Therefore, the Project would not conflict with implementation of SB 32 or otherwise interfere with implementation of this or future goals.

4.9 – Hazards and Hazardous Materials

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) **Less than Significant Impact.** The General Plan EIR Hazards Chapter (Chapter 5.5) includes a discussion of hazardous materials, which is discussed in detail herein.¹⁸

Hazardous Materials Generators

The General Plan EIR notes that implementation of any of the three General Plan Land Use Alternatives would result in the development of new residential, commercial, and industrial uses. As a result, it was determined that more hazardous materials would be used within the planning area with implementation of the General Plan. The General Plan EIR, however, further notes that hazardous materials used and stored within the planning area are likely to be common materials associated with uses such as gasoline stations, automotive repair shops, commercial uses, and industrial uses. The General Plan Safety Element objectives, policies and implementation programs including implementation and/or compliance with the Riverside County Area Plan address the proper use, storage, collection and disposal of hazardous materials. Therefore, it was determined that continued implementation of these policies and implementation programs would avoid any significant hazardous materials impact, and no mitigation as required.

Construction of the proposed project would require the use and transport of hazardous materials such as asphalt, paints, and other solvents. Construction activities could also produce hazardous wastes associated with the use of such products. Construction of the proposed project requires ordinary construction activities and would not require a substantial or uncommon amount of hazardous materials to complete. All hazardous materials are required to be utilized and transported in accordance with their labeling pursuant to federal and state law. Routine construction practices include good housekeeping measures to prevent/contain/clean-up spills and contamination from fuels, solvents, concrete wastes and other waste materials. Similarly, operation of the proposed Project will require the use and storage of common hazardous materials associated with residential uses and household waste. The remnants of these and other products are disposed of as household hazardous waste (HHW) that includes used dead batteries, electronic wastes, and other wastes that are prohibited or discouraged from being disposed of at local landfills. Use of common household hazardous materials and their disposal does not present a substantial health risk to the community. The proposed Project would not place housing near any hazardous materials facilities. The routine use, transport, or disposal of hazardous materials is primarily associated with industrial uses which require such materials for manufacturing operations or produce hazardous wastes as by-products of production applications. The proposed Project does not propose or facilitate any activity involving significant use, routine transport, or disposal of hazardous substances. The proposed Project will be required to comply with the Riverside County Area Plan addressing the proper use, storage, collection, and disposal of hazardous materials. Therefore, with adherence to existing regulations, the proposed Project will have a less than significant impact.

Transportation of Hazardous Materials

According to the General Plan EIR, under any of the three General Plan Land Use Alternatives, more hazardous materials would be transported through the City on major roads and on the railway (adjacent to I-215). Due to the anticipated increase in generation and transport of hazardous materials within and adjacent to the City, it was anticipated that the probability of accidents and environmental contamination will increase. The transport of hazardous materials by truck and rail is regulated by the U.S. Department of Transportation (DOT). It was found that General Plan Land Use Alternative 2 would allow more business park/industrial development which may involve the use of more hazardous materials than Land Use Alternatives 1 or 3; however, the increase in hazards/hazardous materials in the City under Land Use Alternative 2 will not be significantly greater than under Land Use Alternatives 1 or 3. Therefore, it was determined that regulation by the DOT would avoid any significant impact associated with the transportation of hazardous materials as a result of implementation of the General Plan. As

such, it was determined that implementation of any of the three General Plan Land Use Alternatives would not result in a significant impact associated with the generation, use, transport or disposal of hazardous materials.

The proposed Project is a residential subdivision. Operation of the proposed Project will not result in the transportation of any hazardous materials. Therefore, impacts related to transportation of hazardous materials will not occur.

b) **Less than Significant Impact.** The General Plan EIR Hazards Chapter (Chapter 5.5) includes a discussion of leaking underground storage tanks (LUSTs), which is discussed in detail herein.

The General Plan EIR found that future development under any of the three General Plan Alternatives could lead to an increase in the number of Underground Storage Tanks (USTs) in Moreno Valley and thus, potentially more LUSTs. The Regional Water Quality Control Board (RWQCB) issues permits to operate underground storage tanks. The RWQCB is also responsible for monitoring the USTs and responding to requests to assess and remediate leaking tanks. The General Plan EIR notes that commercial and industrial land uses that propose to install USTs are required to comply with all RWQCB policies. Based on continued oversight by the RWQCB for installation and operation of USTs, the General Plan EIR determined that no significant impact would occur, and impacts would be less than significant.

According to the State Water Resources Control Board, there is a closed LUST case at the northeast corner of Krameria Avenue and Perris Boulevard adjacent to the Project site, and there is an open LUST case at the northeast corner of Perris Boulevard and Iris Avenue, approximately 0.6 miles north of the site.¹⁹ The Project would not disturb these sites. Therefore, there would be no impact related to the release of hazardous materials into the environment as a result of the proposed Project. Construction of the proposed project would require the use and transport of hazardous materials such as asphalt, paints, and other solvents. Construction activities could also produce hazardous wastes associated with the use of such products. Construction of the proposed development requires ordinary construction activities and would not require a substantial or uncommon amount of hazardous materials to complete. All hazardous materials are required to be utilized and transported in accordance with their labeling pursuant to federal and state law. Routine construction practices include good housekeeping measures to prevent/contain/clean-up spills and contamination from fuels, solvents, concrete wastes and other waste materials. Impacts would be less than significant.

With regards to project operation, the proposed residential subdivision would not involve the use of hazardous materials or generate hazardous waste that could 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. Project operation would involve the use of household hazardous waste and would not pose a significant risk. Impacts will be less than significant.

c) **No Impact.** March Middle School and Rainbow Ridge Elementary School are located approximately 0.55 miles north of the Project site. The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste because it is a residential use that does not include any such operations. Therefore, the Project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. No impact would occur.

d) **No Impact.** The proposed project is not located on a site listed on the state *Cortese List*, a compilation of various sites throughout the state that have been compromised due to soil or groundwater contamination from past uses.²⁰

Based upon review of the *Cortese List*, the project site is not:

- listed as a hazardous waste and substance site by the Department of Toxic Substances Control (DTSC),²¹
- listed as a leaking underground storage tank (LUFT) site by the State Water Resources Control Board (SWRCB),²²
- listed as a hazardous solid waste disposal site by the SWRCB,²³
- currently subject to a Cease and Desist Order (CDO) or a Cleanup and Abatement Order (CAO) as issued by the SWRCB,²⁴ or
- developed with a hazardous waste facility subject to corrective action by the DTSC.²⁵

e) **Less than Significant Impact.** March Air Force Base is located less than a mile to the west of the Project site; however, the Project site is not located within the Land Use Plan area for the airfield.²⁶ According to the General Plan EIR Hazards Chapter, the establishment of tall structures around airports and inappropriate uses in areas subject to air crash hazards could substantially increase the risk for loss of lives and property. As such, it was determined that land use restrictions were needed in these areas in the interest of public safety. It was also determined that such restrictions are needed to ensure the long-term viability of the airport. Existing zoning regulations and General Plan policies prohibit incompatible development in areas most susceptible to air crashes. The Project is consistent with the Residential (5 du/ac) General Plan land use designation, the Residential 5 (R5) District zoning designation, and the allowable development density and height limits permitted by those designations. Therefore, no significant aircraft hazard is associated with the proposed Project and impacts related to airport operations will be less than significant.

f) **Less than Significant Impact.** According to the General Plan EIR, implementation of any of the three General Plan Alternatives would not impair implementation of or interfere with existing or proposed emergency operations plans at the time of certification. Therefore, it was determined that the General Plan would not result in a significant impact to the City's adopted Emergency Operations Plan and no mitigation was required.

Per state Fire and Building Codes, sufficient space will have to be provided around the proposed residential buildings within the subdivision for emergency personnel and equipment access and emergency evacuation. All project elements, including landscaping, would be sited with sufficient clearance from existing and proposed structures so as not to interfere with emergency access to and evacuation from the facility. The proposed project is required to comply with the California Fire Code as adopted by the Moreno Valley Municipal Code (Chapter 8.36). Access to the site would be provided via a 35-foot wide driveway on Krameria Avenue just west of Perris Boulevard, and via the extension of the existing Kettenburg Lane on the south side of the site. Interior circulation will be provided via a roadway connecting both site access points. The Project driveways would allow emergency access and evacuation from the site, and would be constructed to California Fire Code specifications. The proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or evacuation plan because no permanent public street or lane closures are proposed. Construction work in the street associated with the buildings would be limited to lateral utility connections and half-width streetscape improvements would be limited to nominal potential traffic diversion. Project impacts would be less than significant.

g) **No Impact.** According to the General Plan EIR Hazards chapter, it was determined that implementation of any of the General Plan Land Use Alternatives would result in new development and the expansion adjacent to the high wildland fire hazard area, thereby resulting in a greater potential for wildland and urban fires. However, it was found that existing practices and General Plan objectives,

policies and programs would serve to avoid any significant wildland and urban fire impact, and no mitigation was required at the time of certification. It was determined that no significant wildland or urban fire impact would occur as a result of implementing any of the three General Plan Land Use Alternatives. Under Land Use Alternative 3, less residential development would be allowed in the northeastern portion of the City which would subject less people to impacts associated with wildland fires; although the number of people that would be affected under Land Use Alternatives 1 and 2 would not be significantly greater than Land Use Alternative 3. Therefore, it was determined the potential impacts associated with wildland fires are essentially the same regardless of which proposed General Plan Land Use Alternative is implemented and no impact would occur

The Project site is not located within a fire hazard zone, as identified on the latest Fire Hazard Severity Zone (FHSZ) maps prepared by the California Department of Forestry and Fire Protection (CALFIRE).²⁷ There are no wildland conditions in the urbanized area where the project site is located. Therefore, no impact will occur.

4.10 – Hydrology and Water Quality

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) **Less than Significant Impact.** According to the General Plan EIR Hydrology and Water Quality chapter, implementation of the General Plan would result in the development of new residential and non-residential uses such as business park, commercial, industrial, office and public/institutional uses.²⁸ Additionally, currently developed but under-developed parcels could also be redeveloped with more intensive uses. Based on the General Plan land use map, it was anticipated that approximately 18,800 acres of vacant land will be developed by buildout of the City under each of the alternatives. Although, each alternative would allow a different level of development to occur on the 18,880 acres of vacant land, it was anticipated at time of certification that a similar amount of this vacant land will be converted to urban, less impervious uses under each of the three alternatives. A discussion of potential construction- and operation-related water quality impacts from the proposed Project is provided below:

Construction Impacts

Three general sources of potential short-term, construction-related stormwater pollution associated with the proposed Project include: 1) the handling, storage, and disposal of construction materials containing pollutants; 2) the maintenance and operation of construction equipment; and 3) earth-moving activities which, when not controlled, may generate soil erosion via storm runoff or mechanical equipment. Construction of the proposed Project has the potential to result in indirect impacts to downstream waters through an increase in sedimentation and decrease in water quality and cumulative impacts resulting in the degradation of overall habitat quality for aquatic plant and wildlife species. All new development projects equal to one acre or more are subject to Riverside County National Pollutant Discharge Elimination System (NPDES) Permit No. CAS 618033. The proposed Project would disturb approximately 20.18 gross acres of land and, therefore, will be subject to NPDES permit requirements during construction activities. In addition, pursuant to Municipal Code Section 8.21.170, the Project shall prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) for the project site prior to commencement of Project construction activities. The SWPPP provides temporary measures to control discharges of sediment and other pollutants and includes methods to minimize water quality impacts and stabilize disturbed surfaces throughout the Project site during construction. In order to avoid and minimize these potential effects during construction activities, the Project developer will be required to implement following SWPPP measures:

- Appropriate sediment and erosion control best management practices (BMPs) (e.g., use of silt fencing and/or straw wattles around the perimeter of the construction zone) will be implemented to minimize surface runoff originating from the development and thereby protect water quality of downstream areas. Erosion/sediment control BMPs will be implemented during project construction, will be described in the project's SWPPP, and could include the following:
 - Scheduling
 - Soil Binders
 - Earth Dike and Drainage Swales
 - Soil Preparation-Roughening
 - Wind Erosion Control
 - Silt Fence
 - Gravel Bag Berm
 - Street Sweeping
 - Storm Drain Inlet Protection
 - Stabilized Construction Entrance/Exit
- Prior to the onset of construction activities, construction personnel will be briefed on the location of sensitive habitat and other resources that will be preserved and the importance of avoidance.

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- All fueling and maintenance of vehicles and other equipment and staging areas will be at least 50 feet (15 meters) from storm drains or drainages. During refueling and maintenance of vehicles and equipment, secondary containment will be used.
- No vehicle or equipment cleaning will take place on site during construction.
- Vehicles will be checked daily and maintained in accordance with manufactures' specifications to minimize potential for leaks. Cleanup materials will be kept on-site to recover any accidental spills. Spills will be cleaned up immediately upon discovery.
- Disturbed soil areas and soil stockpiles will be covered with tarps prior to forecasted rain events.
- Waste facilities will be maintained. Waste facilities include concrete wash-out facilities, porta-potties, and hydraulic fluid containers. Waste will be removed to a proper disposal site. The dumpster will be covered at the end of each business day and prior to rain events.

With adherence to the Project-specific SWPPP, construction-related impacts with regard to violations of water quality standards or waste discharge requirements and substantial degradation of surface or ground water quality will be less than significant.

Operational Impacts

Urban runoff is typically associated with impervious surfaces, such as rooftops, streets, and other paved areas, where various types of pollutants may build up and eventually be washed into the offsite waters. Development of the proposed Project would increase impervious areas as the site currently does not consist of any impervious surfaces. The approximately 20.18-acre vacant site will be subdivided and developed with 66 single-family residential lots ranging in size from 7,212 square feet to 15,950 square feet as well as associated streetscape improvements and landscaping. Urban pollutants entering and potentially polluting the local water system would not be expected to occur as a result of the proposed Project. The proposed development would not generate hazardous wastewater that would require any special waste discharge permits. All wastewater associated with the interior plumbing systems of the single-family residences would be discharged into the local sewer system for treatment at the regional wastewater treatment plant.

A Water Quality Management Plan (WQMP) has been prepared to ensure that the project would not cause an increase in storm water runoff and would include water quality treatment prior to discharge from the site. The WQMP includes permanent BMPs and source control BMPs to protect downstream watercourses after construction. The existing site generally drains from the northeast corner to the southwest corner with portions of the flows entering into Kettenburg Lane where they continue southerly. Once developed, all private lots will drain to a public street. All street drainage from the interior streets, Tarano Lane and private lots will be directed to one of two bioretention areas to be constructed within Lots 'A' and 'B' at the southwest corner of the site. The bioretention areas consist of a 6" deep ponding area with mulch and planting, with engineered soil media below ground. Once treated in the bioretention area media, flows will enter an underdrain and will outlet to a proposed storm drain in Kettenburg Lane. This storm drain is proposed to be extended from Northern Dancer Drive. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically. Runoff from the Krameria Avenue frontage, adjacent parkway and landscape easement will be directed to one of three proposed bioretention swales, via curb openings. The bioretention swales will include engineered soil media below ground. Once treated in the soil media, runoff will enter an underdrain, ultimately directing flows to the existing storm drain in Krameria Avenue. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically.

The following permanent BMPs would be incorporated by the Project to protect downstream and/or offsite jurisdictional streambeds and nearby storm drain:

- Bioretention swales
- Bioretention areas

The following source pollution control measures would be incorporated by the Project developer to protect downstream and/or offsite jurisdictional streambeds and nearby storm drains:

- Activity Restrictions: CC&Rs will restrict activities to designated site purposes.
- Landscape Management: Fertilizer and pesticide use will be minimized. Landscape design shall take into consideration environmental constraints, and planting within BMP areas shall be selected to withstand periodic flooding and saturation.
- Efficient Irrigation: Landscaping will use minimal water and manually shut down during storm events. Drip irrigation will be used for all common lot and front yard landscaping, except where turf is proposed. No spray irrigation will be proposed within 2' of hardscape.
- Storm Drain Signage and Maintenance: Drainage inlets will be stenciled or otherwise have signage that indicates storm water drains to river. Drainage inlets shall be inspected monthly and cleaned out as necessary to remove accumulated sediment.

With adherence to the Project-specific WQMP, operation-related impacts with regard to violations of water quality standards or waste discharge requirements and substantial degradation of surface or ground water quality will be less than significant.

b) **Less than Significant Impact.** The General Plan EIR notes that increases in impervious surfaces would result in a reduction in the amounts of rainwater that will infiltrate the soil to the groundwater table. On the other hand, additional groundwater recharge could occur due to infiltration of irrigation water through the soil as well as infiltration of irrigation water runoff as it flows through soft-bottomed channels. As such, the General Plan EIR found that this might result in an incremental reduction in groundwater recharge rates over time. The General Plan EIR notes that the impact of an incremental reduction in groundwater would not be significant as domestic water supplies are not reliant on groundwater as a primary source. However, it further notes that development allowed under the General Plan alternatives could result in an increase in the amount of industrial chemicals and urban contaminants infiltrating groundwater supplies. As increasing levels of urban contaminants, such as fertilizers and pesticides enter groundwater aquifers, it was determined that groundwater quality will decline over time. Therefore, this is considered a significant impact in the General Plan EIR. However, it was determined that implementation of General Plan EIR Mitigation Measures HW1 and HW3 would reduce this impact to a level less than significant.

If the proposed Project removes an existing groundwater recharge area or substantially reduces runoff that results in groundwater recharge such that existing wells would no longer be able to operate, a potentially significant impact could occur. The project site is located in Perris Valley Groundwater Basin (Basin). According to the Moreno Valley General Plan EIR, groundwater depths range from approximately 100 feet to 150 feet below the ground surface. Project-related grading would not reach these depths and no disturbance of groundwater is anticipated. The proposed development would increase impervious surface coverage on the site, thereby reducing the total amount of infiltration onsite. However, the project site is not utilized for groundwater recharge and, as discussed in Section 4.10 (a) above, once developed all private lots will drain to a public street. All street drainage from the interior streets, Tarano Lane and private lots will be directed to one of two bioretention areas to be constructed within Lots 'A' and 'B' at the southwest corner of the site. Additionally, runoff from the Krameria Avenue

frontage, adjacent parkway and landscape easement will be directed to one of three proposed bioretention swales, via curb openings. The bioretention areas/swales consist of a ponding area with mulch and planting, with engineered soil media below ground. Once treated in the soil media, runoff will enter an underdrain, ultimately directing flows to the existing storm drain in Krameria Avenue. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically. Because this site is not managed for groundwater supplies and would provide bioretention areas/swales for continued infiltration, this change in infiltration would not have a significant effect on groundwater table level. Impacts would be less than significant.

c.i) **Less than Significant Impact.** The General Plan EIR notes that development of the planned land uses under any of the three General Plan Alternatives will affect the drainage system and new development would result in greater areas of impervious surfaces (such as streets, sidewalks and parking lots). The General Plan EIR further notes that the absorption rate of impervious surfaces is less than the rate for natural lands. Instead of absorbing into the ground, water on impervious surfaces runs-off and drains into the local drainage system, potentially increasing the amount of storm water runoff. Potentially significant impacts to the existing drainage pattern of the site or area could occur if development of the Project results in substantial on- or off-site erosion or siltation. As discussed in Section 4.10 (a), a Water Quality Management Plan (WQMP) has been prepared for the proposed Project. Once developed, all private lots will drain to a public street. All street drainage from the interior streets, Tarano Lane and private lots will be directed to one of two bioretention areas to be constructed within Lots 'A' and 'B' at the southwest corner of the site. The bioretention areas consist of a 6" deep ponding area with mulch and planting, with engineered soil media below ground. Once treated in the bioretention area media, flows will enter an underdrain and will outlet to a proposed storm drain in Kettenburg Lane. This storm drain is proposed to be extended from Northern Dancer Drive. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically. Additionally, runoff from the Krameria Avenue frontage, adjacent parkway and landscape easement will be directed to one of three proposed bioretention swales, via curb openings. The bioretention swales will include engineered soil media below ground. Once treated in the soil media, runoff will enter an underdrain, ultimately directing flows to the existing storm drain in Krameria Avenue. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically. Therefore, the drainage pattern would not be substantially altered in a manner than could cause increases in erosion off-site. Erosion and siltation reduction measures would be implemented during construction. At the completion of construction, the Project would consist of impervious surfaces and would therefore not be prone to substantial erosion. No streams cross the project site; thus, the project would not alter any stream course. Impacts would be less than significant.

c.ii) **Less than Significant Impact.** The General Plan EIR determined that the volume of additional runoff generated by implementation of the General Plan alternatives could pose a potential flooding hazard during intense rainstorms. As such, it was determined that a significant impact associated with these issues could occur. However, it was determined that implementation of Mitigation Measure HW2 would reduce this impact to a level less than significant. As part of Mitigation Measure HW2, drainage facilities will be designed and constructed with sufficient capacity to safely convey additional stormwater flows and thereby ensure that no habitable structure will be placed within a 100-year floodplain as shown on the FEMA Insurance Rate Maps.

With regard to proposed Project operation, development of the proposed Project would increase the net area of impermeable surfaces on the site; therefore, increased discharges to the City's existing storm drain system would likely occur. As discussed above, all street drainage from the interior streets, Tarano Lane and private lots will be directed to one of two bioretention areas to be constructed within Lots 'A' and 'B' at the southwest corner of the site. The bioretention areas consist of a 6" deep ponding area with mulch and planting, with engineered soil media below ground. Once treated in the bioretention

area media, flows will enter an underdrain and will outlet to a proposed storm drain in Kettenburg Lane. This storm drain is proposed to be extended from Northern Dancer Drive. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically. Additionally, runoff from the Krameria Avenue frontage, adjacent parkway and landscape easement will be directed to one of three proposed bioretention swales, via curb openings. The bioretention swales will include engineered soil media below ground. Once treated in the soil media, runoff will enter an underdrain, ultimately directing flows to the existing storm drain in Krameria Avenue. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically. Therefore, the Project will not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Impacts would be less than significant.

c.iii) **Less than Significant Impact.** Development of the proposed Project would increase the net area of impermeable surfaces on the site; therefore, increased discharges to the City's existing storm drain system would likely occur. As discussed above, all street drainage from the interior streets, Tarano Lane and private lots will be directed to one of two bioretention areas to be constructed within Lots 'A' and 'B' at the southwest corner of the site. The bioretention areas consist of a 6" deep ponding area with mulch and planting, with engineered soil media below ground. Once treated in the bioretention area media, flows will enter an underdrain and will outlet to a proposed storm drain in Kettenburg Lane. This storm drain is proposed to be extended from Northern Dancer Drive. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically. Additionally, runoff from the Krameria Avenue frontage, adjacent parkway and landscape easement will be directed to one of three proposed bioretention swales, via curb openings. The bioretention swales will include engineered soil media below ground. Once treated in the soil media, runoff will enter an underdrain, ultimately directing flows to the existing storm drain in Krameria Avenue. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically. Permits to connect to the existing storm drainage system would be obtained prior to construction. All drainage plans are subject to City review and approval. Therefore, the increase in discharges would not impact local storm drain capacity. The proposed project is not an industrial use and therefore would not result in substantial pollutant loading such that treatment control BMPs would be required to protect downstream water quality. Impacts would be less than significant.

c.iv) **No Impact.** The General Plan EIR Hazards Chapter notes that the three proposed General Plan Land Use Alternatives designate land in the planning area for various types of land uses. Open Space and Flood Plain designations are applied to some land within the 100-year flood zones, particularly in the southeastern portion of the planning area. These designations only allow natural open space, parks, and recreational facilities, prohibiting residential structures. As a result, it was determined that no permanent population will exist in those portions of the flood zone. However, areas within the 100- year flood zone are designated for other uses, including residential, commercial and industrial uses. The General Plan EIR notes that development of additional residential and business-related uses in those areas must comply with existing programs aimed to reduce flooding hazards. These programs include: 1) participation in the National Flood Insurance Program; 2) coordination with the RCFCWCD to ensure maintenance of flood control channels and completion of necessary repairs to RCFCWCD-owned facilities on an as-needed basis; and 3) maintenance of emergency procedures in accordance with Section 8589.5 of the California Government Code. As such, the General Plan EIR determined that implementation of the City's existing floodplain management programs and the policies contained in the General Plan Safety Element will avoid any significant flooding impacts and no mitigation was required. It was determined that no significant flooding impact would occur under any of the three proposed General Plan Land Use Alternatives.

According to flood maps prepared by the Federal Emergency Management Agency, the proposed Project site is not located within a 100-year flood floodplain.²⁹ No impact would occur.

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d) **No Impact.** The City is not exposed to tsunami hazards due to its inland location. In addition, according to Figure 5.5-2 of the General Plan EIR, the Project site is not located in the dam inundation zones of either the Pigeon Pass Dam or the Lake Perris Dam.³⁰ As previously mentioned, the Project site is not located within a FEMA 100-year flood floodplain. No impact would result.

e) **Less than Significant Impact.** The Regional Board's Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. Specifically, the Basin Plan (i) designates beneficial uses for surface and ground waters, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy, and (iii) describes implementation programs to protect all waters in the region. Development allowed by the Project would be required to adhere to requirements of the water quality control plan, including all existing regulation and permitting requirements. This would include the incorporation of best management practices (BMPs) to protect water quality during construction and operational periods.

Development of the Project would be subject to all existing water quality regulations and programs, including all applicable construction permits. Existing General Plan policies related to water quality would also be applicable to the Project. General Plan Conservation Element, Objectives 7.1 and 7.2 and their associated policies would limit potential water quality impacts to surface water and groundwater resources. General Plan Policy 7.2.2 requires all projects to comply with the discharge permit requirements of the Regional Water Quality Control Board. Implementation of these policies, in conjunction with compliance with existing regulatory programs, would ensure that water quality impacts related to the Project would be less than significant.

4.11 – Land Use and Planning

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) **No Impact.** Per Section 15168 of the State CEQA Guidelines, the proposed Project represents a logical part in the chain of contemplated actions that were analyzed in the General Plan EIR. The Project is consistent with the Residential (5 du/ac) General Plan land use designation, the Residential 5 (R5) District zoning designation, and the allowable development density permitted by those designations. The proposed Project is consistent and compatible with the surrounding land uses and would not divide an established community. Access to the site would be provided via a 35-foot wide driveway on Krameria Avenue just west of Perris Boulevard, and via the extension of the existing Kettenburg Lane on the south side of the site. Interior circulation will be provided via a roadway connecting both site access points. The proposed Project does not involve construction of any roadway, flood control channel, or other structure that would physically divide any portion of the community. Therefore, no impact would occur.

b) **No Impact.** The Project is consistent with the Residential (5 du/ac) General Plan land use designation, the Residential 5 (R5) District zoning designation, and the allowable development density permitted by those designations. The proposed Project does not require amending the General Plan or zoning ordinance. In addition, the General Plan EIR Land Use chapter lists the following Plans and Policies as being adopted for the purpose of avoiding or mitigating an environmental effect: the City of Moreno Valley Municipal Code; Specific Plans; the City of Moreno Valley Redevelopment Plan; the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); the Air Installation Compatible Use Zone (AICUZ) Study; the Southern California Association of Governments (SCAG) Regional Plan; the SCAG Growth Management Plan; the Western Riverside County Association of Governments (WRCOG) Sub-Regional Comprehensive Plan; and the Riverside County General Plan. Below is a discussion of how the proposed Project relates to each of the related Plans and Policies in the Project area adopted for the purpose of avoiding or mitigating an environmental effect.

- Section 9.03.040 of the Moreno Valley Municipal Code provides general site development standards for residential uses. For the R5 District, the minimum site area is 7,200 square feet with a minimum front yard setback of 20 feet. The height limit for the R5 District is 35 feet. The Project site is 20.18 acres and the Site Plan indicates a minimum front yard setback of 20 feet for the proposed single-family units. The primary purpose of the R5 District is to provide for residential development on common sized suburban lots. This district is intended as an area for development of single-family residential and mobile home subdivisions at a maximum allowable density of five DUs per net acre. The proposed project does not conflict with the intent or implementation of this designation. Furthermore, the proposed project would maintain the

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integrity of the surrounding commercial area in terms of density, use, and design. The project does not include any feature that would circumvent any mitigating policies in the Moreno Valley General Plan.

- The Project site is not located in any local Specific Plan Area as designated in the General Plan.
- The Project is not subject to the Moreno Valley Redevelopment Plan.
- As discussed in Section 4.4.f above, the Project Site is not located within an MSHCP Criteria Area or Area Plan subunit. The Project Site does not occur within a predetermined Survey Area for narrow endemic plant species, criteria area plant species, amphibian species, or mammal species. No surveys are required for these species. The Project Site occurs within a predetermined Survey Area for the burrowing owl. Although suitable burrowing owl habitat is present onsite in the ruderal vegetation communities, burrowing owls are not expected to occur in or around the Project Site due to the lack of suitable burrows. The Project Site does not occur within or adjacent to an MSHCP Core, Linkage, Constrained Linkage, or Non-Contiguous Habitat Block. Therefore, an Urban/Wildland Interface analysis pursuant to Section 6.1.4 of the MSHCP is not required.
- The Project site is not located within an AICUZ noise or safety contour for the March Air Reserve Base. Therefore, the Project will not conflict with the Plan for the airfield.
- The proposed Project is consistent with the General Plan; therefore, it would not conflict with the SCAG Regional Plan or Growth Management Plan.
- The Project would be required to comply with regional goals and objectives of the WRCOG Sub-Regional Comprehensive Plan; therefore, the Project will not conflict with this Plan.
- Moreno Valley's sphere of influence is under the jurisdiction of the County of Riverside. The Reche Canyon/ Badlands Area Plan (Area Plan) portion of the Riverside County General Plan governs land use within the sphere of influence. Development permitted under the Area Plan for the sphere of influence would be slightly less intense than that which would be allowed under any of the Moreno Valley General Plan alternatives. It is not necessary for the City and County plans for the sphere of influence to match. Riverside General Plan Policy RCBAP 7.4 requires coordination between City and County with respect to the sphere of influence. Because the City and County have coordinated on their regional planning and general planning efforts, and because the Project is consistent with the Moreno Valley General Plan, the Project will not conflict with the Riverside County General Plan.

Because the Project will not conflict with any of these Plans, the Project will not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. No impact will occur.

4.12 – Mineral Resources

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-b) **No Impact.** According to the General Plan EIR, implementation of General Plan Land Use Alternatives 1, 2, or 3 would result in the development of urban uses throughout the majority of the planning area, including the area along Highway 60 and Gilman Springs Road. However, it was determined that no regionally or statewide significant mineral resources are located within the planning area.³¹ Therefore, it was determined that implementation of the General Plan alternatives would not result in the loss of availability of a significant mineral resource, and it was determined that no significant impact to mineral resources would occur. Further, it was noted that both the City and the County have adopted SMARA regulations governing the extraction of mineral resources and eventual reclamation of mining operations and that continued implementation of these regulations will allow for the mining of locally-important mineral resources, as identified in the County of Riverside General Plan.

The proposed Project site is located in a completely urbanized area. There are no mineral extraction or process facilities on or near the site because there are no such facilities in the City of Moreno Valley. No mineral resources are known to exist within the vicinity. As a result, no significant impact to mineral resources will occur.

4.13 – Noise

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Fundamentals of Sound and Environmental Noise

Noise can be defined as unwanted sound. Sound (and therefore noise) consists of energy waves that people receive and interpret. Sound pressure levels are described in logarithmic units of ratios of sound pressures to a reference pressure, squared. These units are called *bel*s. In order to provide a finer description of sound, a *bel* is subdivided into ten *decibels*, abbreviated dB. To account for the range of sound that human hearing perceives, a modified scale is utilized known as the A-weighted decibel (dBA). Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if one automobile produces a sound pressure level of 70 dBA when it passes an observer, two cars passing simultaneously would not produce 140 dBA. In fact, they would combine to produce 73 dBA. This same principle can be applied to other traffic quantities as well. In other words, doubling the traffic volume on a street or the speed of the traffic will increase the traffic noise level by 3 dBA. Conversely, halving the traffic volume or speed will reduce the traffic noise level by 3 dBA. A 3 dBA change in sound is the beginning at which humans generally notice a *barely perceptible* change in sound and a 5 dBA change is generally *readily perceptible*.³²

Noise consists of pitch, loudness, and duration; therefore, a variety of methods for measuring noise have been developed. According to the California General Plan Guidelines for Noise Elements, the following are common metrics for measuring noise:³³

L_{EQ} (Equivalent Energy Noise Level): The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over given sample periods. L_{EQ} is typically computed over 1-, 8-, and 24-hour sample periods.

CNEL (Community Noise Equivalent Level): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five decibels to sound levels in the evening from 7:00pm to 10:00pm and after addition of ten decibels to sound levels in the night from 10:00pm to 7:00am.

L_{DN} (Day-Night Average Level): The average equivalent A-weighted sound level during a 24-hour day, obtained after the addition of ten decibels to sound levels in the night after 10:00pm and before 7:00am.

CNEL and L_{DN} are utilized for describing ambient noise levels because they account for all noise sources over an extended period of time and account for the heightened sensitivity of people to noise during the night. L_{EQ} is better utilized for describing specific and consistent sources because of the shorter reference period.

City of Moreno Valley Municipal Code

Operational Noise Standards

Pursuant to Section 11.80.030 of the Moreno Valley Municipal Code, no person shall operate or cause to be operated a public or private motor vehicle, or combination of vehicles towed by a motor vehicle, that creates a sound exceeding the sound level limits below during daytime hours (between the hours of 8:00 AM and 10:00 PM):

- Residential – 60 dBA
- Commercial – 65 dBA

Construction Noise Standards

Pursuant to Section 8.14.040(E) of the Moreno Valley Municipal Code, any construction activities performed within the City limits shall only be performed between the hours of 7 AM and 7 PM Monday through Friday and from 8 AM to 4 PM on Saturday, excluding Sundays and Holidays unless written approval is obtained from the City Building Official or City Engineer.

a) **Less than Significant Impact with Mitigation Incorporated.** The Moreno Valley Municipal Code (Section 11.80.030) sets allowable levels for residential and commercial land uses. Exterior noise exposure for residential use is allowable up to 60 dBA and 65 dBA for commercial uses.

Construction Noise

The General Plan EIR Noise chapter notes that implementation of the Moreno Valley General Plan would result in additional development, which would generate noise during construction.³⁴ The General Plan EIR further notes that construction activity would have the potential to impact noise sensitive land uses located adjacent to construction sites. Table 5.4-1 of the General Plan EIR Noise chapter illustrates typical noise levels from operating construction equipment at a distance of 50 feet. As shown, construction equipment generates high levels of intermittent noise ranging from 70 dB(A) to 105 dB(A). Although construction activities would result in a noise impact at such locations, it was determined that this impact would be short-term and would cease upon completion of construction. It was determined that the temporary nature of the impact in conjunction with existing city regulations on hours of operation would lessen the potential of a significant impact due to construction noise. Nevertheless, it was determined that noise sensitive land use located adjacent to construction sites may be significantly impacted by future construction in the planning area as a result of groundborne noise levels and vibration, noise levels that exceed existing standards, and excessive temporary or periodic increases

in the ambient noise level. As such, Mitigation Measures N5 and N10 were incorporated to reduce these impacts to a level less than significant.

The proposed Project has the ability to significantly impact nearby noise sensitive receptors during construction. As such, General Plan EIR Mitigation Measures N5 and N10 have been incorporated by reference to ensure that impacts to nearby sensitive receptors during construction are less than significant. In addition, in order to ensure that project-specific construction noise is minimized at nearby receptors, Mitigation Measure NOI-1 has been incorporated to minimize noise associated with general construction activities. Mitigation Measure NOI-1 requires the use of engineered controls including retrofitting equipment with improved exhaust and intake muffling, disengaging equipment fans, and installation of sound panels around equipment engines to be verified by the preparation of a noise mitigation plan once specific construction programming and equipment is identified. These types of controls can feasibly achieve noise level reductions of approximately 10 dBA.^{35 36} Therefore, with implementation of Mitigation Measure NOI-1, and incorporation of General Plan EIR Mitigation Measures N5 and N10, construction noise from the proposed Project will be reduced to less-than-significant levels.

Mitigation Measure

NOI-1 The following measures are required to ensure that project-related short-term construction noise levels are reduced to less-than-significant levels. Prior to issuance of demolition permits, a noise mitigation plan verifying that compliance with the following measures would reduce construction noise to within the allowable levels of 60 dBA for residential uses. Should construction noise exceed allowable levels after implementation of the following measures, the use of sound curtains or other noise barriers shall be required. The noise mitigation plan shall identify the type and location of sound curtains or other noise barriers to be utilized to reduce construction noise to within allowable levels.

- Stationary construction noise sources such as generators or pumps must be located at least 100 feet from sensitive land uses, as feasible, or at maximum distance when necessary to complete work near sensitive land uses. This mitigation measure must be implemented throughout construction and may be periodically monitored by a contracted noise monitor. Datasheets completed by the contracted construction noise monitor may be submitted to the Planning Official, or designee during routine inspections.
- Construction staging areas must be located as far from noise sensitive land uses as feasible. This mitigation measure must be implemented throughout construction and may be periodically monitored by a contracted construction noise monitor, by the Planning Official or designee during routine inspections.
- Throughout construction, the contractor shall ensure all construction equipment is equipped with included noise attenuating devices and are properly maintained. This mitigation measure shall be periodically monitored by a contracted construction noise monitor, the Planning Official, or designee during routine inspections.
- Idling equipment must be turned off when not in use. This mitigation measure may be periodically monitored by a contracted construction noise monitor the Planning Official, or designee during routine inspections.
- Equipment must be maintained so that vehicles and their loads are secured from rattling and banging. This mitigation measure may be periodically monitored by a contracted construction noise monitor, the Planning Official, or designee during routine inspections.

- N5.** Construction activities shall be operated in a manner that limits noise impacts on surrounding uses to the hours between 7 AM and 7 PM Monday through Friday and between 8 AM and 4 PM on Saturday, excluding Sundays and Holidays unless written approval is obtained from the City Building Official or City Engineer (**Policy 6.5.2**).
- N10.** Building construction shall be prohibited between 7 PM and 7 AM Monday through Friday, between 4 PM and 8 AM on Saturdays, and on Sundays and Holidays unless written approval is obtained from the City Building Official or City Engineer (**Policy 6.3.6**).

Operational Noise

The General Plan EIR notes that the three General Plan Alternatives would each allow new development within the planning area and that such development would generate additional traffic that will increase noise levels along roadways. It was determined that with buildout of the General Plan under any of the three Alternatives would subject certain portion of the City to noise levels exceeding the City's noise standards. This was determined to be a significant impact because implementation of the General Plan could result in a permanent increase in ambient noise levels above levels existing without the project, and these levels could exceed established standards along some roadway corridors. As such, the General Plan EIR determined that implementation of General Plan EIR Mitigation Measures N1, N7 and N9 would reduce these impacts associated with vehicular noise to a level less than significant.

According to the General Plan EIR Noise chapter (Figure 5.4-2) the City anticipates noise level along Krameria Avenue and Perris Boulevard at buildout to be 60 CNEL and 70 CNEL respectively. The proposed Project represents a logical part in the chain of contemplated actions that were analyzed in the General Plan EIR. Development of the proposed Project was anticipated at the time of adoption of the General Plan and certification of the General Plan EIR. Therefore, General Plan EIR Mitigation Measures N1, N7 and N9 have been incorporated by reference to ensure the proposed Project will not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. With incorporation of General Plan EIR Mitigation Measures N1, N7 and N9, the proposed Project will have a less than significant impact.

Mitigation Measures

- N1.** The following noise control measures shall be applied to new single-family dwellings exposed to noise along Perris Boulevard:
- a. Install sound barriers (masonry walls or walls with earth berms) between residences and noise sources.
 - b. Install double-paned or similar sound rated windows.
 - c. Provide sound insulating exterior walls and roofing systems.
 - d. Locate and/or design attic vents to minimize sound propagation into each home.
 - e. Provide forced-air ventilation systems.
 - f. Place dwellings as far as practical from the noise source.
- N7.** The following uses shall require mitigation to reduce noise exposure where current or future exterior noise levels exceed 20 CNEL above the desired interior noise level (**Policy 6.3.1**):
- a. New single-family and multiple-family residential buildings shall be insulated to achieve an interior noise level of 45 CNEL or less. Such buildings shall include sound-insulating

- windows, walls, roofs and ventilation systems. Sound barriers shall also be installed (e.g. masonry walls or walls with berms) between single-family residences and major roadways.
- b. New libraries, hospitals and extended medical care facilities, places of worship and office uses shall be insulated to achieve interior noise levels of 50 CNEL or less.
 - c. New schools shall be insulated to achieve interior noise levels of 45 CNEL or less.

b) **Less than Significant Impact.** Vibration is the movement of mass over time. It is described in terms of frequency and amplitude and unlike sound; there is no standard way of measuring and reporting amplitude. Vibration can be described in units of velocity (inches per second) or discussed in decibel (dB) units in order to compress the range of numbers required to describe vibration. Vibration impacts to buildings are generally discussed in terms of peak particle velocity (PPV) that describes particle movement over time (in terms of physical displacement of mass). For purposes of this analysis, PPV will be used to describe all vibration for ease of reading and comparison. Vibration can impact people, structures, and sensitive equipment.³⁷ The primary concern related to vibration and people is the potential to annoy those working and residing in the area. Vibration with high enough amplitudes can damage structures (such as crack plaster or destroy windows). Groundborne vibration can also disrupt the use of sensitive medical and scientific instruments such as electron microscopes. Common sources of vibration within communities include construction activities and railroads. Operation of the proposed project does not include uses that cause vibration.

Groundborne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities. Next to pile driving, grading activity has the greatest potential for vibration impacts if large bulldozers, large trucks, or other heavy equipment are used. The construction of the proposed Project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. According to the Caltrans vibration manual, large bulldozers, vibratory rollers (used to compact earth), and loaded trucks utilized during grading activities can produce vibration, and depending on the level of vibration, could cause annoyance at uses within the project vicinity or damage structures. Caltrans has developed a screening tool to determine if vibration from construction equipment is substantial enough to impact surrounding uses. The Caltrans vibration manual establishes thresholds for vibration impacts on buildings and humans. These thresholds are summarized in Tables 8 (Vibration Damage Potential Threshold Criteria) and 9 (Vibration Annoyance Potential Threshold Criteria).

Table 8
Vibration Damage Potential Threshold Criteria

Structural Integrity	Maximum PPV (in/sec)	
	Transient	Continuous
Historic and some older buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial and commercial structures	2.00	0.50
<i>Source: Caltrans 2013</i>		

Table 9
Vibration Annoyance Potential Threshold Criteria

Human Response	PPV Threshold (in/sec)	
	Transient	Continuous
Barely perceptible	0.035	0.012
Distinctly perceptible	0.24	0.035
Strongly perceptible	0.90	0.10

Severely perceptible	2.00	0.40
Source: Caltrans 2013		

Construction of the project would not require rock blasting, or pile driving, but could require use a vibratory roller, small bulldozer, loaded trucks, and jackhammer. Construction activities that use vibratory rollers and bulldozers are repetitive sources of vibration; therefore, the *continuous* threshold is used. Residential uses adjacent to the Project site are located to the south (50 feet) and west (75 feet). The *historic and some older buildings* threshold is used. Based on the threshold criteria summarized in Tables 8 and 9, vibration from use of heavy construction equipment for the proposed Project would be below the thresholds to cause damage to nearby structures at the receptors shown in Table 10 (Construction Vibration Impacts). Sensitive receptors to the west will experience *barely perceptible* vibration from use of small bulldozers, loaded trucks, and jackhammers, while experiencing *distinctly perceptible* vibration from vibratory rollers. Sensitive receptors to the south will experience *barely perceptible* vibration from use of jackhammers, while experiencing *distinctly perceptible* vibration from vibratory rollers, small bulldozers, and loaded trucks. While nearby receptors will experience distinctly perceptible vibration during construction activities, this vibration will be periodic in nature and will only occur when construction equipment is at the edge of the site, immediately adjacent to the receptors. Furthermore, Pursuant to Section 11.80.030(D)(7), construction work conducted between the hours of 8:00 PM and 7:00 AM is prohibited. Therefore, with adherence to permitted construction hours, the Project would not result in excessive, *strongly perceptible* vibration. Impacts will be less than significant.

Table 10
Construction Vibration Impacts

Receptors	Equipment	PPVref	Distance (feet)	PPV
1 – Single-Family Residence (S)	Vibratory Roller	0.21	50	0.0853
2 – Single-Family Residence (W)	Vibratory Roller	0.21	75	0.0503
1 – Single-Family Residence (S)	Small Bulldozer	0.003	50	0.0483
2 – Single-Family Residence (W)	Small Bulldozer	0.003	75	0.0213
1 – Single-Family Residence (S)	Loaded Truck	0.076	50	0.0413
2 – Single-Family Residence (W)	Loaded Truck	0.076	75	0.0182
1 – Single-Family Residence (S)	Jackhammer	0.035	50	0.0190
2 – Single-Family Residence (W)	Jackhammer	0.035	75	0.0084
Source: MIG 2019				

With regard to long-term operational impacts, activities associated with the project would not result in any excessive vibration-related impacts to adjacent or on-site properties.

c) **No Impact.** The Project site is not located within two miles of a public or private use airport or heliport.³⁸ However, the site is located less than a mile from March Air Reserve Base. A very small portion of the southwestern Moreno Valley falls within the 75 CNEL noise contour impact area, but this area does not include the Project site. Additionally, small portions of the southwestern and western City fall within the 70 CNEL, 65 CNEL, and 60 CNEL noise contour impact areas. These portions of the City do not include the proposed Project site, which is located outside the 60 CNEL noise contour impact area. Therefore, no impacts will occur.

4.14 – Population and Housing

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial unplanned 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) **No Impact.** The General Plan EIR Population and Housing chapter notes that implementation of General Plan Land Use Alternative 1, 2, or 3 would allow an increase of dwelling units and population within the planning area.³⁹ The following summarizes the expected population and dwelling units for the buildout of General Plan Land Use Alternatives 1, 2, and 3, as well as the resulting increase from existing conditions, as shown in the General Plan EIR:

- **Alternative 1** – 279,697 persons or 76,420 households (82% increase)
- **Alternative 2** – 304,966 persons or 83,324 households (98% increase)
- **Alternative-3** – 302,785 persons or 82,728 households (97% increase)

The General Plan EIR notes that new residents will locate to the planning area. It was further noted that the actual rate of development that may occur pursuant to General Plan Land Use Alternatives 1, 2, or 3 will depend on market conditions and other factors, such as availability of infrastructure or environmental constraints. It was determined that the rate of population and housing growth resulting from the implementation of General Plan Land Use Alternatives 1, 2, or 3 would not differ substantially from each other or from recently experienced growth rates. Therefore, it was determined that amendment of the General Plan could accommodate population growth, but would not induce growth and no significant impact was anticipated at the time of certification.

The proposed Project represents a logical part in the chain of contemplated actions that were analyzed in the General Plan EIR. The Project is consistent with the Residential (5 du/ac) General Plan land use designation, the Residential 5 (R5) District zoning designation, and the allowable development density permitted by those designations. As such, no impact will occur as a result of the proposed Project.

b) **No Impact.** The Project site is vacant and does not contain residential uses or residents. The proposed Project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. No impact will occur.

Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188 Tentative Tract Map 37725)

4.15 – Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental 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:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The General Plan EIR Public Services chapter notes that the City did a development impact fee study (1999) that concluded that the existing Police Building and the planned expansion of the facility would serve the needs of the City through buildout.⁴⁰ It was noted that each new development is assessed a fee to cover its fair share of the cost of the expanded facility. The City imposes development impact fees on development projects to lessen the impact to public services, infrastructure, and facilities.

a) **Less than Significant Impact.** The Riverside County Fire Department provides fire protection, fire prevention, and emergency medical aid to the City of Moreno Valley. The Fire Prevention and Administration Bureau is located in the Public Safety Building at 22850 Calle San Juan de Los Lagos in the City of Moreno Valley's Civic Center. The fire station located nearest to the project site is Moreno Valley Station #91 (16110 Lasselle Street), located approximately 1.3 miles northeast of the project site. According to the General Plan EIR, the Department sets a goal to arrive on the scene of emergencies within five minutes of notification, 90 percent of the time.

According to the General Plan EIR, a 1999 impact fee study concluded that Station 2 and Station 58 would need to be replaced and three new stations would be needed through buildout of the City. Since the preparation of the 1999 impact fee study, Station 2 has been relocated to its current Hemlock Avenue location and one new station (College Park) has been constructed. Each new development, including the proposed Project, shall be assessed a fee to contribute to its fair share of the cost of new fire facilities. The proposed Project would not have a significant impact on fire response times because the Project is located within the existing service area. No new or expanded fire protection facilities would be required as a result of this Project. Furthermore, the proposed Project does not propose to use substantially hazardous materials or engage in hazardous activities that would require new or modified fire protection equipment to meet potential emergency demand. Impacts related to expansion of fire protection services would be less than significant with payment of development impact fees.

b) **Less than Significant Impact.** The City of Moreno Valley contracts with the Riverside County Sheriff's Department to staff the Moreno Valley Police Department (MVPD). The Department is located in the Public Safety Building at 22850 Calle San Juan de Los Lagos in the City of Moreno Valley's Civic Center. The City is divided into four Zones with police officers assigned to a specific one to improve response times. Each Zone is comprised of a team that consist of one Zone Commander, one Zone Supervisor, and one Zone Coordinator. According to the General Plan EIR Public Services chapter, Safety Element Objective 6.8 strives for police staffing of at least 1 officer per 1,000 residents, as feasible given budget constraints. Objective 6.9 and the associated policies encourage neighborhood watch programs, require security lighting in new developments and require defensible space concepts to be incorporated in the design of new developments. The MVPD does not have established response time standards. The Department's aim is to provide service as fast as possible under all circumstances depending on availability of officers in the field and type of calls for service on hand. The MVPD's objective is to respond within six minutes or less for Priority 1 calls. The MVPD prepares a quarterly report and reviews calls for service and response times to ensure the department is deployed efficiently and adequately. The General Plan EIR notes that implementation of any of the General Plan Land Use Alternatives will result in increased population and new development. With the increase in population and new development, additional police services, and expanded facilities will be required to provide acceptable service levels. The specific environmental impact of expanding the police station cannot be determined at this level of analysis; however, development and operation of public facilities, such as a police station, may result in potentially significant environmental impacts that are addressed by various City policies and mitigation measures included in other sections of the General Plan EIR.

The proposed Project would not result in any unique or more extensive crime problems that cannot be handled with the existing level of police resources. The proposed Project is located in a built environment within the MVPD service area. No new or expanded police facilities would need to be constructed as a result of this project. Furthermore, the 1999 development fee impact study concluded that the existing police building, and the planned expansion of the facility would serve the needs of the City through buildout. All new development, including the proposed Project, would be subject to pay development impact fees to cover its fair share of the cost for facility expansion. Impacts related to expansion of police protection services would be less than significant.

c) **Less than Significant Impact.** The proposed Project would result in potential for households with school-age children located in this development. Each new development, including the proposed Project, shall be assessed a fee to contribute to its fair share of the cost of new school facilities. Therefore, no new or expanded school facilities would need to be constructed as a result of this Project. All new development, including the proposed Project, would be subject to pay development impact fees to cover its fair share of the cost for facility expansion. Impacts related to expansion of school services would be less than significant with payment of development fees.

d) **Less than Significant Impact.** Demand for park and recreational facilities are generally the direct result of residential development. The proposed Project consists of subdivision into 66 single-family lots, which would result in the potential for more households with children and adults who want to use parks and recreation facilities. Development of the project, therefore, would have the potential to increase demand on local park facilities. However, all new development, including the proposed Project, would be subject to pay Quimby fees to cover its fair share of the cost for park facility expansion. Impacts related to expansion of parks and recreation facilities would be less than significant with payment of Quimby fees.

e) **Less than Significant Impact.** The Project could result in an increase in residents that would generate additional demand for public facilities such as libraries or hospitals. However, all new development, including the proposed Project, would be subject to pay development impact fees to cover

its fair share of the cost for facility expansion. Impacts related to expansion of library facilities would be less than significant with payment of development fees.

4.16 – Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) **Less than Significant Impact.** Demand for park and recreational facilities are generally the direct result of residential development. The proposed Project consists of subdivision into 66 single-family lots, which would result in the potential for more households with children and adults who want to use parks and recreation facilities. Development of the project, therefore, would have the potential to increase use of local park facilities. However, all new development, including the proposed Project, would be subject to pay development impact fees to cover its fair share of the cost for facility expansion and maintenance. Impacts related to deterioration of parks and recreation facilities would be less than significant with payment of development fees.

b) **Less than Significant Impact.** The Project does not include recreational facilities or require the construction or expansion of recreational facilities. The proposed Project consists of subdivision into 66 single-family lots, which would result in the potential for more households with children and adults who want to use parks and recreation facilities. As previously mentioned, all new development, including the proposed Project, would be subject to pay development impact fees to cover its fair share of the cost for facility expansion and maintenance. Therefore, there would be no adverse physical effect on the environment caused by expansion or construction of outdoor recreational facilities. Impacts will be less than significant.

4.17 – Transportation

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) **Less than Significant Impact.** To determine potential impacts of the City of Moreno Valley General Plan, a Traffic Study was completed which evaluated future traffic volumes that would be generated from the three land use alternatives. In addition to the three land use alternatives, the Traffic Study also evaluated three additional circulation alternatives. Based on these evaluations, the preferred circulation system was selected, assuming development in accordance with Land Use Alternative 2. This preferred circulation system is promulgated through the Circulation Element of the General Plan. According to the General Plan EIR Transportation chapter, it was determined that regardless of implementation of Circulation Plan changes, certain roadway segments within the City may experience V/C ratios that exceed 1.0 as a result of buildout.⁴¹ These roadways would experience traffic volumes that exceed their acceptable LOS of “C” or “D.” This was determined to be a significant impact and Mitigation Measure TR1, which required the City to conduct studies of specified arterial segments to determine if any additional improvements will be needed to maintain an acceptable LOS at General Plan build-out, was implemented to reduce the impact. However, even with incorporation of Mitigation Measure TR1, it was determined that the impact to local roadway segments would remain significant and unavoidable as a result of buildout of the Plan.

The proposed project is consistent with the General Plan and will be developed consistent with the Residential-5 (5/acre) General Plan Designation and the land uses analyzed by the 2006 General Plan Update. The proposed Project is also below the lot-count threshold in the City’s Traffic Impact Analysis (TIA) Guidelines. Therefore, a traffic impact study was not required for the proposed Project since the proposed number and type of dwelling units are the same as those envisioned in the General Plan and are below the thresholds in the TIA Guidelines requiring a study to be prepared. According to the Institute of Traffic Engineers (ITE) Trip Generation Handbook 10th Edition, Single-Family homes are estimated to generate ten daily trips per dwelling unit. According to the Moreno Valley General Plan Update EIR

(Figure 5.2-5), the design capacity in the year 200 for Perris Boulevard was 20,200 ADT and the design capacity of Krameria Avenue as 2,700 ADT. As of 2017, City traffic counts show approximately 28,000 ADT for Perris Boulevard and approximately 9,900 ADT for Krameria Avenue in the vicinity of the Project.⁴² The proposed Project would generate approximately 660 daily trips. According to the CalEEMod output (Appendix A), the proposed Project will generate approximately 630 weekday trips. Both these amounts of daily trips are within the current design capacity for both Perris Boulevard and Krameria Avenue and considered background growth as envisioned in the City's General Plan. Since the potential impacts of the project are the same as those evaluated in the 2006 General Plan EIR and the EIR found the 2006 General Plan would result in significant, adverse and unavoidable impacts, the impacts of this project would be no greater than those previously analyzed. Therefore, project-specific impacts would be less than significant.

b) **Less than Significant Impact.** CEQA Guidelines Section 15064.3 subdivision (b) has been included in the 2018 CEQA Guidelines as part of the implementation of SB 743 which requires local jurisdictions to use Vehicle Miles Travelled (VMT) instead of Level of Service (LOS) methodologies for the purpose of determining the significance of traffic impacts under CEQA. Also, as part of the implementation of SB 743 local jurisdiction are given until July 1, 2020 to develop and implement thresholds of significance criteria and methodologies for evaluating VMT under the new SB 743 requirements. Therefore, impacts with respect to CEQA Guidelines Section 15064.3(b) are less than significant.

c) **No Impact.** A significant impact would occur if the proposed Project substantially increased an existing hazardous design feature or introduced incompatible uses to the existing traffic pattern. Access to the single-family homes would be provided via a 36-foot wide local street connecting to Krameria Avenue just west of Perris Boulevard, and via the extension of the existing Kettenburg Lane on the south side of the site. Interior circulation will be provided via a roadway connecting both site access points. The design of the proposed Project would comply with all applicable City regulations. Furthermore, the proposed Project does not involve changes in the alignment of any local roadway and the proposed Project is consistent with existing residential uses adjacent to the Project site. The proposed Project would not result in a traffic safety hazard due to any design features. No impact would occur.

d) **Less than Significant Impact.** A significant impact would occur if the design of the proposed Project would not satisfy emergency access requirements of the Riverside County Fire Department or in any other way threaten the ability of emergency vehicles to access and serve the Project site or adjacent uses. The proposed Project would not result in inadequate emergency access. As discussed above, to the site would be provided via a 35-foot wide driveway on Krameria Avenue just west of Perris Boulevard, and via the extension of the existing Kettenburg Lane on the south side of the site. Interior circulation will be provided via a roadway connecting both site access points. The driveway width is sufficient to provide access to fire and emergency vehicles and is consistent with the California Fire Code requiring a minimum of 20 feet. All access features are subject to and must satisfy the City of Moreno Valley design requirements, including the Fire Department's requirements. This Project would therefore not result in adverse impacts with regard to emergency access.

4.18 – 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 Cultural Native American tribe, and that is:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a -b) **Less than Significant Impact with Mitigation Incorporated.** Assembly Bill (AB) 52 specifies that a project that may cause a substantial adverse change to a defined Tribal Cultural Resources (TCR) may result in a significant effect on the environment. AB 52 requires tribes interested in development projects within a traditionally and culturally affiliated geographic area to notify a lead agency of such interest and to request notification of future projects subject to CEQA prior to determining if a negative declaration, mitigated negative declaration, or environmental impact report is required for a project. The lead agency is then required to notify the tribe within 14 days of deeming a development application subject to CEQA complete to notify the requesting tribe as an invitation to consult on the project. AB 52 identifies examples of mitigation measures that will avoid or minimize impacts to TCR. The bill makes the above provisions applicable to projects that have a notice of preparation or a notice of intent to adopt a negative declaration/mitigated negative declaration circulated on or after July 1, 2015. AB 52 amends Sections 5097.94 and adds Sections 21073, 21074, 2108.3.1., 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 to the California Public Resources Code (PRC), relating to Native Americans.

As discussed in Section 4.4 above, the results of the record search indicate that there are no cultural resource studies/reports previously conducted within proposed Study Area and there are twelve (12) cultural studies/reports that have been previously conducted within a one-mile radius of the Study Area. These studies were performed for four (4) cultural resource assessments, two (2) cell tower assessments, one (1) pipeline route evaluation, and one (1) school construction project, one (1) warehouse construction, one (1) commercial building project, one (1) historic site evaluation, and one

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(1) archaeological construction monitoring project. These studies were conducted between 1983 and 2017. The NAHC SLF records search results (received April 15, 2019) revealed that no known “Native American cultural resources” in the SLF database are within the project site or within a one-mile radius of the Study Area.

As per NAHC suggested procedures, follow-up letters were sent via first class mail on April 16, 2019 to the 10 Native American individuals and organizations identified by the NAHC as being affiliated with the vicinity of the Project. The letters requested any additional information they may have about Native American cultural resources that may be affected by the proposed project. As of May 21, 2019, MIG has received three (3) tribal responses from the Agua Caliente Band of Cahuilla Indians on April 24, 2019, from the Morongo Band of Indians on May 3, 2019, and from the Augustine Band of Cahuilla Indians. The Agua Caliente Band of Cahuilla Indians deferred their comments to the Morongo Band of Indians and to the Pechanga Band of Luiseño Indians. The Morongo Band of Indians stated that the Tribe had no additional information to offer at the time and may provide other information to the lead agency during AB 52 Consultations. The Augustine Band of Cahuilla Indians stated that the Tribe was unaware of specific cultural resources that may be affected by the proposed Project. As of September 5, 2019, MIG had received no other responses from the Native American community concerning the proposed project. As a result, formal AB 52 Consultation has occurred with the following tribes: Rincon Band of Luiseño Indians, Pechanga Band of Luiseño Indians and Soboba Band of Luiseño Indians.

As previously discussed, the results of the records research compiled from the CHRIS-EIC, a Sacred Lands File Search commissioned through the NAHC, and a pedestrian field survey failed to indicate known TCR within the Study Area as specified in PRC Section 210741, 5020.1(k), or 5024.1. However, despite the disturbances of the Study Area that may have displaced or submerged archaeological resources relating to TCRs on the surface, it is possible that intact tribal cultural resources exist at depth given the proven prehistoric occupation of the region and the favorable natural conditions that would have attracted prehistoric inhabitants to the area. As a result, Mitigation Measures CUL-1 through CUL-5, from the Cultural Resources chapter of this IS/MND, have been incorporated to reduce potentially significant impacts to previously undiscovered archaeological resources that may be accidentally encountered during project implementation to a less than significant level. With implementation of Mitigation Measures CUL-1 through CUL-5, impacts would be less than significant.

Because the project site has been disturbed, no human remains or cemeteries are anticipated to be disturbed by the proposed project. Any buried human remains would have been uncovered, collected, and/or destroyed at that time of initial development of the site. However, these findings do not preclude the existence of previously unknown human remains located below the ground surface, which may be encountered during construction excavations associated with the proposed project. Similar to the discussion regarding archaeological resources above, it is also possible to encounter buried human remains during construction. As a result, Mitigation Measure CUL-6 has been implemented to reduce potentially significant impacts to previously unknown human remains that may be unexpectedly discovered during project implementation to a less than significant level. Mitigation Measure CUL-6 requires that in the unlikely event that human remains are uncovered the contractor shall be required to halt work in the immediate area of the find and to notify the County Coroner, in accordance with Health and Safety Code § 7050.5, who must then determine whether the remains are of forensic interest. If the Coroner, with the aid of a supervising archaeologist, determines that the remains are or appear to be of a Native American, he/she shall contact the Native American Heritage Commission for further investigations and proper recovery of such remains, if necessary. Impacts would be less than significant with implementation of mitigation.

4.19 – Utilities and Service Systems

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Generate solid waste in excess of State and local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) **Less than Significant Impact.** The Project would require water, wastewater collection and treatment, storm water drainage, electrical power, natural gas, and telecommunication facilities. An analysis of impacts is provided below.

Water

The Project site would be serviced by existing water service lines along Krameria Avenue and Kettenburg Lane. Thus, lateral connections to existing water lines would be required but the Project

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would not result in a need for expanded or new water facilities. Therefore, the Project would have a less than significant impact.

Wastewater

The proposed project could affect Regional Water Quality Control Board treatment standards by increasing wastewater production such that expansion of existing facilities or construction of new facilities would be required. Exceeding the RWQCB treatment standards could result in contamination of surface or groundwater with pollutants such as pathogens and nitrates.

New development in the City is required to install wastewater infrastructure concurrent with project development. Wastewater service in the City is provided by the Eastern Municipal Water District (EMWD) for maintenance of local sewer lines that collect wastewater generated in the City. All wastewater generated by the interior plumbing system of the proposed Project would be discharged into the local sewer main and conveyed for treatment at the Moreno Valley Regional Water Reclamation Facility (MVRWRF). The MVRWRF has the capacity to treat 16 million gallons of wastewater per day (mgd) and the capacity to expand to 41 mgd. As of October 2016, the typical daily flow at MVRWRF is 10.6 mgd with the ability to divert approximately two mgd to the Perris Facility.⁴³ Wastewater flows associated with the proposed Project would consist of the same kinds of substances typically generated by residential uses and no modifications to any existing wastewater treatment systems or construction of any new ones would be needed to treat this Project's wastewater. Water use for the Project was estimated using CalEEMod default outputs. Interior water use is estimated at 11,781 gpd and outdoor water use for landscaping is estimated at 7,427 gpd. Wastewater is typically estimated to be 80 percent of total water use. Therefore, estimated wastewater generation from interior demand and outdoor irrigation demand is 15,366 gpd.

Total estimated wastewater generation to be conveyed to MVRWRF is estimated at 15,366 gpd. This volume is within the remaining capacity of the MVRWRF's 16 mgd total treatment capacity. This project would thus have a less-than-significant impact on the ability of the MVRWRF to operate within its established wastewater treatment requirements, which are enforced via the facility's NPDES permit authorized by the Santa Ana Regional Water Quality Control Board (SARWQCB). Therefore, the project would have a less than significant impact related to wastewater treatment requirements of the SARWQCB.

Stormwater

The Project would subdivide the existing 20.18 acres of vacant land into 66 single-family lots with associated streetscape improvements and landscaping. The proposed Project includes an infiltration basin at the southwest portion of the site. On-site storm drainage facilities will collect stormwater to be conveyed to the bioretention area for treatment, and then pumped as surface flows onto Tarano Lane. Although the amount of impervious surfaces would be greater than existing conditions, runoff would be captured on site and conveyed through a proposed on-site storm drainage system which includes water treatment at an on-site bioretention area prior to being discharged as surface flows onto Tarano Lane. The proposed Project would also construct onsite and offsite improvements consisting of landscaping, and curb and gutter and street improvements which would increase impermeable surfaces. As discussed in the Hydrology section, the proposed Project would not generate any increased runoff from the site that would require construction of new storm drainage facilities. A NPDES permit would be required for the proposed Project and, pursuant to Municipal Code Section 8.21.170, all construction projects shall prepare and submit a Storm Water Pollution Prevention Plan (SWPPP). Best Management Practices (BMPs) that include drainage controls such as detention ponds, dikes, filter berms, and downdrains to prevent runoff, and utilizing plastic covering to prevent erosion shall also be

applied. Implementation of BMPs would reduce pollutants in stormwater and urban runoff from the project site. The proposed storm drainage system and BMPs must be designed to the satisfaction of the City's Public Works Director and in conformance with all applicable permits and regulations. The Project applicant/developer would be required to provide all necessary on-site infrastructure. With adherence to Federal, State, and local regulations the Project would have a less than significant impact on requiring the construction of new facilities or expansion of existing storm drainage facilities.

Electric Power

The project site would be serviced by Moreno Valley Electrical Utility (MVU). Above ground power lines, stub poles and associated hardware run along Krameria Avenue and Perris Boulevard servicing the Project site. The Project site would connect to the existing power grid at a manhole on Perris Boulevard along the Project frontage. New electrical lines to the Project site would be installed via undergrounded lines and the existing above ground poles would be removed. Although the Project would require new electrical line tie-ins for service, it would not result in the need for new electrical substations or electrical generating facilities. MVU conditions of approval would apply to the proposed Project. Therefore, the Project would have a less than significant impact.

Natural Gas

The Southern California Gas Company (Gas Company) would provide natural gas services to the Project site. The majority of the gas supply is transported via transmission pipelines owned by private companies. The Project site would utilize the existing Gas Company distribution grid to service the Project. All new connections and service installations would be reviewed and approved by the Gas Company and the Riverside County Public Works Department. Although the Project would require new natural gas service connections, it would not result in the need for new natural gas supplies or infrastructure. Therefore, the Project would have a less than significant impact.

Telecommunication Facilities

The Project site is supported by telecommunication services for a variety of providers. Spectrum Communication provides residential and business services to the Project area. Fiber optic cables and high-speed connection services from wireless providers such as Spectrum Communications are available to service the Project site. The Project site would be required to comply with all Federal, State and local regulations for installation and wiring of telecommunications to the Project. With adherence to existing Riverside County Electrical, Building and Safety code requirements, the Project would have a less than significant impact.

b) Less than Significant Impact. The Eastern Municipal Water District (EMWD) would supply water to the project. Water is imported via the California Aqueduct from northern and central California, which is managed by the Metropolitan Water District of Southern California (MWD). A secondary source of imported water is provided by the Colorado Rivers Aqueduct. Water Code § 10910-10915 require the preparation of a water supply assessment (WSA) demonstrating sufficient water supplies for any subdivision that involves the construction of more than 500 dwelling units, or the equivalent thereof. As the project is below the established thresholds, no WSA is required.

According to the 2015 Urban Water Management Plan for EMWD, EMWD will continue to rely on imported water from MWD as the main source of supply. The water used within the EMWD service area as of 2015 was approximately 147,300 AFY and is expected to increase to 268,200 AFY (during a normal year) by the year 2040, an increase of 120,900 AFY.⁴⁴ Based on the CalEEMod assumptions, the proposed Project's estimated water demand is approximately 21.5 AFY, within the estimated

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increase in water demand. According to the 2015 Urban Water Management Plan for EMWD, there is sufficient supply to accommodate demand under normal and single- and multiple-dry year conditions utilizing imported water.⁴⁵ Local supplies would supplement imported supplies and provide additional supply reliability. Local supplies include groundwater pumped from the San Jacinto groundwater Basin, desalinated groundwater, and recycled water.

The UWMP is based on area population projections as provided by SCAG. As discussed in Section 4.14, the proposed Project is consistent with SCAG projections for the service area. As the estimated increase in water use is within the anticipated increase in the UWMP and the Project is consistent with regional population projections, impacts would be less than significant.

Connections to local water mains would involve temporary and less than significant construction impacts that would occur in conjunction with other on-site improvements. The project site is located within the existing service area of EMWD and is surrounded by existing development that is currently connected to existing EMWD water lines. No additional improvements are needed to water lines or facilities to serve the proposed Project. Standard connection fees would address any incremental impacts of the proposed Project. Therefore, the proposed Project will have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years. Impacts will be less than significant.

c) **Less than Significant Impact.** Potentially significant impacts could occur as a result of this Project if it results in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments. As discussed above, wastewater generated at the Project site is treated at the Moreno Valley Regional Water Reclamation Facility (MVRWRF). The proposed Project is estimated to have a wastewater generation of approximately 15,366 gpd. This generation is well within the existing remaining treatment capacity of the MVRWRF. Therefore, the expansion of the existing facility would not be required, and impacts will be less than significant.

d) **Less than Significant Impact.** Significant impacts could occur if the proposed project would exceed the existing permitted landfill capacity or violates federal, state, and local statutes and regulations. Compliance with County waste reduction programs and policies would reduce the volume of solid waste entering landfills. Individual development projects within the County would be required to comply with applicable state and local regulations, thus reducing the amount of landfill waste by at least 50 percent. The proposed Project would increase the volume of solid waste generated in the County by approximately 40 tons per year. According to CalRecycle, solid waste facilities serving Riverside County are projected to have a combined annual disposal limit of 3,633,512 tons and an annual remaining lifetime capacity surplus of 154,709,576 tons in the year 2025.⁴⁶ Combined remaining capacities at the landfills would be adequate to accommodate the proposed Project. Impacts related to sufficient landfill capacity are anticipated to be less than significant.

e) **No Impact.** The proposed Project is required to comply with all applicable federal, state, County, and City statutes and regulations related to solid waste as a standard project condition of approval. Therefore, no impact would occur.

4.20 – Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) **No Impact.** The Project site is not located within a fire hazard zone, as identified on the latest Fire Hazard Severity Zone (FHSZ) maps prepared by the California Department of Forestry and Fire Protection (CALFIRE).⁴⁷ The nearest fire hazard zone to the Project site is located approximately 1.25 miles east of the site in the Lake Perris/Terri Peak hillsides. There are no wildland conditions in the urbanized area where the Project site is located. Therefore, the Project will not substantially impair an adopted emergency response plan or emergency evacuation plan and no impact will occur.

b) **No Impact.** As discussed above, the Project site is not located within a fire hazard zone, as identified on the latest Fire Hazard Severity Zone (FHSZ) maps prepared by the California Department of Forestry and Fire Protection (CALFIRE). There are no wildland conditions in the urbanized area where the Project site is located. Therefore, the Project will not exacerbate wildfire risks, thereby exposing project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. No impact will occur.

c) **No Impact.** The Project Site is not located within or near any State Responsibility Areas. As a result, none of the Project improvements would exacerbate fire risk or will result in a temporary or ongoing

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impact from wildfires requiring the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. No impact will occur.

d) **No Impact.** The Project Site is not located within or near any State Responsibility Areas. The Project site is also not located in any FEMA 100-year flood floodplain. No impact would occur.

4.21 – Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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, substantially 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a) **Less than Significant with Mitigation Incorporated.** The proposed Project would not substantially impact any scenic vistas, scenic resources, or the visual character of the area, as discussed in Section 4.1 and would not result in excessive light or glare. The Project site is located within a developed area with no natural habitat. The proposed Project would not significantly impact any sensitive plants, plant communities, fish, wildlife or habitat for any sensitive species with mitigation incorporated. Construction-phase mitigation would be implemented to reduce potential impacts to burrowing owls and nesting birds to less-than-significant levels. There would be no impact to migratory birds, however, as identified in Section 4.4.c, there is potential to affect jurisdictional waters. These affects will be mitigated by securing the necessary state and federal regulatory permits regarding U.S. and state jurisdictional waters and no cumulatively considerable impact will occur as a result. Adverse impacts to historic resources would not occur. Construction-phase procedures would be implemented in the event any important cultural, archaeological, or paleontological resources are discovered during grading, consistent with Mitigation Measures CUL-1 through CUL-5. This site is not known to have any association with an important example of California's history or prehistory. The environmental analysis provided in Section 4.3 concludes that impacts related to emissions of criteria pollutants and other air quality impacts would be less than significant with mitigation. Sections 4.8 and 4.10 conclude that impacts related to climate change and hydrology and water quality would be less than significant. Based on the preceding analysis of potential impacts in the responses to items 4.1 thru 4.20, no evidence is presented that this proposed Project would degrade the quality of the environment. Impacts related to degradation of the environment, biological resources, and cultural resources would be less than significant with mitigation incorporated.

b) **Less than Significant with Mitigation Incorporated.** Cumulative impacts can result from the interactions of environmental changes resulting from one proposed project with changes resulting from other past, present, and future projects that affect the same resources, utilities and infrastructure systems, public services, transportation network elements, air basin, watershed, or other physical conditions. Such impacts could be short-term and temporary, usually consisting of overlapping construction impacts, as well as long term, due to the permanent land use changes and operational characteristics involved with the proposed Project. Cumulative impacts would be less than significant with mitigation incorporated, as further discussed herein.

Aesthetics

Impacts related to aesthetics at the project-level have no potential for cumulative impacts because impacts are limited to on-site conditions and include no component that could result in similar impacts over time or space. Therefore, no cumulative impacts related to this topic would occur.

Agricultural Resources

The analysis provided in Sections 4.2 found that no individual impacts would occur; therefore, the Project could not contribute considerably to local agricultural or forestry.

Air Quality

The analysis provided in Section 4.3 related to air quality found that impacts would be less than significant with mitigation; therefore, the Project would not contribute to localized or regional cumulative impacts.

Biological Resources

The analysis provided in Section 4.4 found that no individual impacts to sensitive species or migratory birds would occur; therefore, the Project could not contribute considerably to regional impacts on such species. To reduce potential impacts to burrowing owls and nesting birds, Mitigation Measures BIO-1 through BIO-5 have been incorporated. The Project would have no other impacts on biological resources and would not result in localized or regional cumulative impacts.

Cultural Resources

Loss of on-site archaeological resources could reduce or eliminate important information relevant to the County of Riverside and the City of Moreno Valley. Impacts related to cultural resources were found to be potentially significant and require mitigation to reduce to less than significant levels; therefore, the Project could contribute considerably to significant localized cumulative impacts in this topic area. Mitigation Measures CUL-1 through CUL-4 have been incorporated to reduce impacts to archaeological resources and Mitigation Measure CUL-5 has been incorporated to reduce impacts to buried human remains. Implementation of Mitigation Measures CUL-1 through CUL-5 would eliminate any potential loss of important local archaeological information or human remains that may be buried under the Project site; therefore, the proposed Project would have no contribution to a cumulative loss of important local or regional archaeological knowledge.

Energy

The analysis provided in Section 4.6 found that no individual impacts relate to energy use would occur as a result of the proposed Project. Therefore, the Project will not contribute to cumulative energy impacts.

Geology and Soils

Impacts related to geology at the project-level have no potential for cumulative impacts because impacts are limited to on-site conditions and include no component that could result in similar impacts over time

or space. Impacts related to paleontological resources were found to be potentially significant and require mitigation to reduce to less than significant levels; therefore, the Project could contribute considerably to significant localized cumulative impacts in this topic area. Implementation of Mitigation Measures GEO-1 through GEO-4 would eliminate any potential loss of important local paleontological information that may be buried under the Project site; therefore, the proposed Project would have no contribution to a cumulative loss of important local or regional paleontological knowledge. Therefore, no cumulative impacts related to this topic would occur.

Greenhouse Gas Emissions

As discussed in Section 4.8, climate change is the result of numerous, cumulative sources of greenhouse gas emissions all over the world. The Project would not contribute considerably to global climate change.

Hazardous Materials

The analysis provided in Section 4.9 related to hazards and hazardous materials found that impacts would be less than significant. Compliance with all regulations related to the disposal and storage of household hazardous waste would ensure that impacts would be less than significant.

Airport Hazards

Impacts related to airport hazards at the project-level have no potential for cumulative impacts because impacts are limited to on-site conditions and include no component that could result in similar impacts over time or space. Therefore, no cumulative impacts related to this topic would occur.

Wildfires

The analysis provided in Section 4.9(g) and 4.20 found that no individual, local, or regional impacts would occur; therefore, no cumulative impacts related to this topic would occur.

Groundwater Levels

The analysis provided in Section 4.10 (b) found that less than significant local, or regional impacts would occur; therefore, while the Project would contribute to individual, localized or regional cumulative impacts, the Project contribution would not be considerable.

Drainage/Water Quality

The analysis provided in Section 4.10 (a), (c), (d), (e) and (f), found that less than significant individual, local, or regional impacts would occur; therefore, while the proposed Project would contribute to individual, localized or regional cumulative impacts, its contribution would not be considerable.

Flooding

The analysis provided in Section 4.10 (d) found that no regional impacts would occur; therefore, no cumulative impacts related to this topic would occur.

Land Use and Planning

The analysis provided in Section 4.11 related to Land Use and Planning found that impacts would be less than significant; therefore, while the proposed Project would contribute to individual, localized or regional cumulative impacts, its contribution would not be considerable.

Mineral Resources

The analysis provided in Section 4.12 related to mineral resources found that there would be no impact; therefore, while the Project would contribute to localized or regional cumulative impacts, the Project contribution would not be considerable.

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Noise

As discussed in Section 4.12, on-site operational noise, as is not anticipated to result in perceptible increases in ambient noise. Therefore, the proposed Project would not contribute considerably to noise levels in the immediate vicinity of the Project. The Project would contribute to temporary increases in noise levels in the immediate Project vicinity during construction activities; however, Mitigation Measures NOI-1 and General Plan EIR Mitigation Measures N5 and N10 would be incorporated by reference to minimize construction-related noise and therefore the Project's contribution would not be considerable. General Plan EIR Mitigation Measures N1, N2, N6, N7, and N9 would ensure that operational impacts to nearby sensitive receptors remain less than significant. The Project would increase traffic in the Project area; however, Project traffic-related noise would not be discernible (as discussed in Section 4.13.a) to the public and therefore would have no considerable contribution to cumulative traffic-related noise.

Population and Housing

The analysis provided in Section 4.14 related to Population and Housing found that no impacts would result; therefore, no cumulative impacts related to this topic would occur.

Public Services

The analysis provided in Section 4.15 related to Public Services found that impacts would be less than significant; therefore, while the proposed Project would contribute to localized cumulative impacts, the contribution would not be cumulatively considerable.

Recreation

The analysis provided in Section 4.16 related to Recreation found that impacts would be less than significant; therefore, no cumulative impacts related to this topic would occur.

Traffic and Transportation

Traffic conditions were analyzed in Section 4.17.a and found to be less than significant. There is and would be adequate capacity to serve the uses along Perris Boulevard and Krameria Avenue with the addition of the proposed Project. Therefore, the proposed Project's contribution to cumulative impacts to local and regional transportation facilities would not be considerable.

Tribal Cultural Resources

The analysis provided in Section 4.18 related to Tribal Cultural Resources identified that despite the previous disturbances of the Project site and developed nature of the Project area that may have displaced or submerged archaeological resources relating to TCR's on the surface, it is possible that intact tribal cultural resources exist at depth. Due to this uncertainty, Mitigation Measures CUL-1 through CUL-5 have been incorporated to address any previously undiscovered archaeological resources relating to TCR's encountered during Project implementation. Incorporation of these mitigation measures would ensure that potential impacts to buried TCRs are less than significant through requirements for evaluation, salvage, curation, and reporting.

Utilities and Service Systems

The analysis provided in Section 4.19 related to Utilities and Service Systems found that impacts would be less than significant; therefore, while the Project would contribute to localized or regional cumulative impacts, the Project contribution would not be considerable.

Wildfire

The analysis provided in Section 4.20 related to Wildfire found that no impacts would result; therefore, no cumulative impacts related to this topic would occur.

c) **Less than Significant with Mitigation Incorporated.** Based on the analysis of the Project's impacts in the responses to items 4.1 thru 4.20, there is no indication that this Project could result in substantial adverse effects on human beings. While there would be a variety of temporary adverse effects during construction related to noise these would be reduced to less than significant levels through mitigation. Long-term effects include increased vehicular traffic, traffic-related noise, use of household hazardous materials, emissions of criteria pollutants and greenhouse gas emissions, and increased demand on emergency response services. The analysis herein concludes that direct and indirect environmental effects would at worst require mitigation to reduce to less than significant levels. Environmental effects would result in less than significant impacts. Based on the analysis in this Initial Study, the City finds that direct and indirect impacts to human beings would be less than significant with mitigation incorporated.

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Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188 Tentative Tract Map 37725)

5 Mitigation Summary

The following mitigation measures have been incorporated to mitigate the proposed Project's site-specific impacts not previously accounted for in the General Plan EIR:

- BIO-1 Pre-Construction Burrowing Owl Survey.** Burrowing owl pre-construction surveys shall be conducted within thirty (30) days prior to ground disturbance to avoid direct take of burrowing owls. Pre-construction surveys will follow the guidance outlined in Burrowing Owl Survey Instructions for the Western Riverside MSHCP (2006).
- BIO-2: Pre-Construction Nesting Bird Survey.** If vegetation removal is scheduled during the nesting season (typically February 1 to September 1), then a focused survey for active nests shall be conducted by a qualified biologist (as determined by a combination of academic training and professional experience in biological sciences and related resource management activities) no more than five (5) days prior to the beginning of project-related activities (including but not limited to equipment mobilization and staging, clearing, grubbing, vegetation removal, and grading). Surveys shall be conducted in proposed work areas, staging and storage areas, and soil, equipment, and material stockpile areas. For passerines and small raptors, surveys shall be conducted within a 250-foot radius surrounding the work area (in areas where access is feasible). For larger raptors, such as those from the genus *Buteo*, the survey area shall encompass a 500-foot radius. Surveys shall be conducted during weather conditions suited to maximize the observation of possible nests and shall concentrate on areas of suitable habitat. If a lapse in project-related work of five (5) days or longer occurs, an additional nest survey shall be required before work can be reinitiated. If nests are encountered during any preconstruction survey, a qualified biologist shall determine if it may be feasible for construction to continue as planned without impacting the success of the nest, depending on conditions specific to each nest and the relative location and rate of construction activities. If the qualified biologist determines construction activities have potential to adversely affect a nest, the biologist shall immediately inform the construction manager to halt construction activities within minimum exclusion buffer of 50 feet for songbird nests, and 200 to 500 feet for raptor nests, depending on species and location. Active nest(s) within the Project Site shall be monitored by a qualified biologist during construction if work is occurring directly adjacent to the established no-work buffer. Construction activities within the no-work buffer may proceed after a qualified biologist determines the nest is no longer active due to natural causes (e.g. young have fledged, predation, or other non-anthropogenic nest failure).
- BIO-3 Regulatory Agency Permits.** A "No Permit Required Letter" shall be obtained from the United States Army Corps of Engineers (USACE) prior to ground disturbing activities. A Section 401 Water Quality Certification or Waste Discharge Requirement (WDR) shall be obtained from the Regional Water Quality Control Board (RWQCB) prior to ground disturbing activities. A Section 1602 Lake and Streambed Alteration Agreement (LSAA) shall be obtained from the California Department of Fish and Wildlife (CDFW) prior to ground-disturbing activities.
- BIO-4 MSHCP Riparian/Riverine Resources.** All onsite MSHCP riparian (0.010 ac) and riverine (0.108 ac) resources will be impacted as a result of project implementation. In order to mitigate to an equivalent or superior level, 0.118 acres of re-establishment credits will be purchased at the Riverpark Mitigation Bank (1:1 mitigation ratio).
- BIO-5 SKR Fee Area.** The Project Site is located within the Stephens' kangaroo rat (SKR) HCP Fee Area which is administered by the RCHCA. The SKR Fee is established at \$500 per acre. Based on a Project site size of 20.18 acres, the applicant shall pay an SKR Fee in the amount of \$10,090.

Mitigation Summary

- CUL-1** 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 Assembly Bill 52 (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 California Public Resources Code Section 21080.3.2(b)(1) of AB52. Details in the CRMP 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 for 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** Prior to the issuance of a grading permit, the Developer shall secure agreements with the Rincon Band of Luiseño Indians, 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.
- CUL-3** 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 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 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.

CUL-4 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 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 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).

GEO-1 Conduct Paleontological Sensitivity Training for Construction Personnel. The applicant shall retain a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology and shall conduct a paleontological sensitivity training for construction personnel prior to commencement of excavation activities. The training will include a handout and will focus on how to identify paleontological resources that may be encountered during earthmoving activities and the procedures to be followed in such an event, the duties of paleontological monitors, notification and other procedures to follow upon discovery of resources, and the general steps a qualified professional paleontologist would follow in conducting a salvage investigation if one is necessary.

GEO-2 Conduct Periodic Paleontological Spot Checks during Grading and Earth-moving Activities. The applicant shall retain a professional paleontologist who meets the qualifications set forth by the Society of Vertebrate Paleontology and shall conduct periodic Paleontological Spot Checks beginning at depths below five feet to determine if construction excavations have extended into older Quaternary deposits. After the initial paleontological spot check, further periodic checks will be conducted at the discretion of the qualified paleontologist. If the qualified paleontologist

Mitigation Summary

determines that construction excavations have extended into the older Quaternary deposits, construction monitoring for paleontological resources will be required. The applicant shall retain a qualified paleontological monitor, who will work under the guidance and direction of a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology. The paleontological monitor shall be present during all construction excavations (e.g., grading, trenching, or clearing/grubbing) into the older Pleistocene alluvial deposits. Multiple earth-moving construction activities may require multiple paleontological monitors. The frequency of monitoring shall be based on the rate of excavation and grading activities, proximity to known paleontological resources and/or unique geological features, the materials being excavated (native versus artificial fill soils), and the depth of excavation, and if found, the abundance and type of paleontological resources and/or unique geological features encountered. Full-time monitoring can be reduced to part-time inspections if determined adequate by the qualified professional paleontologist.

- GEO-3 Cease Ground-Disturbing Activities and Implement Treatment Plan if Paleontological Resources Are Encountered.** If paleontological resources and or unique geological features are unearthed during ground-disturbing activities, ground-disturbing activities shall be halted or diverted away from the vicinity of the find so that the find can be evaluated. A buffer area of at least 50 feet shall be established around the find where construction activities shall not be allowed to continue until appropriate paleontological treatment plan has been approved by the applicant and the City. Work shall be allowed to continue outside of the buffer area. The applicant and City shall coordinate with a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology, to develop an appropriate treatment plan for the resources. Treatment may include implementation of paleontological salvage excavations to remove the resource along with subsequent laboratory processing and analysis or preservation in place. At the paleontologist's discretion and to reduce construction delay, the grading and excavation contractor shall assist in removing rock samples for initial processing.
- GEO-4 Prepare Report Upon Completion of Paleontological Monitoring or Salvage Services.** Upon completion of monitoring and/or salvage activities (if required by Mitigation Measures GEO-2 or GEO-3), the professional paleontologist shall prepare a report summarizing the results of the monitoring and salvaging efforts, the methodology used in these efforts, as well as a description of the fossils collected and their significance. The report shall be submitted to the applicant, the City, the Natural History Museum of Los Angeles County, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the project and required mitigation measures.
- NOI-1** The following measures are required to ensure that project-related short-term construction noise levels are reduced to less-than-significant levels. Prior to issuance of demolition permits, a noise mitigation plan verifying that compliance with the following measures would reduce construction noise to within the allowable levels of 60 dBA for residential uses. Should construction noise exceed allowable levels after implementation of the following measures, the use of sound curtains or other noise barriers shall be required. The noise mitigation plan shall identify the type and location of sound curtains or other noise barriers to be utilized to reduce construction noise to within allowable levels.
- Stationary construction noise sources such as generators or pumps must be located at least 100 feet from sensitive land uses, as feasible, or at maximum distance when necessary to complete work near sensitive land uses. This mitigation measure must be implemented throughout construction and may be periodically monitored by a contracted noise monitor. Datasheets completed by the contracted construction noise monitor may be submitted to the Planning Official, or designee during routine inspections.
 - Construction staging areas must be located as far from noise sensitive land uses as feasible. This mitigation measure must be implemented throughout construction and may be

periodically monitored by a contracted construction noise monitor, by the Planning Official or designee during routine inspections.

- Throughout construction, the contractor shall ensure all construction equipment is equipped with included noise attenuating devices and are properly maintained. This mitigation measure shall be periodically monitored by a contracted construction noise monitor, the Planning Official, or designee during routine inspections.
- Idling equipment must be turned off when not in use. This mitigation measure may be periodically monitored by a contracted construction noise monitor the Planning Official, or designee during routine inspections.
- Equipment must be maintained so that vehicles and their loads are secured from rattling and banging. This mitigation measure may be periodically monitored by a contracted construction noise monitor, the Planning Official, or designee during routine inspections.

The following mitigation measures have been incorporated by reference from the General Plan EIR to mitigate the proposed Project's impacts in light of the analysis performed in the Certified EIR:

- HW1.** The City shall implement National Pollutant Discharge Elimination System Best Management Practices relating to construction of roadways to control runoff contamination from affecting the water resources (**Policy 5.4.2**).
- HW3.** The City shall comply with the provisions of its permit(s) issued by the Regional Water Quality Control Board for the protection of water quality pursuant to the National Pollutant Discharge Elimination System (**Policy 7.2.2**).
- NOI1.** The following noise control measures shall be applied to new single-family dwellings exposed to noise along Perris Boulevard:
- a. Install sound barriers (masonry walls or walls with earth berms) between residences and noise sources.
 - b. Install double-paned or similar sound rated windows.
 - a. Provide sound insulating exterior walls and roofing systems.
 - b. Locate and/or design attic vents to minimize sound propagation into each home.
 - c. Provide forced-air ventilation systems.
 - d. Place dwellings as far as practical from the noise source.
- N5.** Construction activities shall be operated in a manner that limits noise impacts on surrounding uses to the hours between 7 AM and 7 PM Monday through Friday and between 8 AM and 4 PM on Saturday, excluding Sundays and Holidays unless written approval is obtained from the City Building Official or City Engineer (**Policy 6.5.2**).
- N7.** The following uses shall require mitigation to reduce noise exposure where current or future exterior noise levels exceed 20 CNEL above the desired interior noise level (**Policy 6.3.1**):
- a. New single-family and multiple-family residential buildings shall be insulated to achieve an interior noise level of 45 CNEL or less. Such buildings shall include sound-insulating windows, walls, roofs and ventilation systems. Sound barriers shall also be installed (e.g. masonry walls or walls with berms) between single-family residences and major roadways.
 - b. New libraries, hospitals and extended medical care facilities, places of worship and office uses shall be insulated to achieve interior noise levels of 50 CNEL or less.
 - c. New schools shall be insulated to achieve interior noise levels of 45 CNEL or less.

Mitigation Summary

- N10.** Building construction shall be prohibited between 7 PM and 7 AM Monday through Friday, between 4 PM and 8 AM on Saturdays, and on Sundays and Holidays unless written approval is obtained from the City Building Official or City Engineer (**Policy 6.3.6**).

Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188 Tentative Tract Map 37725)

6 References

6.1 – *List of Preparers*

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- Bob Prasse, Director of Environmental Services
- Chris Dugan, Director of Air Quality, GHG, and Noise Services
- Phillip Gleason, Senior Analyst
- Cameron Hile, Associate Analyst II

6.2 – *Persons and Organizations Consulted*

- City of Moreno Valley
- United States Army Corps of Engineers (USACE)
- California Department of Fish and Wildlife (CDFW)
- Regional Water Quality Control Board (RWQCB)
- Western Riverside County Regional Conservation Authority (RCA)

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References

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Attachment: Exhibit A to 2020-38 Initial Study / Mitigated Negative Declaration (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix A Air Quality Modeling Data

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Moreno Valley Thatcher - Riverside-South Coast County, Annual

Moreno Valley Thatcher
Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	66.00	Dwelling Unit	20.20	118,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	427.1	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - MIG Modeler: CPD. SCE GHG intensity factors adjusted downwards based on SCE corporate sustainability reports and U.S. EPA EGRID emission factors.

Land Use - Project gross acreage from tentative tract map.

Grading - estimated material import from project tentative tract map.

Woodstoves - Woodstoves and fireplaces prohibited per SCAQMD rules.

Energy Use - T24 standards adjusted downwards to reflect increased efficiency between 2016-2019 standards (CEC, 2017).

Construction Off-road Equipment Mitigation -

Moreno Valley Thatcher - Riverside-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblEnergyUse	T24E	951.67	475.84
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberNoFireplace	6.60	9.90
tblFireplaces	NumberWood	3.30	0.00
tblGrading	MaterialImported	0.00	14,000.00
tblLandUse	LotAcreage	21.43	20.20
tblLandUse	Population	189.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	702.44	427.1
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblWoodstoves	NumberCatalytic	3.30	0.00
tblWoodstoves	NumberNoncatalytic	3.30	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Moreno Valley Thatcher - Riverside-South Coast County, Annual

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					
2020	0.3603	3.6058	2.6870	5.4500e-003	0.2949	0.1769	0.4718	0.1268	0.1652	0.2919	0.0000	481.7617	481.7617	0.1075	0.0000	484.4495
2021	0.5621	1.7154	1.6810	2.9600e-003	0.0288	0.0909	0.1197	7.7500e-003	0.0854	0.0931	0.0000	257.9457	257.9457	0.0566	0.0000	259.3604
Maximum	0.5621	3.6058	2.6870	5.4500e-003	0.2949	0.1769	0.4718	0.1268	0.1652	0.2919	0.0000	481.7617	481.7617	0.1075	0.0000	484.4495

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					
2020	0.3603	3.6058	2.6870	5.4500e-003	0.1467	0.1769	0.3236	0.0580	0.1652	0.2232	0.0000	481.7613	481.7613	0.1075	0.0000	484.4490
2021	0.5621	1.7154	1.6810	2.9600e-003	0.0288	0.0909	0.1197	7.7500e-003	0.0854	0.0931	0.0000	257.9454	257.9454	0.0566	0.0000	259.3602
Maximum	0.5621	3.6058	2.6870	5.4500e-003	0.1467	0.1769	0.3236	0.0580	0.1652	0.2232	0.0000	481.7613	481.7613	0.1075	0.0000	484.4490

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	45.79	0.00	25.06	51.13	0.00	17.86	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2020	3-31-2020	1.7724	1.7724
2	4-1-2020	6-30-2020	0.7228	0.7228
3	7-1-2020	9-30-2020	0.7307	0.7307
4	10-1-2020	12-31-2020	0.7307	0.7307
5	1-1-2021	3-31-2021	0.6484	0.6484
6	4-1-2021	6-30-2021	0.6557	0.6557
7	7-1-2021	9-30-2021	0.6174	0.6174
		Highest	1.7724	1.7724

2.2 Overall Operational

Unmitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Area	0.4884	0.0195	0.6863	1.1000e-004		4.7100e-003	4.7100e-003		4.7100e-003	4.7100e-003	0.0000	14.5835	14.5835	1.3300e-003	2.5000e-004	14.6904
Energy	0.0109	0.0931	0.0396	5.9000e-004		7.5200e-003	7.5200e-003		7.5200e-003	7.5200e-003	0.0000	213.1260	213.1260	0.0102	2.9600e-003	214.2640
Mobile	0.1810	1.5606	2.2668	0.0105	0.8135	7.2300e-003	0.8207	0.2179	6.7800e-003	0.2247	0.0000	970.2578	970.2578	0.0478	0.0000	971.4524
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	1.3642	16.6823	18.0465	0.1414	3.4600e-003	22.6143
Total	0.6803	1.6731	2.9927	0.0112	0.8135	0.0195	0.8329	0.2179	0.0190	0.2369	1.3642	1,214.6497	1,216.0139	0.2007	6.6700e-003	1,223.0211

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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	0.4884	0.0195	0.6863	1.1000e-004		4.7100e-003	4.7100e-003		4.7100e-003	4.7100e-003	0.0000	14.5835	14.5835	1.3300e-003	2.5000e-004	14.6904
Energy	0.0109	0.0931	0.0396	5.9000e-004		7.5200e-003	7.5200e-003		7.5200e-003	7.5200e-003	0.0000	213.1260	213.1260	0.0102	2.9600e-003	214.2640
Mobile	0.1810	1.5606	2.2668	0.0105	0.8135	7.2300e-003	0.8207	0.2179	6.7800e-003	0.2247	0.0000	970.2578	970.2578	0.0478	0.0000	971.4524
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	1.3642	16.6823	18.0465	0.1414	3.4600e-003	22.6143
Total	0.6803	1.6731	2.9927	0.0112	0.8135	0.0195	0.8329	0.2179	0.0190	0.2369	1.3642	1,214.6497	1,216.0139	0.2007	6.6700e-003	1,223.0211

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	2/11/2020	5	10	
3	Grading	Grading	2/12/2020	3/31/2020	5	35	
4	Building Construction	Building Construction	4/1/2020	8/31/2021	5	370	
5	Paving	Paving	9/1/2021	9/28/2021	5	20	
6	Architectural Coating	Architectural Coating	9/29/2021	10/26/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 240,570; Residential Outdoor: 80,190; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
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
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
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

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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
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	1,750.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	24.00	7.00	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	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

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	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386
Total	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386

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3.2 Demolition - 2020

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	6.9000e-004	4.8000e-004	5.1600e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3794	1.3794	3.0000e-005	0.0000	1.3803
Total	6.9000e-004	4.8000e-004	5.1600e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3794	1.3794	3.0000e-005	0.0000	1.3803

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	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385
Total	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385

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3.2 Demolition - 2020

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	6.9000e-004	4.8000e-004	5.1600e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3794	1.3794	3.0000e-005	0.0000	1.3803
Total	6.9000e-004	4.8000e-004	5.1600e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3794	1.3794	3.0000e-005	0.0000	1.3803

3.3 Site Preparation - 2020

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	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	0.0204	0.2121	0.1076	1.9000e-004	0.0903	0.0110	0.1013	0.0497	0.0101	0.0598	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505

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3.3 Site Preparation - 2020

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	4.1000e-004	2.9000e-004	3.0900e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8276	0.8276	2.0000e-005	0.0000	0.8282
Total	4.1000e-004	2.9000e-004	3.0900e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8276	0.8276	2.0000e-005	0.0000	0.8282

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	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	0.0204	0.2121	0.1076	1.9000e-004	0.0352	0.0110	0.0462	0.0194	0.0101	0.0295	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505

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3.3 Site Preparation - 2020

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	4.1000e-004	2.9000e-004	3.0900e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8276	0.8276	2.0000e-005	0.0000	0.8282
Total	4.1000e-004	2.9000e-004	3.0900e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8276	0.8276	2.0000e-005	0.0000	0.8282

3.4 Grading - 2020

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					0.1527	0.0000	0.1527	0.0631	0.0000	0.0631	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0779	0.8785	0.5593	1.0900e-003		0.0380	0.0380		0.0350	0.0350	0.0000	95.3475	95.3475	0.0308	0.0000	96.1185
Total	0.0779	0.8785	0.5593	1.0900e-003	0.1527	0.0380	0.1907	0.0631	0.0350	0.0981	0.0000	95.3475	95.3475	0.0308	0.0000	96.1185

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3.4 Grading - 2020

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	4.6000e-003	0.2122	0.0275	6.6000e-004	0.0151	6.6000e-004	0.0158	4.1400e-003	6.4000e-004	4.7800e-003	0.0000	63.4457	63.4457	3.9800e-003	0.0000	63.5451
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	1.6100e-003	1.1300e-003	0.0120	4.0000e-005	3.8500e-003	2.0000e-005	3.8700e-003	1.0200e-003	2.0000e-005	1.0400e-003	0.0000	3.2186	3.2186	8.0000e-005	0.0000	3.2206
Total	6.2100e-003	0.2133	0.0395	7.0000e-004	0.0189	6.8000e-004	0.0196	5.1600e-003	6.6000e-004	5.8200e-003	0.0000	66.6643	66.6643	4.0600e-003	0.0000	66.7657

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					0.0595	0.0000	0.0595	0.0246	0.0000	0.0246	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0779	0.8785	0.5593	1.0900e-003		0.0380	0.0380		0.0350	0.0350	0.0000	95.3474	95.3474	0.0308	0.0000	96.1183
Total	0.0779	0.8785	0.5593	1.0900e-003	0.0595	0.0380	0.0976	0.0246	0.0350	0.0596	0.0000	95.3474	95.3474	0.0308	0.0000	96.1183

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3.4 Grading - 2020

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	4.6000e-003	0.2122	0.0275	6.6000e-004	0.0151	6.6000e-004	0.0158	4.1400e-003	6.4000e-004	4.7800e-003	0.0000	63.4457	63.4457	3.9800e-003	0.0000	63.5451
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	1.6100e-003	1.1300e-003	0.0120	4.0000e-005	3.8500e-003	2.0000e-005	3.8700e-003	1.0200e-003	2.0000e-005	1.0400e-003	0.0000	3.2186	3.2186	8.0000e-005	0.0000	3.2206
Total	6.2100e-003	0.2133	0.0395	7.0000e-004	0.0189	6.8000e-004	0.0196	5.1600e-003	6.6000e-004	5.8200e-003	0.0000	66.6643	66.6643	4.0600e-003	0.0000	66.7657

3.5 Building Construction - 2020

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	0.2088	1.8898	1.6596	2.6500e-003		0.1100	0.1100		0.1035	0.1035	0.0000	228.1358	228.1358	0.0557	0.0000	229.5273
Total	0.2088	1.8898	1.6596	2.6500e-003		0.1100	0.1100		0.1035	0.1035	0.0000	228.1358	228.1358	0.0557	0.0000	229.5273

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3.5 Building Construction - 2020

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	1.9600e-003	0.0717	0.0140	1.8000e-004	4.3500e-003	4.1000e-004	4.7600e-003	1.2600e-003	3.9000e-004	1.6400e-003	0.0000	16.9540	16.9540	1.3600e-003	0.0000	16.9878
Worker	0.0109	7.6100e-003	0.0813	2.4000e-004	0.0260	1.6000e-004	0.0261	6.9000e-003	1.5000e-004	7.0500e-003	0.0000	21.7392	21.7392	5.4000e-004	0.0000	21.7528
Total	0.0128	0.0793	0.0953	4.2000e-004	0.0303	5.7000e-004	0.0309	8.1600e-003	5.4000e-004	8.6900e-003	0.0000	38.6931	38.6931	1.9000e-003	0.0000	38.7406

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	0.2088	1.8898	1.6596	2.6500e-003		0.1100	0.1100		0.1035	0.1035	0.0000	228.1356	228.1356	0.0557	0.0000	229.5270
Total	0.2088	1.8898	1.6596	2.6500e-003		0.1100	0.1100		0.1035	0.1035	0.0000	228.1356	228.1356	0.0557	0.0000	229.5270

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3.5 Building Construction - 2020

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	1.9600e-003	0.0717	0.0140	1.8000e-004	4.3500e-003	4.1000e-004	4.7600e-003	1.2600e-003	3.9000e-004	1.6400e-003	0.0000	16.9540	16.9540	1.3600e-003	0.0000	16.9878
Worker	0.0109	7.6100e-003	0.0813	2.4000e-004	0.0260	1.6000e-004	0.0261	6.9000e-003	1.5000e-004	7.0500e-003	0.0000	21.7392	21.7392	5.4000e-004	0.0000	21.7528
Total	0.0128	0.0793	0.0953	4.2000e-004	0.0303	5.7000e-004	0.0309	8.1600e-003	5.4000e-004	8.6900e-003	0.0000	38.6931	38.6931	1.9000e-003	0.0000	38.7406

3.5 Building Construction - 2021

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	0.1644	1.5079	1.4338	2.3300e-003		0.0829	0.0829		0.0780	0.0780	0.0000	200.3662	200.3662	0.0483	0.0000	201.5747
Total	0.1644	1.5079	1.4338	2.3300e-003		0.0829	0.0829		0.0780	0.0780	0.0000	200.3662	200.3662	0.0483	0.0000	201.5747

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3.5 Building Construction - 2021

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	1.4400e-003	0.0565	0.0109	1.5000e-004	3.8200e-003	1.1000e-004	3.9300e-003	1.1000e-003	1.0000e-004	1.2100e-003	0.0000	14.7726	14.7726	1.1300e-003	0.0000	14.8008
Worker	8.9000e-003	6.0000e-003	0.0654	2.0000e-004	0.0228	1.4000e-004	0.0230	6.0600e-003	1.3000e-004	6.1800e-003	0.0000	18.4525	18.4525	4.3000e-004	0.0000	18.4632
Total	0.0103	0.0625	0.0762	3.5000e-004	0.0266	2.5000e-004	0.0269	7.1600e-003	2.3000e-004	7.3900e-003	0.0000	33.2250	33.2250	1.5600e-003	0.0000	33.2640

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	0.1644	1.5079	1.4338	2.3300e-003		0.0829	0.0829		0.0780	0.0780	0.0000	200.3660	200.3660	0.0483	0.0000	201.5745
Total	0.1644	1.5079	1.4338	2.3300e-003		0.0829	0.0829		0.0780	0.0780	0.0000	200.3660	200.3660	0.0483	0.0000	201.5745

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3.5 Building Construction - 2021

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	1.4400e-003	0.0565	0.0109	1.5000e-004	3.8200e-003	1.1000e-004	3.9300e-003	1.1000e-003	1.0000e-004	1.2100e-003	0.0000	14.7726	14.7726	1.1300e-003	0.0000	14.8008
Worker	8.9000e-003	6.0000e-003	0.0654	2.0000e-004	0.0228	1.4000e-004	0.0230	6.0600e-003	1.3000e-004	6.1800e-003	0.0000	18.4525	18.4525	4.3000e-004	0.0000	18.4632
Total	0.0103	0.0625	0.0762	3.5000e-004	0.0266	2.5000e-004	0.0269	7.1600e-003	2.3000e-004	7.3900e-003	0.0000	33.2250	33.2250	1.5600e-003	0.0000	33.2640

3.6 Paving - 2021

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	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854

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3.6 Paving - 2021

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	6.4000e-004	4.3000e-004	4.7200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3333	1.3333	3.0000e-005	0.0000	1.3341
Total	6.4000e-004	4.3000e-004	4.7200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3333	1.3333	3.0000e-005	0.0000	1.3341

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	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854

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3.6 Paving - 2021

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	6.4000e-004	4.3000e-004	4.7200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3333	1.3333	3.0000e-005	0.0000	1.3341
Total	6.4000e-004	4.3000e-004	4.7200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3333	1.3333	3.0000e-005	0.0000	1.3341

3.7 Architectural Coating - 2021

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	0.3717					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	0.3739	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576

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3.7 Architectural Coating - 2021
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	2.1000e-004	1.4000e-004	1.5700e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4444	0.4444	1.0000e-005	0.0000	0.4447
Total	2.1000e-004	1.4000e-004	1.5700e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4444	0.4444	1.0000e-005	0.0000	0.4447

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	0.3717					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	0.3739	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576

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3.7 Architectural Coating - 2021

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	2.1000e-004	1.4000e-004	1.5700e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4444	0.4444	1.0000e-005	0.0000	0.4447
Total	2.1000e-004	1.4000e-004	1.5700e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4444	0.4444	1.0000e-005	0.0000	0.4447

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive 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	0.1810	1.5606	2.2668	0.0105	0.8135	7.2300e-003	0.8207	0.2179	6.7800e-003	0.2247	0.0000	970.2578	970.2578	0.0478	0.0000	971.4524
Unmitigated	0.1810	1.5606	2.2668	0.0105	0.8135	7.2300e-003	0.8207	0.2179	6.7800e-003	0.2247	0.0000	970.2578	970.2578	0.0478	0.0000	971.4524

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	628.32	654.06	568.92	2,130,633	2,130,633
Total	628.32	654.06	568.92	2,130,633	2,130,633

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965

5.0 Energy Detail

Historical Energy Use: N

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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	105.3661	105.3661	8.1400e-003	9.9000e-004	105.8637
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	105.3661	105.3661	8.1400e-003	9.9000e-004	105.8637
NaturalGas Mitigated	0.0109	0.0931	0.0396	5.9000e-004		7.5200e-003	7.5200e-003		7.5200e-003	7.5200e-003	0.0000	107.7600	107.7600	2.0700e-003	1.9800e-003	108.4004
NaturalGas Unmitigated	0.0109	0.0931	0.0396	5.9000e-004		7.5200e-003	7.5200e-003		7.5200e-003	7.5200e-003	0.0000	107.7600	107.7600	2.0700e-003	1.9800e-003	108.4004

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	2.01935e+006	0.0109	0.0931	0.0396	5.9000e-004		7.5200e-003	7.5200e-003		7.5200e-003	7.5200e-003	0.0000	107.7600	107.7600	2.0700e-003	1.9800e-003	108.4004
Total		0.0109	0.0931	0.0396	5.9000e-004		7.5200e-003	7.5200e-003		7.5200e-003	7.5200e-003	0.0000	107.7600	107.7600	2.0700e-003	1.9800e-003	108.4004

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5.2 Energy by Land Use - Natural Gas

Mitigated

Land Use	Natural Gas Use kBTU/yr	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
		tons/yr										MT/yr					
Single Family Housing	2.01935e+006	0.0109	0.0931	0.0396	5.9000e-004		7.5200e-003	7.5200e-003		7.5200e-003	7.5200e-003	0.0000	107.7600	107.7600	2.0700e-003	1.9800e-003	108.4004
Total		0.0109	0.0931	0.0396	5.9000e-004		7.5200e-003	7.5200e-003		7.5200e-003	7.5200e-003	0.0000	107.7600	107.7600	2.0700e-003	1.9800e-003	108.4004

5.3 Energy by Land Use - Electricity

Unmitigated

Land Use	Electricity Use kWh/yr	Total CO2	CH4	N2O	CO2e
		MT/yr			
Single Family Housing	543883	105.3661	8.1400e-003	9.9000e-004	105.8637
Total		105.3661	8.1400e-003	9.9000e-004	105.8637

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5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	543883	105.3661	8.1400e-003	9.9000e-004	105.8637
Total		105.3661	8.1400e-003	9.9000e-004	105.8637

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	0.4884	0.0195	0.6863	1.1000e-004		4.7100e-003	4.7100e-003		4.7100e-003	4.7100e-003	0.0000	14.5835	14.5835	1.3300e-003	2.5000e-004	14.6904
Unmitigated	0.4884	0.0195	0.6863	1.1000e-004		4.7100e-003	4.7100e-003		4.7100e-003	4.7100e-003	0.0000	14.5835	14.5835	1.3300e-003	2.5000e-004	14.6904

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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	0.0372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4293					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.3600e-003	0.0116	4.9500e-003	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.4717	13.4717	2.6000e-004	2.5000e-004	13.5518
Landscaping	0.0206	7.8600e-003	0.6814	4.0000e-005		3.7600e-003	3.7600e-003		3.7600e-003	3.7600e-003	0.0000	1.1118	1.1118	1.0700e-003	0.0000	1.1386
Total	0.4884	0.0195	0.6863	1.1000e-004		4.7000e-003	4.7000e-003		4.7000e-003	4.7000e-003	0.0000	14.5835	14.5835	1.3300e-003	2.5000e-004	14.6904

Moreno Valley Thatcher - Riverside-South Coast County, Annual

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	0.0372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4293					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.3600e-003	0.0116	4.9500e-003	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.4717	13.4717	2.6000e-004	2.5000e-004	13.5518
Landscaping	0.0206	7.8600e-003	0.6814	4.0000e-005		3.7600e-003	3.7600e-003		3.7600e-003	3.7600e-003	0.0000	1.1118	1.1118	1.0700e-003	0.0000	1.1386
Total	0.4884	0.0195	0.6863	1.1000e-004		4.7000e-003	4.7000e-003		4.7000e-003	4.7000e-003	0.0000	14.5835	14.5835	1.3300e-003	2.5000e-004	14.6904

7.0 Water Detail

7.1 Mitigation Measures Water

Moreno Valley Thatcher - Riverside-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	18.0465	0.1414	3.4600e-003	22.6143
Unmitigated	18.0465	0.1414	3.4600e-003	22.6143

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	4.30017 / 2.71097	18.0465	0.1414	3.4600e-003	22.6143
Total		18.0465	0.1414	3.4600e-003	22.6143

Moreno Valley Thatcher - Riverside-South Coast County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	4.30017 / 2.71097	18.0465	0.1414	3.4600e-003	22.6143
Total		18.0465	0.1414	3.4600e-003	22.6143

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

Moreno Valley Thatcher - Riverside-South Coast County, Annual

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
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Moreno Valley Thatcher - Riverside-South Coast County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Moreno Valley Thatcher - Riverside-South Coast County, Summer

Moreno Valley Thatcher
Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	66.00	Dwelling Unit	20.20	118,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	427.1	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - MIG Modeler: CPD. SCE GHG intensity factors adjusted downwards based on SCE corporate sustainability reports and U.S. EPA EGRID emission factors.

Land Use - Project gross acreage from tentative tract map.

Grading - estimated material import from project tentative tract map.

Woodstoves - Woodstoves and fireplaces prohibited per SCAQMD rules.

Energy Use - T24 standards adjusted downwards to reflect increased efficiency between 2016-2019 standards (CEC, 2017).

Construction Off-road Equipment Mitigation -

Moreno Valley Thatcher - Riverside-South Coast County, Summer

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblEnergyUse	T24E	951.67	475.84
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberNoFireplace	6.60	9.90
tblFireplaces	NumberWood	3.30	0.00
tblGrading	MaterialImported	0.00	14,000.00
tblLandUse	LotAcreage	21.43	20.20
tblLandUse	Population	189.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	702.44	427.1
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblWoodstoves	NumberCatalytic	3.30	0.00
tblWoodstoves	NumberNoncatalytic	3.30	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Moreno Valley Thatcher - Riverside-South Coast County, Summer

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					
2020	4.8090	62.0970	34.2255	0.1023	18.2675	2.2130	20.4661	9.9840	2.0373	12.0068	0.0000	10,265.0205	10,265.0205	2.1888	0.0000	10,319.7394
2021	37.4107	18.1447	17.5781	0.0313	0.3131	0.9614	1.2745	0.0841	0.9039	0.9880	0.0000	3,000.1798	3,000.1798	0.7177	0.0000	3,016.0746
Maximum	37.4107	62.0970	34.2255	0.1023	18.2675	2.2130	20.4661	9.9840	2.0373	12.0068	0.0000	10,265.0205	10,265.0205	2.1888	0.0000	10,319.7394

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					
2020	4.8090	62.0970	34.2255	0.1023	7.2470	2.2130	9.4457	3.9263	2.0373	5.9491	0.0000	10,265.0205	10,265.0205	2.1888	0.0000	10,319.7394
2021	37.4107	18.1447	17.5781	0.0313	0.3131	0.9614	1.2745	0.0841	0.9039	0.9880	0.0000	3,000.1798	3,000.1798	0.7177	0.0000	3,016.0746
Maximum	37.4107	62.0970	34.2255	0.1023	7.2470	2.2130	9.4457	3.9263	2.0373	5.9491	0.0000	10,265.0205	10,265.0205	2.1888	0.0000	10,319.7394

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	59.31	0.00	50.69	60.17	0.00	46.62	0.00	0.00	0.00	0.00	0.00	0.00

Moreno Valley Thatcher - Riverside-South Coast County, Summer

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	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006
Energy	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448
Mobile	1.2271	8.8418	14.6739	0.0639	4.7664	0.0416	4.8079	1.2752	0.0390	1.3142		6,524.2245	6,524.2245	0.3028		6,531.7943
Total	4.1162	10.3451	20.7378	0.0734	4.7664	0.1882	4.9545	1.2752	0.1855	1.4607	0.0000	8,372.9059	8,372.9059	0.3475	0.0337	8,391.6398

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	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006
Energy	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448
Mobile	1.2271	8.8418	14.6739	0.0639	4.7664	0.0416	4.8079	1.2752	0.0390	1.3142		6,524.2245	6,524.2245	0.3028		6,531.7943
Total	4.1162	10.3451	20.7378	0.0734	4.7664	0.1882	4.9545	1.2752	0.1855	1.4607	0.0000	8,372.9059	8,372.9059	0.3475	0.0337	8,391.6398

Moreno Valley Thatcher - Riverside-South Coast County, 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	N2O	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	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	2/11/2020	5	10	
3	Grading	Grading	2/12/2020	3/31/2020	5	35	
4	Building Construction	Building Construction	4/1/2020	8/31/2021	5	370	
5	Paving	Paving	9/1/2021	9/28/2021	5	20	
6	Architectural Coating	Architectural Coating	9/29/2021	10/26/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 240,570; Residential Outdoor: 80,190; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Moreno Valley Thatcher - Riverside-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
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
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
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

Moreno Valley Thatcher - Riverside-South Coast County, Summer

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
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	1,750.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	24.00	7.00	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	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

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	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.2 Demolition - 2020

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	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451
Total	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451

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	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.2 Demolition - 2020

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	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451
Total	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451

3.3 Site Preparation - 2020

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	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523		3,685.1016	3,685.1016	1.1918		3,714.8975

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.3 Site Preparation - 2020

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	0.0916	0.0542	0.7258	1.9900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		198.2870	198.2870	5.0800e-003		198.4141
Total	0.0916	0.0542	0.7258	1.9900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		198.2870	198.2870	5.0800e-003		198.4141

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	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	7.0458	2.1974	9.2433	3.8730	2.0216	5.8946	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.3 Site Preparation - 2020

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	0.0916	0.0542	0.7258	1.9900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		198.2870	198.2870	5.0800e-003		198.4141
Total	0.0916	0.0542	0.7258	1.9900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		198.2870	198.2870	5.0800e-003		198.4141

3.4 Grading - 2020

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					8.7240	0.0000	8.7240	3.6042	0.0000	3.6042			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	4.4501	50.1975	31.9583	0.0620	8.7240	2.1739	10.8979	3.6042	2.0000	5.6042		6,005.8653	6,005.8653	1.9424		6,054.4257

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.4 Grading - 2020

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	0.2572	11.8393	1.4608	0.0381	0.8747	0.0377	0.9124	0.2398	0.0361	0.2759		4,038.8363	4,038.8363	0.2407		4,044.8536
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	0.1018	0.0602	0.8064	2.2100e-003	0.2236	1.3500e-003	0.2249	0.0593	1.2500e-003	0.0605		220.3189	220.3189	5.6500e-003		220.4601
Total	0.3589	11.8995	2.2672	0.0403	1.0982	0.0391	1.1373	0.2991	0.0373	0.3364		4,259.1553	4,259.1553	0.2463		4,265.3136

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					3.4024	0.0000	3.4024	1.4056	0.0000	1.4056			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	4.4501	50.1975	31.9583	0.0620	3.4024	2.1739	5.5763	1.4056	2.0000	3.4056	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.4 Grading - 2020

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	0.2572	11.8393	1.4608	0.0381	0.8747	0.0377	0.9124	0.2398	0.0361	0.2759		4,038.8363	4,038.8363	0.2407		4,044.8536
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	0.1018	0.0602	0.8064	2.2100e-003	0.2236	1.3500e-003	0.2249	0.0593	1.2500e-003	0.0605		220.3189	220.3189	5.6500e-003		220.4601
Total	0.3589	11.8995	2.2672	0.0403	1.0982	0.0391	1.1373	0.2991	0.0373	0.3364		4,259.1553	4,259.1553	0.2463		4,265.3136

3.5 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.5 Building Construction - 2020

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	0.0195	0.7202	0.1318	1.8300e-003	0.0448	4.1000e-003	0.0489	0.0129	3.9200e-003	0.0168		192.7737	192.7737	0.0145		193.1351
Worker	0.1221	0.0722	0.9677	2.6500e-003	0.2683	1.6200e-003	0.2699	0.0711	1.5000e-003	0.0726		264.3827	264.3827	6.7800e-003		264.5521
Total	0.1416	0.7925	1.0995	4.4800e-003	0.3131	5.7200e-003	0.3188	0.0841	5.4200e-003	0.0895		457.1563	457.1563	0.0212		457.6872

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.5 Building Construction - 2020

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	0.0195	0.7202	0.1318	1.8300e-003	0.0448	4.1000e-003	0.0489	0.0129	3.9200e-003	0.0168		192.7737	192.7737	0.0145		193.1351
Worker	0.1221	0.0722	0.9677	2.6500e-003	0.2683	1.6200e-003	0.2699	0.0711	1.5000e-003	0.0726		264.3827	264.3827	6.7800e-003		264.5521
Total	0.1416	0.7925	1.0995	4.4800e-003	0.3131	5.7200e-003	0.3188	0.0841	5.4200e-003	0.0895		457.1563	457.1563	0.0212		457.6872

3.5 Building Construction - 2021

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.5 Building Construction - 2021
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	0.0163	0.6478	0.1156	1.8100e-003	0.0448	1.2300e-003	0.0461	0.0129	1.1800e-003	0.0141		191.2757	191.2757	0.0137		191.6178
Worker	0.1138	0.0648	0.8873	2.5600e-003	0.2683	1.5800e-003	0.2698	0.0711	1.4600e-003	0.0726		255.5402	255.5402	6.0900e-003		255.6926
Total	0.1301	0.7126	1.0029	4.3700e-003	0.3131	2.8100e-003	0.3159	0.0841	2.6400e-003	0.0867		446.8159	446.8159	0.0198		447.3104

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.5 Building Construction - 2021

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	0.0163	0.6478	0.1156	1.8100e-003	0.0448	1.2300e-003	0.0461	0.0129	1.1800e-003	0.0141		191.2757	191.2757	0.0137		191.6178
Worker	0.1138	0.0648	0.8873	2.5600e-003	0.2683	1.5800e-003	0.2698	0.0711	1.4600e-003	0.0726		255.5402	255.5402	6.0900e-003		255.6926
Total	0.1301	0.7126	1.0029	4.3700e-003	0.3131	2.8100e-003	0.3159	0.0841	2.6400e-003	0.0867		446.8159	446.8159	0.0198		447.3104

3.6 Paving - 2021

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.219	2,207.219	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.219	2,207.219	0.7139		2,225.0573

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.6 Paving - 2021

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	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.219	2,207.219	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.219	2,207.219	0.7139		2,225.0573

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.6 Paving - 2021

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	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078

3.7 Architectural Coating - 2021

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	37.1681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	37.3870	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.7 Architectural Coating - 2021
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	0.0237	0.0135	0.1849	5.3000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		53.2376	53.2376	1.2700e-003		53.2693
Total	0.0237	0.0135	0.1849	5.3000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		53.2376	53.2376	1.2700e-003		53.2693

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	37.1681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	37.3870	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309

Moreno Valley Thatcher - Riverside-South Coast County, Summer

3.7 Architectural Coating - 2021

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	0.0237	0.0135	0.1849	5.3000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		53.2376	53.2376	1.2700e-003		53.2693
Total	0.0237	0.0135	0.1849	5.3000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		53.2376	53.2376	1.2700e-003		53.2693

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Moreno Valley Thatcher - Riverside-South Coast County, 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	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2271	8.8418	14.6739	0.0639	4.7664	0.0416	4.8079	1.2752	0.0390	1.3142		6,524.2245	6,524.2245	0.3028		6,531.7943
Unmitigated	1.2271	8.8418	14.6739	0.0639	4.7664	0.0416	4.8079	1.2752	0.0390	1.3142		6,524.2245	6,524.2245	0.3028		6,531.7943

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	628.32	654.06	568.92	2,130,633	2,130,633
Total	628.32	654.06	568.92	2,130,633	2,130,633

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965

5.0 Energy Detail

Historical Energy Use: N

Moreno Valley Thatcher - Riverside-South Coast County, Summer

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	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448
NaturalGas Unmitigated	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448

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	5532.45	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448
Total		0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448

Moreno Valley Thatcher - Riverside-South Coast County, Summer

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas 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	5.53245	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448
Total		0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448

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	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006
Unmitigated	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006

Moreno Valley Thatcher - Riverside-South Coast County, Summer

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	0.2037					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3522					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1089	0.9306	0.3960	5.9400e-003		0.0752	0.0752		0.0752	0.0752	0.0000	1,188.0000	1,188.0000	0.0228	0.0218	1,195.0597
Landscaping	0.1646	0.0629	5.4510	2.9000e-004		0.0301	0.0301		0.0301	0.0301		9.8045	9.8045	9.4600e-003		10.0409
Total	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006

Moreno Valley Thatcher - Riverside-South Coast County, Summer

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	0.2037					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3522					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1089	0.9306	0.3960	5.9400e-003		0.0752	0.0752		0.0752	0.0752	0.0000	1,188.0000	1,188.0000	0.0228	0.0218	1,195.0597
Landscaping	0.1646	0.0629	5.4510	2.9000e-004		0.0301	0.0301		0.0301	0.0301		9.8045	9.8045	9.4600e-003		10.0409
Total	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006

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
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10.0 Stationary Equipment

Moreno Valley Thatcher - Riverside-South Coast County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Moreno Valley Thatcher - Riverside-South Coast County, Winter

Moreno Valley Thatcher
Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	66.00	Dwelling Unit	20.20	118,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	427.1	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - MIG Modeler: CPD. SCE GHG intensity factors adjusted downwards based on SCE corporate sustainability reports and U.S. EPA EGRID emission factors.

Land Use - Project gross acreage from tentative tract map.

Grading - estimated material import from project tentative tract map.

Woodstoves - Woodstoves and fireplaces prohibited per SCAQMD rules.

Energy Use - T24 standards adjusted downwards to reflect increased efficiency between 2016-2019 standards (CEC, 2017).

Construction Off-road Equipment Mitigation -

Moreno Valley Thatcher - Riverside-South Coast County, Winter

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblEnergyUse	T24E	951.67	475.84
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberNoFireplace	6.60	9.90
tblFireplaces	NumberWood	3.30	0.00
tblGrading	MaterialImported	0.00	14,000.00
tblLandUse	LotAcreage	21.43	20.20
tblLandUse	Population	189.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	702.44	427.1
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblWoodstoves	NumberCatalytic	3.30	0.00
tblWoodstoves	NumberNoncatalytic	3.30	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Moreno Valley Thatcher - Riverside-South Coast County, Winter

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					
2020	4.8203	62.2026	34.3215	0.1011	18.2675	2.2135	20.4661	9.9840	2.0378	12.0068	0.0000	10,141.3015	10,141.3015	2.2108	0.0000	10,196.5710
2021	37.4102	18.1413	17.4282	0.0310	0.3131	0.9615	1.2746	0.0841	0.9040	0.9880	0.0000	2,966.6916	2,966.6916	0.7172	0.0000	2,982.6056
Maximum	37.4102	62.2026	34.3215	0.1011	18.2675	2.2135	20.4661	9.9840	2.0378	12.0068	0.0000	10,141.3015	10,141.3015	2.2108	0.0000	10,196.5710

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					
2020	4.8203	62.2026	34.3215	0.1011	7.2470	2.2135	9.4457	3.9263	2.0378	5.9491	0.0000	10,141.3015	10,141.3015	2.2108	0.0000	10,196.5710
2021	37.4102	18.1413	17.4282	0.0310	0.3131	0.9615	1.2746	0.0841	0.9040	0.9880	0.0000	2,966.6916	2,966.6916	0.7172	0.0000	2,982.6056
Maximum	37.4102	62.2026	34.3215	0.1011	7.2470	2.2135	9.4457	3.9263	2.0378	5.9491	0.0000	10,141.3015	10,141.3015	2.2108	0.0000	10,196.5710

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	59.31	0.00	50.69	60.17	0.00	46.62	0.00	0.00	0.00	0.00	0.00	0.00

Moreno Valley Thatcher - Riverside-South Coast County, Winter

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	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006
Energy	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448
Mobile	1.0411	8.8393	12.6808	0.0590	4.7664	0.0420	4.8083	1.2752	0.0393	1.3146		6,028.1325	6,028.1325	0.3127		6,035.9500
Total	3.9302	10.3426	18.7447	0.0685	4.7664	0.1886	4.9549	1.2752	0.1859	1.4611	0.0000	7,876.8140	7,876.8140	0.3574	0.0337	7,895.7955

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	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006
Energy	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448
Mobile	1.0411	8.8393	12.6808	0.0590	4.7664	0.0420	4.8083	1.2752	0.0393	1.3146		6,028.1325	6,028.1325	0.3127		6,035.9500
Total	3.9302	10.3426	18.7447	0.0685	4.7664	0.1886	4.9549	1.2752	0.1859	1.4611	0.0000	7,876.8140	7,876.8140	0.3574	0.0337	7,895.7955

Moreno Valley Thatcher - Riverside-South Coast County, 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	N2O	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	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	2/11/2020	5	10	
3	Grading	Grading	2/12/2020	3/31/2020	5	35	
4	Building Construction	Building Construction	4/1/2020	8/31/2021	5	370	
5	Paving	Paving	9/1/2021	9/28/2021	5	20	
6	Architectural Coating	Architectural Coating	9/29/2021	10/26/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 240,570; Residential Outdoor: 80,190; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Moreno Valley Thatcher - Riverside-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
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
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
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

Moreno Valley Thatcher - Riverside-South Coast County, Winter

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
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	1,750.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	24.00	7.00	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	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

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	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.2 Demolition - 2020

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	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274
Total	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274

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	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.2 Demolition - 2020

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	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274
Total	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274

3.3 Site Preparation - 2020

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	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523		3,685.1016	3,685.1016	1.1918		3,714.8975

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.3 Site Preparation - 2020

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	0.0897	0.0560	0.5871	1.7900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		177.8824	177.8824	4.4200e-003		177.9929
Total	0.0897	0.0560	0.5871	1.7900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		177.8824	177.8824	4.4200e-003		177.9929

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	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	7.0458	2.1974	9.2433	3.8730	2.0216	5.8946	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.3 Site Preparation - 2020

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	0.0897	0.0560	0.5871	1.7900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		177.8824	177.8824	4.4200e-003		177.9929
Total	0.0897	0.0560	0.5871	1.7900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		177.8824	177.8824	4.4200e-003		177.9929

3.4 Grading - 2020

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					8.7240	0.0000	8.7240	3.6042	0.0000	3.6042			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	4.4501	50.1975	31.9583	0.0620	8.7240	2.1739	10.8979	3.6042	2.0000	5.6042		6,005.8653	6,005.8653	1.9424		6,054.4257

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.4 Grading - 2020

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	0.2705	11.9428	1.7109	0.0371	0.8747	0.0383	0.9130	0.2398	0.0366	0.2764		3,937.789 1	3,937.789 1	0.2635		3,944.375 4
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	0.0997	0.0623	0.6524	1.9800e-003	0.2236	1.3500e-003	0.2249	0.0593	1.2500e-003	0.0605		197.6472	197.6472	4.9100e-003		197.7699
Total	0.3702	12.0051	2.3633	0.0391	1.0982	0.0396	1.1379	0.2991	0.0379	0.3369		4,135.436 3	4,135.436 3	0.2684		4,142.145 3

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					3.4024	0.0000	3.4024	1.4056	0.0000	1.4056			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.865 3	6,005.865 3	1.9424		6,054.425 7
Total	4.4501	50.1975	31.9583	0.0620	3.4024	2.1739	5.5763	1.4056	2.0000	3.4056	0.0000	6,005.865 3	6,005.865 3	1.9424		6,054.425 7

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.4 Grading - 2020

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	0.2705	11.9428	1.7109	0.0371	0.8747	0.0383	0.9130	0.2398	0.0366	0.2764		3,937.789 1	3,937.789 1	0.2635		3,944.375 4
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	0.0997	0.0623	0.6524	1.9800e-003	0.2236	1.3500e-003	0.2249	0.0593	1.2500e-003	0.0605		197.6472	197.6472	4.9100e-003		197.7699
Total	0.3702	12.0051	2.3633	0.0391	1.0982	0.0396	1.1379	0.2991	0.0379	0.3369		4,135.436 3	4,135.436 3	0.2684		4,142.145 3

3.5 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.063 1	2,553.063 1	0.6229		2,568.634 5

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.5 Building Construction - 2020

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	0.0206	0.7165	0.1543	1.7600e-003	0.0448	4.1400e-003	0.0490	0.0129	3.9700e-003	0.0169		185.5299	185.5299	0.0161		185.9322
Worker	0.1196	0.0747	0.7828	2.3800e-003	0.2683	1.6200e-003	0.2699	0.0711	1.5000e-003	0.0726		237.1766	237.1766	5.8900e-003		237.3239
Total	0.1402	0.7912	0.9371	4.1400e-003	0.3131	5.7600e-003	0.3189	0.0841	5.4700e-003	0.0895		422.7065	422.7065	0.0220		423.2560

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.5 Building Construction - 2020

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	0.0206	0.7165	0.1543	1.7600e-003	0.0448	4.1400e-003	0.0490	0.0129	3.9700e-003	0.0169		185.5299	185.5299	0.0161		185.9322
Worker	0.1196	0.0747	0.7828	2.3800e-003	0.2683	1.6200e-003	0.2699	0.0711	1.5000e-003	0.0726		237.1766	237.1766	5.8900e-003		237.3239
Total	0.1402	0.7912	0.9371	4.1400e-003	0.3131	5.7600e-003	0.3189	0.0841	5.4700e-003	0.0895		422.7065	422.7065	0.0220		423.2560

3.5 Building Construction - 2021

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.5 Building Construction - 2021

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	0.0174	0.6422	0.1367	1.7500e-003	0.0448	1.2700e-003	0.0461	0.0129	1.2100e-003	0.0141		184.0813	184.0813	0.0153		184.4624
Worker	0.1117	0.0670	0.7162	2.3000e-003	0.2683	1.5800e-003	0.2698	0.0711	1.4600e-003	0.0726		229.2465	229.2465	5.3000e-003		229.3789
Total	0.1290	0.7092	0.8530	4.0500e-003	0.3131	2.8500e-003	0.3159	0.0841	2.6700e-003	0.0867		413.3277	413.3277	0.0206		413.8413

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.5 Building Construction - 2021

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	0.0174	0.6422	0.1367	1.7500e-003	0.0448	1.2700e-003	0.0461	0.0129	1.2100e-003	0.0141		184.0813	184.0813	0.0153		184.4624
Worker	0.1117	0.0670	0.7162	2.3000e-003	0.2683	1.5800e-003	0.2698	0.0711	1.4600e-003	0.0726		229.2465	229.2465	5.3000e-003		229.3789
Total	0.1290	0.7092	0.8530	4.0500e-003	0.3131	2.8500e-003	0.3159	0.0841	2.6700e-003	0.0867		413.3277	413.3277	0.0206		413.8413

3.6 Paving - 2021

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.6 Paving - 2021

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	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.219	2,207.219	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.219	2,207.219	0.7139		2,225.0573

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.6 Paving - 2021

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	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618

3.7 Architectural Coating - 2021

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	37.1681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	37.3870	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.7 Architectural Coating - 2021
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	0.0233	0.0140	0.1492	4.8000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		47.7597	47.7597	1.1000e-003		47.7873
Total	0.0233	0.0140	0.1492	4.8000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		47.7597	47.7597	1.1000e-003		47.7873

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	37.1681					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	37.3870	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309

Moreno Valley Thatcher - Riverside-South Coast County, Winter

3.7 Architectural Coating - 2021

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	0.0233	0.0140	0.1492	4.8000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		47.7597	47.7597	1.1000e-003		47.7873
Total	0.0233	0.0140	0.1492	4.8000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		47.7597	47.7597	1.1000e-003		47.7873

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Moreno Valley Thatcher - Riverside-South Coast County, 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	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0411	8.8393	12.6808	0.0590	4.7664	0.0420	4.8083	1.2752	0.0393	1.3146		6,028.1325	6,028.1325	0.3127		6,035.9500
Unmitigated	1.0411	8.8393	12.6808	0.0590	4.7664	0.0420	4.8083	1.2752	0.0393	1.3146		6,028.1325	6,028.1325	0.3127		6,035.9500

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	628.32	654.06	568.92	2,130,633	2,130,633
Total	628.32	654.06	568.92	2,130,633	2,130,633

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965

5.0 Energy Detail

Historical Energy Use: N

Moreno Valley Thatcher - Riverside-South Coast County, Winter

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	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448
NaturalGas Unmitigated	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448

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	5532.45	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448
Total		0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448

Moreno Valley Thatcher - Riverside-South Coast County, Winter

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas 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	5.53245	0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448
Total		0.0597	0.5099	0.2170	3.2500e-003		0.0412	0.0412		0.0412	0.0412		650.8770	650.8770	0.0125	0.0119	654.7448

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	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006
Unmitigated	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006

Moreno Valley Thatcher - Riverside-South Coast County, Winter

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	0.2037					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3522					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1089	0.9306	0.3960	5.9400e-003		0.0752	0.0752		0.0752	0.0752	0.0000	1,188.0000	1,188.0000	0.0228	0.0218	1,195.0597
Landscaping	0.1646	0.0629	5.4510	2.9000e-004		0.0301	0.0301		0.0301	0.0301		9.8045	9.8045	9.4600e-003		10.0409
Total	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006

Moreno Valley Thatcher - Riverside-South Coast County, Winter

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	0.2037					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3522					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1089	0.9306	0.3960	5.9400e-003		0.0752	0.0752		0.0752	0.0752	0.0000	1,188.0000	1,188.0000	0.0228	0.0218	1,195.0597
Landscaping	0.1646	0.0629	5.4510	2.9000e-004		0.0301	0.0301		0.0301	0.0301		9.8045	9.8045	9.4600e-003		10.0409
Total	2.8294	0.9935	5.8470	6.2300e-003		0.1054	0.1054		0.1054	0.1054	0.0000	1,197.8045	1,197.8045	0.0322	0.0218	1,205.1006

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

Moreno Valley Thatcher - Riverside-South Coast County, Winter

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

Appendix B Biological Resources Analyses

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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Biological Resource Assessment, Burrowing Owl Survey, and MSHCP Consistency Analysis

Krameria Avenue Project Site
City of Moreno Valley, Western Riverside County, California



Prepared for:
PI Properties No. 67 LLC
610 North Santa Anita Avenue
Arcadia, CA 91006

Prepared by:
MIG
109 West Union Avenue
Fullerton, CA 92832



February 2020

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

This document is formatted for double-sided printing

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Appendices

Appendix A Special-Status Plant Species with Potential to Occur on the Project Site

Appendix B Special-Status Animal Species with Potential to Occur on the Project Site

Appendix C State and Federal Database Search Results for Special-Status Animal and Plant Species

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

List of Abbreviated Terms

AMM	Avoidance and Minimization Measures
AMSL	Above Mean Sea Level
APN	Assessor's Parcel Number
BMP	Best Management Practice
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
DBESP	Determination of Biological Equivalent or Superior Preservation
EPA	Environmental Protection Agency
FESA	Federal Endangered Species Act
GBRA	General Biological Resources Assessment
GIS	Geographic Information System
HCP	Habitat Conservation Plan
IPaC	Information for Planning and Consultation
LSAA	Lake and Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MJPA	March Joint Powers Authority
MSHCP	Multiple Species Habitat Conservation Plan
NCCP	Natural Community Conservation Planning
NMFS	National Marine Fisheries Service
NOAA	National Oceanic Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resource Conservation Service
RWQCB	Regional Water Quality Control Board
SKR	Stephen's Kangaroo Rat
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

The purpose of this Biological Resource Assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis is to verify the type, location, and extent of potential sensitive biological resources within the 20.18-acre Krameria Avenue Project Site and vicinity. An MSHCP burrowing owl survey (MSHCP 2006) was also completed to determine the potential for burrowing owl to occur on the Project Site.

MIG conducted a field survey of the Project Site on April 1, 2019. This report provides information regarding the location, extent, and condition of biological resources occurring on the Project Site. This report provides a thorough description of the biological setting of the site and surrounding area, as well as a description of the vegetation communities, wildlife, potential movement/migration corridors, special status species, sensitive natural communities, and potentially jurisdictional waters and wetlands. An assessment of the project impacts and recommended mitigation measures to avoid, minimize, or compensate for potential adverse impacts to sensitive habitats and species is also included in the report. The evaluation of potential project impacts follows the checklist items from Appendix G of the California Environmental Quality Act (CEQA) guidelines and has been prepared in a format suitable to support CEQA review and to submit with any future regulatory application packages that might be required.

1.1 Project Location

The 20.18-acre Project Site is located in the City of Moreno Valley, Riverside County, California and includes APNs 316-110-005, -006, -022, -023, and -024. The Project Site is south of Krameria Avenue, east of Tarano Lane, and west of Perris Boulevard (Attachment E-1, *Vicinity Map* and Attachment E-2, *Project Site Map*). The Project Site occurs within the United States Geological Survey (USGS) 7.5' series Sunnymead Quadrangle, Township 3S, Range 3W, Section 30. The Project Site is relatively flat, with elevations ranging between approximately 1,480-1,490 feet above mean sea level (AMSL). Residential land use borders the Project Site on all sides. An unnamed, ephemeral drainage flows north to south along the western boundary of the Project Site.

2.0 REGULATORY SETTING

The following discussion identifies federal, state, and local environmental regulations that serve to protect sensitive biological resources relevant to the proposed Project Site and CEQA review process.

2.1 Federal

2.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973, as amended, provides the regulatory framework for the protection of plant and animal species (and their associated critical habitats), which are formally listed, proposed for listing, or candidates for listing as endangered or threatened under the FESA. The FESA has the following four major components: (1) provisions for listing species, (2) requirements for consultation with the United States Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA NMFS), (3) prohibitions against "taking" (meaning harassing, harming, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct) of listed species, and (4) provisions for permits that allow incidental "take". The FESA also discusses recovery plans and the designation of critical habitat for listed species. Section 7 requires Federal agencies, in consultation with, and with the assistance of the USFWS or NOAA NMFS, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. Both the USFWS and NOAA NMFS share the responsibility for administration of the FESA.

2.1.2 The Migratory Bird Treaty Act

The Federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.), Title 50 Code of Federal Regulations (CFR) Part 10, prohibits taking, killing, possessing, transporting, and importing of migratory birds, parts of migratory birds, and their eggs and nests, except when specifically authorized by the Department of the Interior. As used in the act, the term "take" is defined as meaning, "to pursue, hunt, capture, collect, kill or attempt to pursue, hunt, shoot, capture, collect or kill, unless the context otherwise requires." With a few exceptions, most birds are considered migratory under the MBTA. Disturbances that causes nest abandonment and/or loss of reproductive effort or loss of habitat upon which these birds depend would be in violation of the MBTA.

2.1.3 Clean Water Act Sections 404 and 401

The United States Army Corps of Engineers (USACE) and the United States Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into waters of the United States, including wetlands, under Section 404 of the Clean Water Act (CWA) (33 USC 1344). Waters of the United States are defined in Title 33 CFR Part 328.3(a) and include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds. The lateral limits of jurisdiction in those waters may be divided into three categories – territorial seas, tidal waters, and non-tidal waters – and is determined depending on which type of waters is present (Title 33 CFR Part 328.4(a), (b), (c)). Activities in waters of the United States regulated under Section 404 include fill for development, water resource projects (e.g., dams and levees), infrastructure developments (e.g., highways, rail lines, and airports) and mining projects. Section 404 of the CWA requires a federal permit before dredged or fill material may be discharged into waters of

the United States, unless the activity is exempt from Section 404 regulation (e.g., certain farming and forestry activities).

Section 401 of the CWA (33 U.S.C. 1341) requires an applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a water quality certification from the state in which the discharge originates. The discharge is required to comply with the applicable water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility. The Environmental Protection Agency (EPA) has delegated responsibility for the protection of water quality in California to State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs).

2.1.4 National Pollutant Discharge Elimination System (NPDES)

The NPDES program requires permitting for activities that discharge pollutants into waters of the United States. This includes discharges from municipal, industrial, and construction sources. These are considered point-sources from a regulatory standpoint. Generally, these permits are issued and monitored under the oversight of the SWRCB and administered by each regional water quality control board. Construction activities that disturb one acre or more (whether a single project or part of a larger development) are required to obtain coverage under the state's General Permit for Dischargers of Storm Water Associated with Construction Activity. All dischargers are required to obtain coverage under the Construction General Permit. The activities covered under the Construction General Permit include clearing, grading, and other disturbances. The permit requires preparation of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of Best Management Practices (BMPs) with a monitoring program. The project will require coverage under the Construction General Permit.

2.2 State

2.2.1 California Endangered Species Act

The State of California enacted similar laws to the FESA, the California Native Plant Protection Act (NPPA) in 1977, and the California Endangered Species Act (CESA) in 1984. The CESA expanded upon the original NPPA and enhanced legal protection for plants, but the NPPA remains part of the California Fish and Game Code. To align with the FESA, CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the CESA as threatened species but did not do so for rare plants. Thus, these laws provide the legal framework for protection of California-listed rare, threatened, and endangered plant and animal species. The California Department of Fish and Wildlife (CDFW) implements NPPA and CESA, and its Wildlife and Habitat Data Analysis Branch maintains the California Natural Diversity Database (CNDDDB), a computerized inventory of information on the general location and status of California's rarest plants, animals, and natural communities. During the CEQA review process, the CDFW is given the opportunity to comment on the potential of the proposed Project to affect listed plants and animals.

2.2.2 Native Plant Protection Act

The NPPA of 1977 (California Fish and Game Code [CFGF], §§ 1900 through 1913) directed the CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by the CDFW, which has the authority to designate native plants as endangered or rare and to protect them from "take."

2.2.3 California Environmental Quality Act

CEQA was enacted in 1970 to provide for full disclosure of environmental impacts to the public before issuance of a permit by state and local public agencies. CEQA (Public Resources Code Sections 21000 et. seq.) requires public agencies to review activities which may affect the quality of the environment so that consideration is given to preventing damage to the environment. When a lead agency issues a permit for development that could affect the environment, it must disclose the potential environmental effects of the project. This is done with an Initial Study and Negative Declaration (or Mitigated Negative Declaration) or with an Environmental Impact Report. Certain classes of projects are exempt from detailed analysis under CEQA. CEQA Guidelines Section 15380 defines endangered, threatened, and rare species for purposes of CEQA and clarifies that CEQA review extends to other species that are not formally listed under the state or federal Endangered Species Acts but that meet specified criteria.

2.2.4 Fully Protected Species and Species of Special Concern

The classification of “fully protected” was the CDFW’s initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibian and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The CFGC sections (fish at §5515, amphibian and reptiles at §5050, birds at §3511, and mammals at §4700) dealing with “fully protected” species states that these species “...may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species,” (CDFW Fish and Game Commission 1998) although take may be authorized for necessary scientific research. This language makes the “fully protected” designation the strongest and most restrictive regarding the “take” of these species. In 2003, the code sections dealing with fully protected species were amended to allow the CDFW to authorize take resulting from recovery activities for state-listed species.

Species of special concern are broadly defined as animals not listed under the FESA or CESA, but which are nonetheless of concern to the CDFW because they are declining at a rate that could result in listing or historically occurred in low numbers and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by the CDFW, land managers, consulting biologist, and others, and is intended to focus attention on the species to help avert the need for costly listing under FESA and CESA and cumbersome recovery efforts that might ultimately be required. This designation also is intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them. Although these species generally have no special legal status, they are given special consideration under the CEQA during project review.

2.2.5 California Fish and Wildlife Code Sections 3503 and 3513

According to Section 3503 of the California Fish and Wildlife Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird (except English sparrow (*Passer domesticus*) and European Starling (*Sturnus vulgaris*). Section 3503.5 specifically protects birds in the orders Falconiformes and Strigiformes (birds-of-prey). Section 3513 essentially overlaps with the MBTA, prohibiting the take or possession of any migratory non-game bird. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “take” by the CDFW.

2.2.6 Other Sensitive Plants – California Native Plant Society

The California Native Plant Society (CNPS), a non-profit plant conservation organization, publishes and maintains an Inventory of Rare and Endangered Vascular Plants of California in both hard copy and electronic version (<http://www.cnps.org/cnps/rareplants/inventory/>).

The Inventory assigns plants to the following categories:

- 1A Presumed extinct in California;
- 1B Rare, threatened, or endangered in California and elsewhere;
- 2 Rare, threatened, or endangered in California, but more common elsewhere;
- 3 Plants for which more information is needed – A review list; and
- 4 Plants of limited distribution – A watch list.

Additional endangerment codes are assigned to each taxon as follows:

- 1 Seriously endangered in California (over 80% of occurrences threatened/high degree of immediacy of threat).
- 2 Fairly endangered in California (20-80% occurrences threatened).
- 3 Not very endangered in California (<20% of occurrences threatened or no current threats known).

Plants on Lists 1A, 1B, and 2 of the CNPS Inventory consist of plants that may qualify for listing, and the CDFW, as well as other state agencies (e.g., California Department of Forestry and Fire Protection). As part of the CEQA process, such species should be fully considered, as they meet the definition of threatened or endangered under the NPPA and Sections 2062 and 2067 of the California Fish and Game Code. California Rare Plant Rank 3 and 4 species are considered to be plants about which more information is needed or are uncommon enough that their status should be regularly monitored. Such plants may be eligible or may become eligible for state listing, and CNPS and CDFW recommend that these species be evaluated for consideration during the preparation of CEQA documents (CNPS 2018, CDFW 2018b).

2.2.7 Sensitive Natural Communities

Sensitive natural communities are habitats that are either unique in constituent components, of relatively limited distribution in the region, or of particularly high wildlife value. These communities may or may not necessarily contain special-status species. Sensitive natural communities are usually identified in local or regional plans, policies or regulations, or by the CDFW or the USFWS. The CNDDDB identifies a number of natural communities as rare, which are given the highest inventory priority (CDFW 2018a). Impacts to sensitive natural communities and habitats must be considered and evaluated under the CEQA (CCR: Title 14, Div. 6, Chap. 3, Appendix G)

2.2.8 Waters of the State

Section 401 of the Clean Water Act

The Regional Water Quality Control Board (RWQCB) regulates activities in “waters of the state”, including wetlands, through Section 401 of the CWA. “Waters of the state” are defined by the Porter-Cologne Control Act (see below) as “any surface water or groundwater, including saline waters, within the boundaries of the state.” While the USACE administers permitting programs that authorize impacts to “waters of the US”, any USACE permit authorized for a project would be invalid unless the RWQCB has issued a project-specific water quality certification or waiver of water quality. A water quality certification requires a finding by the

RWQCB that the activities permitted by the USACE will not violate water quality standards individually or cumulatively over the term of the issued USACE permit.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Act (Porter-Cologne Act) (California Water Code Section 13260) requires “any person discharging waste, or proposing to discharge waste, within any region that could affect the “waters of the state” to file a report of discharge” with the RWQCB through an application for waste discharge. The RWQCB protects all waters in its regulatory scope but has special responsibility for isolated wetlands and headwaters. These water bodies have high resource value, are vulnerable to filling, and may not be regulated by other programs (e.g. Section 404 of the CWA).

California Fish and Game Code Section 1600-1603

Under Section 1602 of California Fish and Game Code, CDFW has authority over any proposed activity that may substantially modify a river, stream, or lake. CDFW requires notification for any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

The notification requirement applies to any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. The CDFW typically considers a river, stream, or lake to include its riparian vegetation, but it may also extend to its floodplain. The term “stream”, which includes creeks and rivers, is defined in the CCR as follows: “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life”. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian is defined as “on, or pertaining to, the banks of a stream”; therefore, riparian vegetation is defined as, “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFW 1994).

If the CDFW determines that the activity may substantially adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement (LSAA) will be prepared, which includes reasonable conditions necessary to protect those resources. The applicant may then proceed with the activity in accordance with the final LSAA. Section 1602 does not extend to isolated wetlands and waters, such as small ponds not located on drainages.

2.3 Local

2.3.1 Western Riverside County Multiple Species Habitat Conservation Plan

In June of 2003, the Riverside County Board of Supervisors adopted a comprehensive MSHCP to provide a regional conservation solution to species and habitat issues that have historically threatened to stall infrastructure and land use development. The MSHCP is a multi-jurisdictional effort that encompasses approximately 1.26 million acres (1,966 square miles) and includes all unincorporated Riverside County

land west of the crest of the San Jacinto Mountains to the Orange County line, as well as the jurisdictional areas of fourteen cities, including the City of Moreno Valley (Western Riverside County MSHCP 2004).

2.3.2 City of Moreno Valley General Plan

The Project Site occurs within the East March AFB Planning Area of the City of Moreno Valley General Plan. The Project Site is subject to the jurisdiction of the MSHCP and not the March Joint Powers Authority (MJPA) (Riverside County GIS 2019). The following measures have been developed to provide assurances that potential significant biological impacts associated with the implementation of the proposed General Plan Update will be mitigated. Subsequent project-level environmental review could identify more detailed site-specific mitigation measures.

- B1** The City and all future public and private development projects within the City shall comply with the Long-term HCP for the Stephen's Kangaroo Rat.
- B2** The City shall comply with the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) and the associated state and federal permits.
- B3** Where feasible, projects shall be designed to minimize impacts on sensitive habitat.
- B4** Prior to physical disturbance of any natural drainage course or wetland determined to contain riparian vegetation or otherwise qualify as a "jurisdictional" wetland or non-wetland Water of the U.S., the applicant shall obtain a Streambed Alteration Agreement (SAA) and/or permit, or written waiver of the requirement for such an agreement or permit, from all resource agencies with jurisdiction over such areas (CDFW and United States Army Corps of Engineers [USACE]).

3.0 METHODS

This analysis of potential biological resources located on the Project Site includes a review of available background information in and around the vicinity of the Project Site and completion of two field surveys.

3.1 Literature Review

Prior to conducting field surveys, MIG biologists reviewed available background information pertaining to the biological resources on and in the vicinity of the project. Available literature and resource mapping reviewed included the occurrence records for special-status species and sensitive natural communities and numerous other information sources listed below:

- CDFW California Natural Communities Database (CNDDDB) record search within the Sunnymead and surrounding eight USGS quadrangles (CDFW 2019a)
- CNPS Rare Plant Program, Inventory of Rare and Endangered Plants of California (CNPS 2019) records search within the Sunnymead and surrounding eight USGS quadrangles
- Soil Survey Staff, Natural Resource Conservation Service (NRCS), United States Department of Agricultural (USDA NRCS 2019)
- CDFW California Natural Community List (CDFW 2018a)
- CDFW State & Federally Listed Endangered & Threatened Animals of California (CDFW 2018b)
- CDFW State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2018c)
- USFWS Information for Planning and Consultation (IPaC; USFWS 2019a)
- USFWS National Wetlands Inventory (USFWS 2019b)
- Western Riverside County MHSCP (2004)
- Western Riverside County MHSCP Burrowing Owl Survey Instructions (MSHCP 2006)

3.2 Field Surveys

A biological field survey was conducted by MIG biologist Jonathan Campbell, PhD on April 1, 2019. The field survey was conducted on foot to assess the existing conditions of the Project Site, including recording observed plant and wildlife species, characterizing and delineating the vegetation communities and associated wildlife habitats, and evaluating the potential for these habitats to support special-status species and sensitive communities. In addition, the field survey included a burrowing owl (*Athene cunicularia*) habitat assessment and focused burrow survey, per the Western Riverside County MHSCP Burrowing Owl Survey Instructions (MSHCP 2006)

3.2.1 Plant Communities

During the field survey, MIG biologists traversed the entire Project Site by foot and evaluated the suitability of onsite vegetation communities to support special status species documented in the vicinity of Project Site. Plant communities were preliminarily mapped with the aid of an aerial photograph using the MSHCP uncollapsed vegetation community classification system and Holland (1986)/CDFW (2010) vegetation community classification systems when appropriate. When a vegetation community could not be accurately characterized using this information, an updated community classification code was developed to more accurately represent onsite habitat types.

3.2.2 Sensitive Plant Species

Sensitive plant species include those (1) listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS under the FESA; (2) listed or proposed for listing as rare, threatened, or endangered by the CDFW under the CESA; (3) occurring on List 1A, List 1B, List 2, List 3, or List 4 of the CNPS Inventory; or (4) listed as an MSHCP covered species (MSHCP Section 9.2).

3.2.3 Sensitive Wildlife Species

Sensitive wildlife species include those (1) listed, proposed for listing or candidates for listing as threatened or endangered by the USFWS or NOAA Fisheries under FESA; (2) listed or proposed for listing as rare, threatened, endangered, fully protected, or species of special concern by the CDFW under CESA; and (3) birds protected by the USFWS under the MTBA and/or by the CDFW under Fish and Game Code Sections 3503 and 3513; or (4) listed as an MSHCP covered species (MSCHP Section 9.2).

In accordance with the MSHCP Burrowing Owl Survey Instructions (MSHCP 2006), the burrowing owl survey protocol consists of two steps: Step I – Habitat Assessment and Step II – Locating Burrows and Burrowing Owls. Step II is comprised of two parts, Part A: Focused Burrow Surveys and Part B: Focused Burrowing Owl Surveys. In addition to complying with MSHCP survey guidelines, the protocol was augmented to ensure compliance with the CDFW updated Staff Report on Burrowing Owl Mitigation breeding season survey guidelines (CDFW 2012). The Step I - Habitat Assessment surveys consisted of a walking survey to determine if suitable habitat is present onsite. Upon arrival at the Project Site, and prior to initiating the assessment survey, surveyors used binoculars to scan all suitable habitats on and adjacent to the property, including perch locations, to ascertain owl presence. All suitable areas of the Project Site were surveyed on foot by walking slowly and methodically while recording/mapping areas that may represent suitable owl habitat onsite. Primary indicators of suitable burrowing owl habitat in western Riverside County include, but are not limited to, native and non-native grassland, interstitial grassland within shrub lands, shrub lands with low density shrub cover, golf courses, drainage ditches, earthen berms, unpaved airfields, pastureland, dairies, fallow fields, and agricultural use areas. Burrowing owls typically use burrows made by fossorial mammals, such as ground squirrels (*Otospermophilus beecheyi*) or badgers (*Taxidea taxus*), but they often utilize man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles, or openings beneath cement or asphalt pavement. Burrowing owls are often found within, under, or in close proximity to man-made structures.

3.2.3 Special-Status Species Habitat Assessment

The potential occurrence of special-status plant and animal species on the Project Site was initially evaluated by developing a list of special-status species that are known to or have the potential to occur in the vicinity of the Project Site based on a review of past studies including species-specific studies; search of current database records (e.g., CNDDDB and CNPS Electronic Inventory records); and review of the USFWS list of federal endangered and threatened species (See Appendix C). The potential for occurrence of those species included on the list were then evaluated based on the habitat requirements of each species relative to the conditions observed during the field survey conducted by MIG. Plant species that have been documented to occur well outside of the elevation and geographic range of the Project Site were eliminated from further consideration. Each species was evaluated for its potential to occur on or in the immediate vicinity of the Project Site according to the following criteria.

Not Expected. There is no suitable habitat present on the Project Site (i.e., habitats on the Project Site are clearly unsuitable for the species requirements [e.g., foraging, breeding, cover, substrate, elevation, hydrology, plant community, disturbance regime, etc.]). Additionally, there are no recent

known records of occurrence in the vicinity of the Project Site. The species has no potential of being found on the Project Site.

Low Potential. Limited suitable habitat is present on the Project Site (i.e., few of the habitat components meeting the species requirements are present and/or the majority of habitat on the Project Site is unsuitable or of very low quality). Additionally, there are no or few recent known records of occurrence in the vicinity of the Project Site. The species has a low probability of being found on the Project Site.

Moderate Potential. Suitable habitat is present on the Project Site (i.e., some of the habitat components meeting the species requirements are present and/or the majority of the habitat on the Project Site is suitable or of marginal quality). Additionally, there are few or many recent known records of occurrences in the vicinity of the Project Site. The species has a moderate probability of being found on the Project Site.

High Potential. Highly suitable habitat is present on the Project Site (i.e., all habitat components meeting the species requirements are present and/or all of the habitat on the Project Site is highly suitable or of high quality). Additionally, there are few or many recent known records of occurrences in the vicinity of the Project Site. This species has a high probability of being found on the Project Site.

Present. Species was observed on the Project Site (i.e., species was either observed during recent surveys or has a recorded observation in the CNDDDB on the Project Site).

Appendices A and B present the list of special-status plants and wildlife (respectively) that have the potential to occur in the vicinity of the Project Site, their habitat requirements, and a ranking of potential for occurrence on the Project Site. Nomenclature used for plant names follows the Second Edition of The Jepson Manual (Baldwin et al. 2012). Nomenclature for wildlife follows CDFW's Complete List of Amphibian, Reptile, Bird, And Mammal Species in California (CDFW 2016) and any changes made to species nomenclature as published in scientific journals since the publication of CDFW's list.

3.2.4 MSHCP Riparian/Riverine Resources, Vernal Pools, and Jurisdictional Resources

This report provides a general review of topographic features and habitats observed onsite that could be subject to USACE jurisdiction pursuant to Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) jurisdiction pursuant to Section 401 of the CWA, and CDFW jurisdiction pursuant to Division 2, Chapter 6, Section 1600 of the Fish and Game Code. A formal jurisdictional delineation was not undertaken as part of this effort.

Habitats were also assessed to determine if MSHCP riparian/riverine resources and/or vernal pools, pursuant to section 6.1.2 of the MSHCP (2004) are present onsite. Riparian/riverine resources are those lands that contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year. Vernal pools are seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season (MSHCP 2004). In addition, stock ponds, ephemeral pools, and other areas of potential fairy shrimp habitat are noted, if applicable.

3.2.1 Wildlife Corridors and Urban/Wildland Interface

Providing functional habitat connectivity between natural areas is essential to sustaining healthy wildlife populations and allowing for the continued dispersal of native plant and animal species. The regional movement and migration of wildlife species has been substantially altered due to habitat fragmentation over the past century. This fragmentation is most commonly caused by development of open areas, which can result in large patches of land becoming inaccessible and forming a virtual barrier between undeveloped areas. Additional roads associated with development, although narrow, may result in barriers to smaller or less mobile wildlife species. Habitat fragmentation results in isolated islands of habitat, which affects wildlife behavior, foraging activity, reproductive patterns, immigration and emigration or dispersal capabilities, and survivability. Wildlife corridors can consist of a sequence of stepping-stones across the landscape (i.e., discontinuous areas of habitat such as isolated wetlands), continuous lineal strips of vegetation and habitat (e.g., riparian strips and ridge lines), or they may be parts of larger habitat areas selected for its known or likely importance to local wildlife.

4.0 EXISTING CONDITIONS

The following provides a description of the soils, vegetation communities, wildlife, and wildlife movement corridors present on the Project Site.

4.1 Physical Characteristics

The Project Site is flat with elevations ranging between 1,480 to 1,490 feet AMSL (Attachment E-2, *Project Site Map*). The Project Site is regularly disked, although ruderal vegetation was growing robustly during the April 1, 2019 field survey. Residential land uses border the Project Site on all sides. An unnamed, ephemeral drainage flows north to south along the western boundary of the Project Site.

4.2 Soils

The Web Soil Survey reports the following soils within the boundary of the 20.18-acre Project Site as shown on Attachment E-5, *Soils Map* (USDA NRCS 2019):

- Greenfield sandy loam, 0 to 2 percent slopes (GyA: 14.73 ac)
- Exeter sandy loam, deep, 0 to 2 percent slopes (EpA: 4.39 ac)
- Exeter sandy loam, 0 to 2 percent slopes (EnA: 0.68 ac)
- Exeter very fine sandy loam, 0 to 5 percent slopes (EwB: 0.38 ac)

4.3 Plant Communities & Associated Wildlife Habitats

As described in Section 3 (Methods), onsite vegetation communities were mapped in the field onto a color aerial photograph (Attachment E-6, *Biological Resources Map*) and were evaluated to determine if they are considered sensitive under federal, state, or local regulations or policies. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

The 20.18-acre Project Site is dominated by ruderal vegetation. A single exotic tree is present in the northeast portion of the Project Site, while several non-native trees overhang the southern boundary. Vegetation communities observed onsite during the April 1, 2019 field survey are described in detail below.

Ruderal (19.03 acres)

The Project Site is regularly disked and is currently dominated by ruderal species that have arisen following the recent winter and spring rains. The Project Site is currently dominated by non-native annual herbs and grasses including foxtail barley (*Hordeum murinum*), wild oats (*Avena fatua*), red brome (*Bromus madritensis* ssp. *rubens*), soft chess (*Bromus hordeaceus*), shepard's purse (*Capsella bursa-pastoris*), wild radish (*Raphanus sativus*), stinknet (*Oncosiphon piluliferum*), London rocket (*Sisymbrium irio*), big heron bill (*Erodium botrys*), coastal heron's bill (*Erodium cicutarium*), and cheeseweed (*Malva parviflora*), (Attachment E-7, *Current Project Site Photographs*). Native annual herbs found onsite include common fiddleneck (*Amsinckia intermedia*), slender goldfields (*Lasthenia gracilis*), and miniature lupine (*Lupinus bicolor*).

Developed (1.07 acres)

A sidewalk is present along the eastern boundary of the Project Site. Developed areas are generally devoid of vegetation.

Exotic Tree (0.07 acres)

A Peruvian pepper tree (*Schinus molle*) is the only free-standing tree located onsite and is located in the northeast corner of the Project Site. A Peruvian pepper tree, eucalyptus (*Eucalyptus* sp.), and queen palm (*Syagrus romanzoffiana*) are located just south of the Project Site in neighboring residential properties. These trees overhang onto the Project Site (Attachment E-7, *Current Project Site Photographs*).

Black Willow (0.01 ac)

A single black willow (*Salix goodingii*) tree is found on the western boundary of the Project Site, along Tarano Lane.

4.4 Wildlife

Wildlife species that were observed on site during the April 1, 2019 biological field survey include: red-tailed hawk (*Buteo jamaicensis*), European starling (*Sturnus vulgaris*), black phoebe (*Sayornis nigricans*), Anna's hummingbird (*Calypte anna*), house finch (*Haemorhous mexicanus*), northern mockingbird (*Mimus polyglottus*), common raven (*Corvus corvax*), American crow (*Corvus brachyrhynchos*), house sparrow (*Passer domesticus*), mourning dove (*Zenaida macroura*), and western kingbird (*Tyrannus verticalis*).

4.5 Sensitive Plant Communities

No sensitive plant communities were observed on the Project Site.

4.6 Special-Status Plants

No sensitive plant species were observed on the Project Site. In addition, no sensitive plant species have been documented in the vicinity of the Project Site or have the potential to occur on the Project Site due to the absence of essential habitat requirements for the species, the absence of known occurrences in the vicinity of the Project Site, and/or the Project Site is outside the species known range of distribution. The MSHCP has determined that any other sensitive species potentially occurring onsite have been adequately covered (MSHCP Table 2-2 Species Considered for Conservation Under the MSHCP Since 1999, 2004).

4.7 Special-Status Wildlife

Although suitable burrowing owl habitat is present onsite in the ruderal vegetation community, burrowing owls are not expected to occur in or around the Project Site due to the lack of suitable burrows (Attachment E-9, *Burrowing Owl Survey Map*). Therefore, Step II - Part B: Focused Burrowing Owl Surveys are not required.

No other special-status wildlife species were observed on the Project Site or have the potential to occur onsite due to the absence of suitable habitat.

Nesting Birds

The Federal MBTA prohibits killing any migratory bird or disturbing or destroying an active nest of a migratory bird; this list contains hundreds of birds, including many of which are considered common or even nuisance or non-native species. Nesting birds are also protected under California Fish and Game Code 3503, 3503.5, and 3512, which prohibits the take of active bird nests. Trees on and around the Project Site provide potentially suitable nesting habitat for songbirds. Ground-nesting birds may be present throughout the Project Site in ruderal habitats. Although no active nests were observed during the field surveys, there is potential for ground- and tree-nesting birds to establish nests on the Project Site prior to initiation of

project construction. These species are protected under the MBTA and would be protected under the California Fish and Game Code when actively nesting.

4.8 Wildlife Movement Corridors

Providing functional habitat connectivity between natural areas is essential to sustaining healthy wildlife populations and allowing for the continued dispersal of native plant and animal species. The regional movement and migration of wildlife species has been substantially altered due to habitat fragmentation over the past century. This fragmentation is most commonly caused by development of open areas, which can result in large patches of land becoming inaccessible and forming a virtual barrier between undeveloped areas. Additional roads associated with development, although narrow, may result in barriers to smaller or less mobile wildlife species. Habitat fragmentation results in isolated islands of habitat, which affects wildlife behavior, foraging activity, reproductive patterns, immigration and emigration or dispersal capabilities, and survivability. Wildlife corridors can consist of a sequence of stepping-stones across the landscape (i.e., discontinuous areas of habitat such as isolated wetlands), continuous lineal strips of vegetation and habitat (e.g., riparian strips and ridge lines), or they may be parts of larger habitat areas selected for its known or likely importance to local wildlife. The Project Site does not act as a wildlife movement corridor due to the regular onsite disking and dense residential land uses surrounding the property.

4.9 MSHCP Riparian/Riverine, Vernal Pools, and Jurisdictional Resources

An unnamed ephemeral drainage (D1) flows north to south along the western Project Site boundary. This drainage represents MSHCP riparian (0.010 ac) and riverine (0.108 ac) resources pursuant to Section 6.1.2 of the MSHCP (2004) (MIG Jurisdictional Delineation Report 2020). No vernal pools were observed on the Project Site.

5.0 MSHCP CONSISTENCY ANALYSIS

The purpose of this analysis is to document existing biological resources, identify general vegetation types, and assess the potential biological and regulatory constraints and potential impacts associated with the proposed development within the Project Site as outlined by the Western Riverside County MSHCP. The following sections summarize the Project Site's relationship to MSHCP compliance guidelines.

5.1 Criteria Areas

The Project Site is located within the Western Riverside County MSHCP Reche Canyon/Badlands Area Plan. The Project Site is not located within an MSHCP criteria area or area plan subunit.

5.2 Narrow Endemic Plant Species Survey Area

The Project Site does not occur within a predetermined Survey Area for narrow endemic plant species. No surveys are required.

5.3 Criteria Area Species Survey Area

The Project Site does not occur within a predetermined Survey Area for criteria area plant species. No surveys are required.

5.4 Amphibian Species Survey Area

The Project Site does not occur within a predetermined Survey Area for amphibian species. No surveys are required.

5.5 Mammal Species Survey Area

The Project Site does not occur within a predetermined Survey Area for mammal species. No surveys are required.

5.6 Burrowing Owl Survey Area

The Project Site occurs within a predetermined Survey Area for the burrowing owl. Although suitable burrowing owl habitat is present onsite in the ruderal vegetation communities, burrowing owls are not expected to occur in or around the Project Site due to the lack of suitable burrows (Attachment E-9, *Burrowing Owl Survey Map*). Regardless, a 30-day pre-construction survey will be required prior to the initiation of construction to ensure protection of this species and compliance with the conservation goals as outlined in the MSHCP (MSHCP 2004: Section 7.2).

5.7 MSHCP Riparian/Riverine Resources and Vernal Pools

The Project Site contains both MSHCP riparian (0.010 ac) and riverine (0.108 ac) resources pursuant to Section 6.1.2 of the MSHCP (2004) (Attachment E-6, *Biological Resources Map* and Attachment E-8, *Current Project Site Photographs*, MIG Jurisdictional Delineation Report 2020). No vernal pool resources were observed on the Project Site.

5.8 Urban/Wildlands Interface

The Project Site does not occur within or adjacent to an MSHCP Core, Linkage, Constrained Linkage, or Non-Contiguous Habitat Block. Therefore, an Urban/Wildland Interface analysis pursuant to Section 6.1.4 of the MSHCP is not required.

5.9 Stephen's Kangaroo Rat Fee Area

The Project Site is located within the MSHCP Stephens' Kangaroo Rat (SKR: *Dipodomys stephensi*) Habitat Conservation Plan (HCP) Fee Area which is administered by the Riverside County Habitat Conservation Agency (RCHCA). The SKR Fee is established at \$500 per acre.

6.0 ENVIRONMENTAL IMPACTS

This section describes potential impacts to sensitive biological resources—including special-status plants and animals, and aquatic resources that may occur in the Project Site. Each impact discussion includes mitigation measures that would be implemented during the project to avoid and/or reduce the potential for and/or level of impacts to each resource. With the implementation of the recommended mitigation measures, all impacts to biological resources are anticipated to be reduced to less than significant pursuant to CEQA.

6.1 Thresholds of Significance

This section describes potential impacts to biological resources that may occur as a result of the construction of the proposed project. CEQA Guidelines provide guidance in evaluating project impacts and determining whether impacts may be significant. CEQA defines “significant effect on the environment” as “a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.” In accordance with Appendix G of the CEQA Guidelines, a project could have a significant environmental impact on biological resources if it would:

- 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 CDFW or USFWS
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrologic interruption, or other means
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state HCP

6.2 Impacts and Mitigation Measures

Consistent with the requirements of CEQA and local regulations, the significance of potential impacts is evaluated through the application of the significance criteria described above. The objective of the biological resources analysis is to identify potential adverse effects and/or significant impacts on biological resources. Avoidance is often the preferred approach for the management of biological resources; however, it is not always possible to completely avoid impacts. Mitigation measures to avoid or minimize impacts are identified, as appropriate, including procedures to be followed if significant biological resources are identified prior to the initiation of construction.

The following discussion provides an overview of the direct and indirect impacts to special status species, sensitive habitats, and other resources that may occur within the Project Site.

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 CDFW or USFWS;*

6.2.1 Special-Status Plants

No special-status plant species were detected on the Project Site during the April 1, 2019 field survey. None of the sixty-four (64) special-status plant species found in the vicinity of the Project Site (refer to Appendix A) are expected due to a lack of suitable habitat.

6.2.2 Special-Status Wildlife

The MSHCP has determined that all of the sensitive species potentially occurring onsite have been adequately covered (MSHCP Table 2-2 Species Considered for Conservation Under the MSHCP Since 1999, 2004). However, additional surveys may be required for criteria area species and specific wildlife species if suitable habitat is documented onsite and/or if the property is located within a predetermined "Survey Area" (MSHCP 2004). No special-status wildlife species were detected on the Project Site during the April 1, 2019 field survey. Of the 62 special-status wildlife species found in the vicinity of the Project Site (refer to Appendix B), suitable habitat is only present for burrowing owl.

Impact BIO-1: Burrowing Owl

A burrowing owl habitat assessment and focused burrow survey was performed during the April 1, 2019 field survey, per the Western Riverside County MSHCP Burrowing Owl Survey Instructions (MSHCP 2006). During this survey, it was determined that no suitable burrowing owl burrows were present onsite. Implementation of Mitigation Measure BIO-1 would be required to reduce potential impacts to burrowing owl to a less than significant level.

Impact BIO-2: Nesting Birds

Vegetation communities on the Project Site have the potential to provide nesting habitat for bird species protected by the MBTA and CFGC Sections 3503 and 3513. Although no active nests were observed during the April 1, 2019 field survey, there is potential for ground- and tree-nesting birds to establish nests on the Project Site prior to project construction. Destruction of, or disturbance to, an active nest is prohibited. Construction activities including site mobilization, tree removal other vegetation clearing activities, grubbing, grading, and noise/vibration from the operation of heavy equipment also has the potential to result in significant direct (i.e., death or physical harm) and/or indirect (i.e., nest abandonment) impacts to nesting birds. Implementation of Mitigation Measure BIO-2 would be required to reduce potential impacts to nesting birds to a less than significant level.

b) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;*

Ruderal vegetation communities, exotic trees, and developed areas are present throughout the entirety of the Project Site. No sensitive natural vegetation communities or riparian habitat are present on the Project Site. Therefore, no impacts to riparian habitat or other sensitive natural vegetation communities are anticipated.

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;*

Impact BIO-3: Regulatory Agency Permits

A jurisdictional delineation was performed on the Project Site on June 13, 2019. An unnamed ephemeral drainage (D1) flowing north to south along the western Project Site boundary represents an aquatic feature potentially subject to the jurisdiction of the USACE, RWQCB, and/or CDFW (Attachment E-6, *Biological Resources Map* and Attachment E-8, *Current Project Site Photographs*). Implementation of Mitigation Measure BIO-3 would be required to reduce impacts to aquatic resources to a less than significant level.

d) *Interfere substantially with the movement of any native resident or migratory fish and wildlife species or with established native resident or migratory wildlife corridors, or impede the use of a native wildlife nursery site;*

The Project Site is surrounded on all sides by residential development and is not located within an established wildlife movement corridor. The Project Site is not located within a known wildlife nursery site. Thus, no impacts to wildlife species, migratory corridors, or native wildlife nursery sites are anticipated.

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

The Project will not conflict with local policies or ordinances protecting biological resources. No impacts are anticipated.

f) *Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.*

The Project Site is located within the Western Riverside County MSHCP Reche Canyon/Badlands Area Plan. The Project Site is not located within an MSHCP Criteria Area or Area Plan subunit. The Project Site does not occur within a predetermined Survey Area for narrow endemic plant species, criteria area plant species, amphibian species, or mammal species. No surveys are required for these species.

The Project Site occurs within a predetermined Survey Area for the burrowing owl. Although suitable burrowing owl habitat is present onsite in the ruderal vegetation communities, burrowing owls are not expected to occur in or around the Project Site due to the lack of suitable burrows.

The Project Site does not occur within or adjacent to an MSHCP Core, Linkage, Constrained Linkage, or Non-Contiguous Habitat Block. Therefore, an Urban/Wildland Interface analysis pursuant to Section 6.1.4 of the MSHCP is not required.

Impact BIO-4: MSHCP Riparian/Riverine Resources

The onsite drainage contains both MSHCP riparian (0.010 ac) and riverine (0.108 ac) resources pursuant to Section 6.1.2 of the MSHCP (2004) (Attachment E-6, *Biological Resources Map* and Attachment E-8, *Current Project Site Photographs*, MIG Jurisdiction Delineation Report 2020). No vernal pool resources were observed on the Project Site. Implementation of Mitigation Measure BIO-4 would be required to reduce impacts to MSHCP riparian/riverine resources to a less than significant level.

Impact BIO-5: Stephen's Kangaroo Rat Fee Area

The Project Site is located within the Stephens' kangaroo rat (SKR) HCP Fee Area which is administered by the RCHCA. Implementation of Mitigation Measure BIO-5 would be required to reduce impacts to Stephen's kangaroo rat to a less than significant level.

6.2.3 Mitigation Measures

BIO-1 Pre-Construction Burrowing Owl Survey

All project sites containing suitable burrowing owl habitat or burrows (based on Step I - Habitat Assessment) whether owls were found or not, require pre-construction surveys that shall be conducted within thirty (30) days prior to ground disturbance to avoid direct take of burrowing owls. Pre-construction surveys will follow the guidance outlined in Burrowing Owl Survey Instructions for the Western Riverside MSHCP (2006).

BIO-2: Pre-Construction Nesting Bird Survey

If vegetation removal is scheduled during the nesting season (typically February 1 to September 1), then a focused survey for active nests shall be conducted by a qualified biologist (as determined by a combination of academic training and professional experience in biological sciences and related resource management activities) no more than five (5) days prior to the beginning of project-related activities (including but not limited to equipment mobilization and staging, clearing, grubbing, vegetation removal, and grading). Surveys shall be conducted in proposed work areas, staging and storage areas, and soil, equipment, and material stockpile areas. For passerines and small raptors, surveys shall be conducted within a 250-foot radius surrounding the work area (in areas where access is feasible). For larger raptors, such as those from the genus *Buteo*, the survey area shall encompass a 500-foot radius. Surveys shall be conducted during weather conditions suited to maximize the observation of possible nests and shall concentrate on areas of suitable habitat. If a lapse in project-related work of five (5) days or longer occurs, an additional nest survey shall be required before work can be reinitiated. If nests are encountered during any preconstruction survey, a qualified biologist shall determine if it may be feasible for construction to continue as planned without impacting the success of the nest, depending on conditions specific to each nest and the relative location and rate of construction activities. If the qualified biologist determines construction activities have potential to adversely affect a nest, the biologist shall immediately inform the construction manager to halt construction activities within minimum exclusion buffer of 50 feet for songbird nests, and 200 to 500 feet for raptor nests, depending on species and location. Active nest(s) within the Project Site shall be monitored by a qualified biologist during construction if work is occurring directly adjacent to the established no-work buffer. Construction activities within the no-work buffer may proceed after a qualified biologist determines the nest is no longer active due to natural causes (e.g. young have fledged, predation, or other non-anthropogenic nest failure).

BIO-3 Regulatory Agency Permits

Based on the result of regulatory agency review, appropriate permits will be obtained prior to impacting the onsite drainage feature (D1). The discharge of dredged or fill material (temporarily or permanently) into waters of the US may require prior authorization from the USACE pursuant to Section 404 of the CWA. In addition, a Section 401 Water Quality Certification, or waiver thereof, may also be required from the RWQCB. Activities that usually involve a regulated discharge of dredged or fill materials include (but are not limited to) grading, placing of riprap for erosion control, pouring concrete, laying sod, preparing soil for planting (e.g., turning soil over, adding soil

amendments), stockpiling excavated material, mechanized removal of vegetation, and driving of piles for certain types of structures. Unlike the USACE, CDFW regulates not only the discharge of dredged or fill material into streambeds, but all activities that alter streams and lakes and their associated riparian vegetation habitats. A CDFW Section 1602 Lake and Streambed Alteration Agreement (LSAA) may be required for all activities resulting in impacts to streambeds and their associated riparian habitats

BIO-4 MSHCP Riparian/Riverine Resources

All onsite MSHCP riparian (0.010 ac) and riverine (0.108 ac) resources will be impacted as a result of project implementation. In order to mitigate to an equivalent or superior level, 0.118 acres of re-establishment credits will be purchased at the Riverpark Mitigation Bank (1:1 mitigation ratio). Due to the comparatively low biological value of the current onsite drainage (overall CRAM score = 41), this purchase will result in the re-establishment of biologically equivalent or superior MSHCP riparian/riverine resources.

BIO-5 SKR Fee Area

The Project Site is located within the Stephens' kangaroo rat (SKR) HCP Fee Area which is administered by the RCHCA. The SKR Fee is established at \$500 per acre.

7.0 REFERENCES

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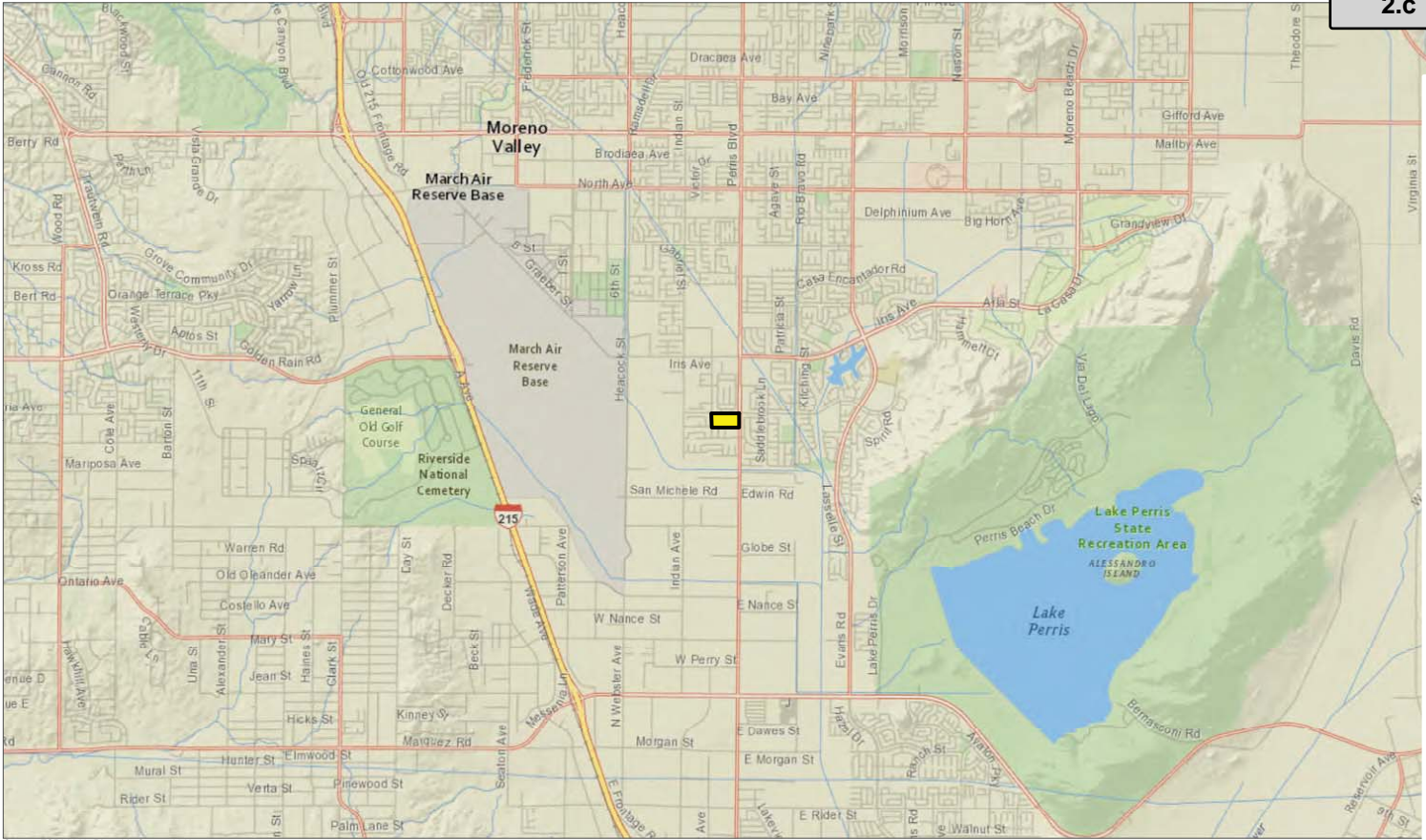
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ATTACHMENTS

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

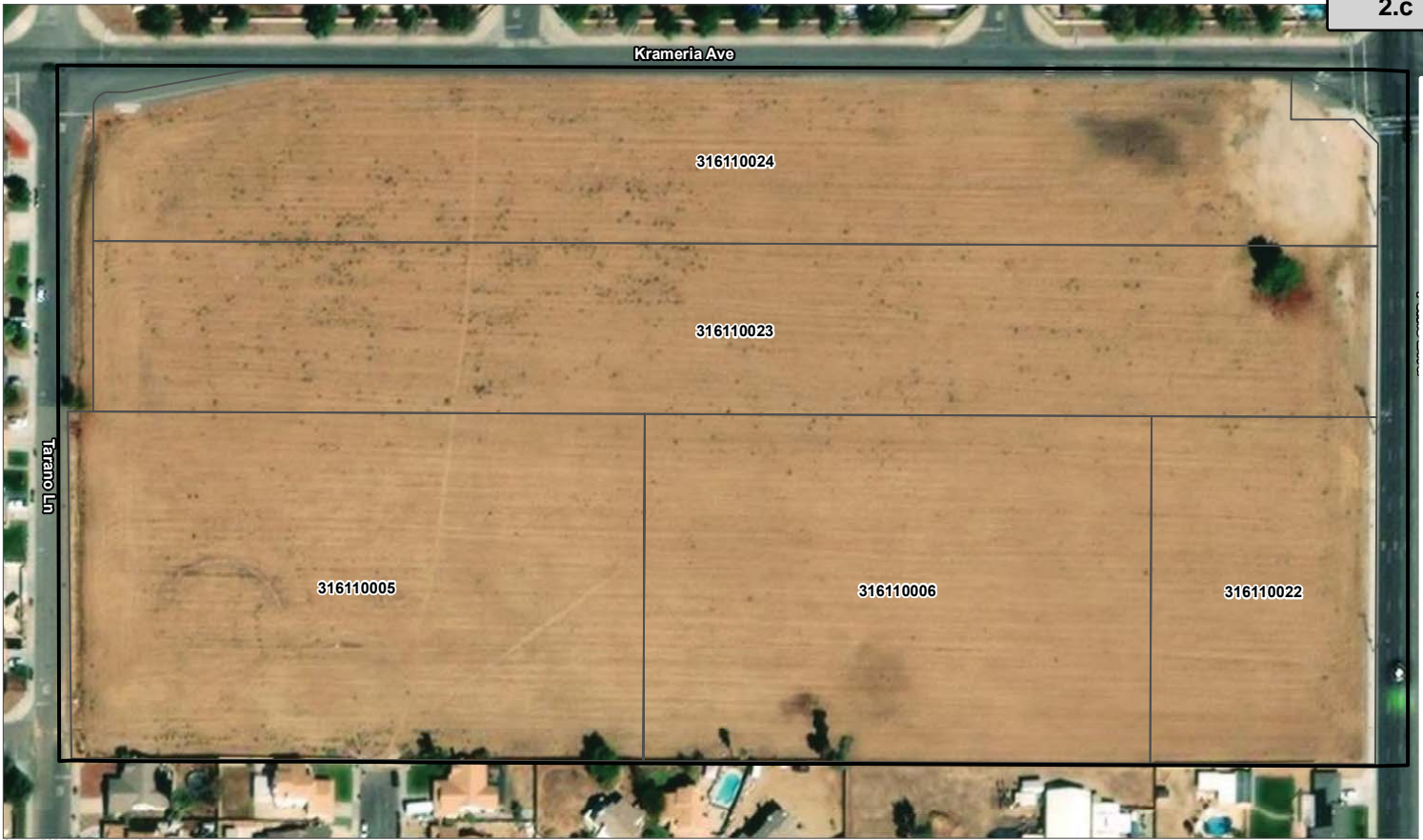


Source: ESRI 2019, Riverside County 2019



 Project Site Boundary (20.18 ac)

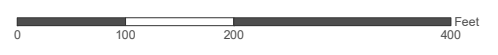


Attachment E-1 Vicinity Map
 Krameria Project Site, Moreno Valley, CA



Source: ESRI 2019, Riverside County 2019

-  Project Site Boundary (20.18 ac)
-  Parcels



Attachment E-2 Project Site Map
 Krameria Project Site, Moreno Valley, CA

BIOLOGICAL REPORT SUMMARY SHEET

(Submit two copies to the County)

Applicant Name: PI Properties no. 67, LLAssessor's Parcel Number (APN): 316-110-005, -006, -022, -023, and -024

APN cont. : _____

Site Location: Section: 30 Township: 3S Range: 3WSite Address: SE Corner of Krameria Avenue and Perris Boulevard, Moreno Valley, CA

Related Case Number(s): _____ PDB Number: _____

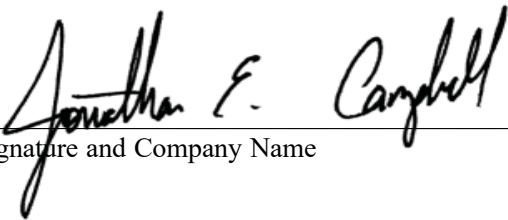
CHECK SPECIES SURVEYED FOR	SPECIES or ENVIRONMENTAL ISSUE OF CONCERN	(Circle Yes, No or N/A regarding species findings on the referenced site)		
	Arroyo Southwestern Toad	Yes	No	<input type="radio"/> N/A
X	Blueline Stream(s)	Yes	<input checked="" type="radio"/> No	N/A
	Coachella Valley Fringed-Toed Lizard	Yes	No	<input type="radio"/> N/A
	Coastal California Gnatcatcher	Yes	No	<input type="radio"/> N/A
X	Coastal Sage Scrub	Yes	<input checked="" type="radio"/> No	N/A
	Delhi Sands Flower-Loving Fly	Yes	No	<input type="radio"/> N/A
	Desert Pupfish	Yes	No	<input type="radio"/> N/A
	Desert Slender Salamander	Yes	No	<input type="radio"/> N/A
	Desert Tortoise	Yes	No	<input type="radio"/> N/A
	Flat-Tailed Horned Lizard	Yes	No	<input type="radio"/> N/A
	Least Bell's Vireo	Yes	No	<input type="radio"/> N/A
X	Oak Woodlands	Yes	No	<input type="radio"/> N/A
	Quino Checkerspot Butterfly	Yes	No	<input type="radio"/> N/A
	Riverside Fairy Shrimp	Yes	No	<input type="radio"/> N/A
	Santa Ana River Woollystar	Yes	No	<input type="radio"/> N/A
	San Bernardino Kangaroo Rat	Yes	<input checked="" type="radio"/> No	N/A
	Slender Horned Spineflower	Yes	No	<input type="radio"/> N/A
	Stephen's Kangaroo Rat	Yes	<input checked="" type="radio"/> No	N/A
	Vernal Pools	Yes	<input checked="" type="radio"/> No	N/A
X	Wetlands	Yes	<input checked="" type="radio"/> No	N/A

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

CHECK SPECIES SURVEYED FOR	SPECIES or ENVIRONMENTAL ISSUE OF CONCERN	(Circle Yes, No or N/A regarding species findings on the referenced site)		
X	Burrowing Owl	Yes	No	N/A
	Other	Yes	No	N/A
	Other	Yes	No	N/A
	Other	Yes	No	N/A
	Other	Yes	No	N/A
	Other	Yes	No	N/A
	Other	Yes	No	N/A
	Other	Yes	No	N/A
	Other	Yes	No	N/A
	Other	Yes	No	N/A
	Other	Yes	No	N/A

Species of concern shall be any unique, rare, endangered, or threatened species. It shall include species used to delineate wetlands and riparian corridors. It shall also include any hosts, perching, or food plants used by any animals listed as rare, endangered, threatened or candidate species by either State, or Federal regulations, or for Riverside County as listed by the California Department of Fish and Game Natural Diversity Data Base (NDDDB).

I declare under penalty of perjury that the information provided on this summary sheet is in accordance with the information provided in the biological report.



MIG, Inc.

September 10, 2019

Signature and Company Name

Report Date

10(a) Permit Number (if applicable)

Permit Expiration Date

County Use Only

Received by: _____ Date: _____
 PD-B# _____

LEVEL OF SIGNIFICANCE CHECKLIST
 For Biological Resources
 (Submit Two Copies)

Case Number: _____ **Lot/Parcel No.** 316-110-005, -006, -022, -023, and -024 **EA Number** _____

Wildlife & Vegetation

Potentially Significant Impact	|	Less than Significant with Mitigation Incorporated	|	Less than Significant Impact	|	No Impact
--------------------------------	--	--	--	------------------------------	--	-----------

(Check the level of impact the applies to the following questions)

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

Less than significant with Mitigation Incorporated

b) Have a substantial adverse effect, either directly or through habitat modifications, on any endangered, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12)?

Less than significant with Mitigation Incorporated

c) 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. Wildlife Service?

Less than significant with Mitigation Incorporated

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

No Impact

e) Have a substantial 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. Fish and Wildlife Service?

No Impact

f) 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?

Less than significant with Mitigation Incorporated

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

No Impact

Source: CGP Fig. VI.36-VI.40

Findings of Fact:

The 20.18 ac Project Site is located within the Western Riverside County MSHCP Reche Canyon/Badlands Area Plan. The Project Site is not located within an MSHCP Criteria Area or Area Plan subunit. The Project Site does not occur within a predetermined Survey Area for narrow endemic plant species, criteria area plant species, amphibian species, or mammal species. The Project Site occurs within a predetermined survey area for burrowing owl. A focused burrowing owl survey was undertaken on April 1, 2019 and no suitable burrows were identified onsite. At a minimum, a 14-day preconstruction burrowing owl survey and a 5-day preconstruction nesting bird survey will be required immediately prior to the initiation of construction. The Project Site is located within the Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan (HCP) Fee Area which is administered by the Riverside County Habitat Conservation Agency (RCHCA). The Project Site does not occur within or adjacent to an MSHCP Core, Linkage, or Non-Contiguous Habitat Block. An onsite drainage (D1, 0.118 ac) is subject to the potential jurisdiction of the USACE, CDFW, and RWQCB, and Riverside County RCA (Section 6.1.2 riparian and riverine resource). No MSHCP riparian or vernal pool resources were documented onsite.

Proposed Mitigation:

To Be Determined

Monitoring Recommended:

To Be Determined



Source: ESRI 2019, Riverside County 2019, USDA NRCS 2019

Project Site Boundary (20.18 ac)

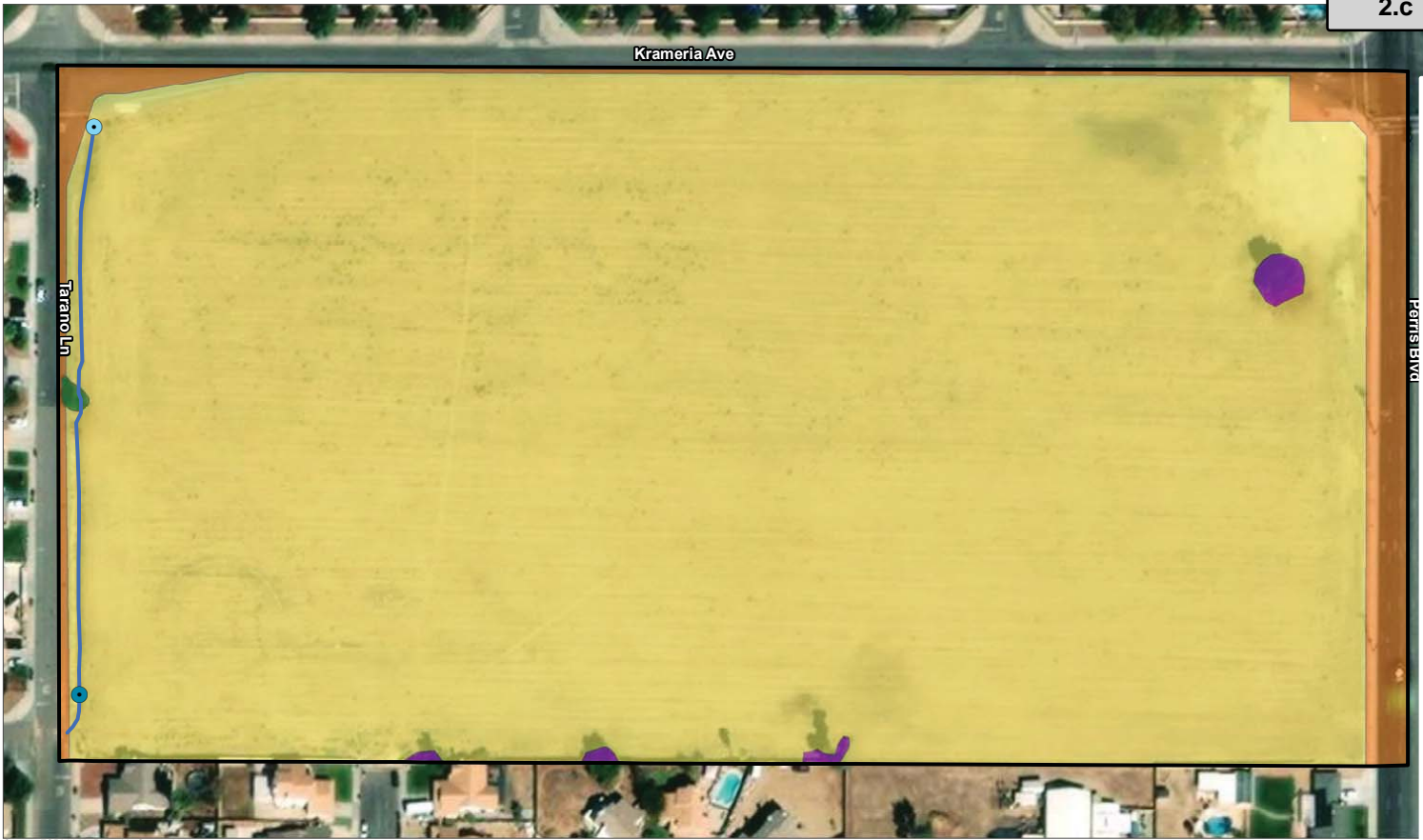
Soils

- Greenfield sandy loam, 0 to 2 percent slopes (GyA: 14.73 ac)
- Exeter sandy loam, deep, 0 to 2 percent slopes (EpA: 4.39 ac)
- Exeter sandy loam, 0 to 2 percent slopes (EnA: 0.68 ac)
- Exeter very fine sandy loam, 0 to 5 percent slopes (EwB: 0.38 ac)



Attachment E-5 Soil Map

Krameria Project Site, Moreno Valley, CA



Source: ESRI 2019, Riverside County 2019

- Project Site Boundary (20.18 ac)
- Ephemeral Drainage
- Drainage Outlet
- Drainage Inlet
- Ruderal (19.03 ac)
- Developed (1.07 ac)
- Exotic Tree (0.07 ac)
- Black Willow (0.01 ac)



Attachment E-6 Biological Resources Map
Krameria Project Site, Moreno Valley, CA



PHOTOGRAPH 1- The Project Site is dominated by non-native grasses, herbs, and other ruderal species .



PHOTOGRAPH 2 - A single Peruvian pepper tree is located in the northeast portion of the Project Site.

Attachment E-7 Current Project Site Photographs

Krameria Avenue Project Site, Moreno Valley, CA



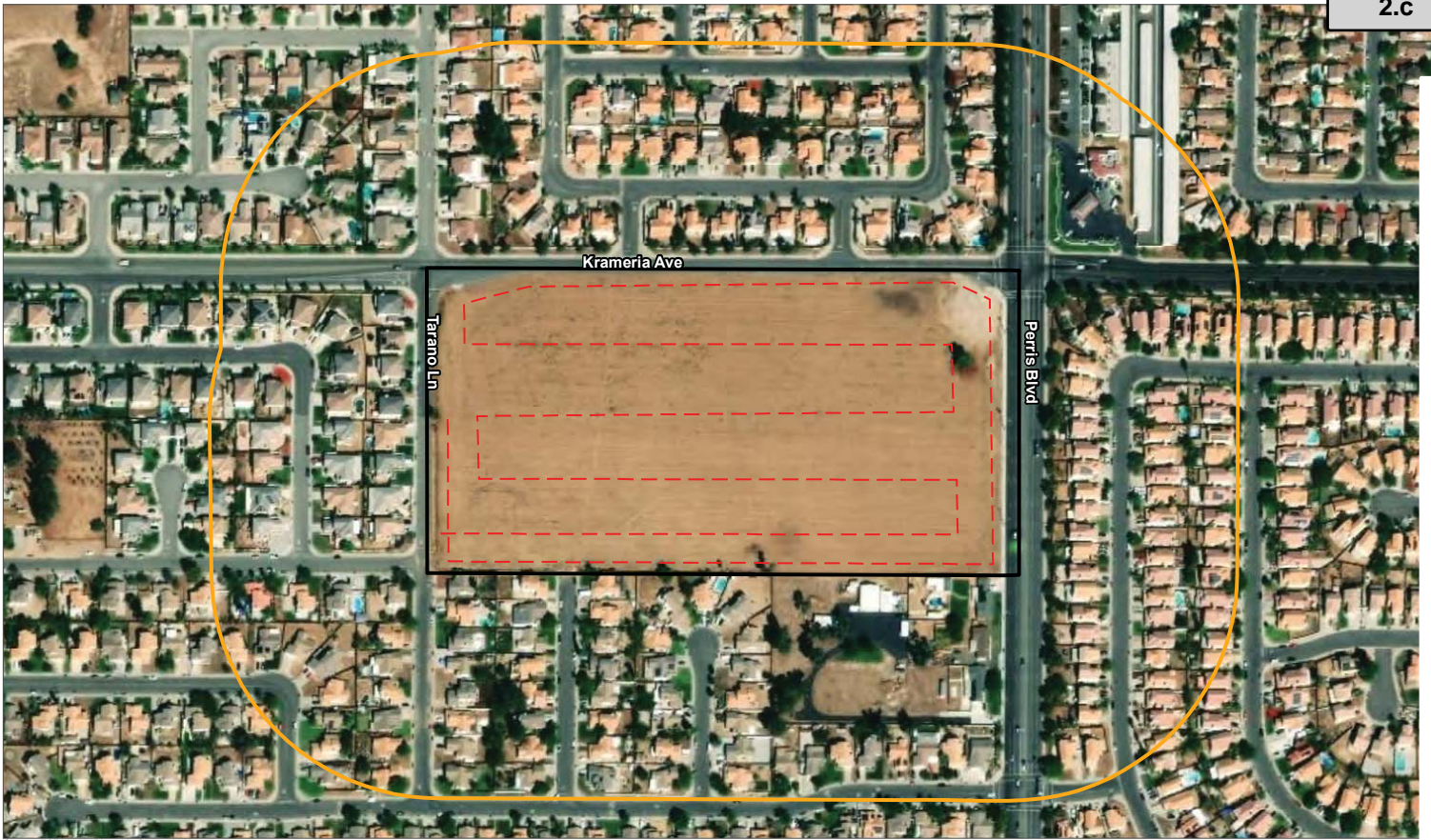
PHOTOGRAPH 3 - An unnamed drainage flows north to south along the western perimeter of the Project Site.



PHOTOGRAPH 4 - The onsite, ephemeral drainage feature is fed from a storm drain outlet at the northwest corner of the Project Site and flows south.

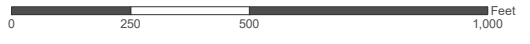
Attachment E- Current Project Site Photographs

Krameria Avenue Project Site, Moreno Valley, CA



Source: ESRI 2019, Riverside County 2019

- Project Site Boundary (20.18 ac)
- Project Site Boundary: 500 ft Buffer
- Burrowing Owl Survey Transect



Attachment E-9 Burrowing Owl Survey Map
Krameria Project Site, Moreno Valley, CA

APPENDICES

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix A
Special-Status Plant Species with Potential to Occur on the Project Site

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix A: Special Status Plant Species With Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/ MSHCP			
DICOTS						
Chaparral sand-verbena <i>Abronia villosa var. aurita</i>	--	--	1B.1/--	Occurs in chaparral, coastal scrub, desert dunes, and sandy areas.	91-650 m; Annual herb; Blooms January to September	Not Expected. The Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 4.9 miles southeast of the Project Site.
Marsh sandwort <i>Arenaria paludicola</i>	FE	SE	1B.1/--	Occurs in freshwater marsh, marsh, swamp, and wetland. Found growing up through dense mats of <i>Typha</i> , <i>Juncus</i> , and <i>Scirpus</i> in freshwater marsh habitat.	10-170 m; Perennial herb; Blooms from May to August	Not Expected. The Project Site does not contain any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 7.9 miles northwest of the Project Site.
San Diego sagewort <i>Artemisia palmeri</i>	--	--	4.2/--	Occurs in chaparral, coastal scrub, riparian forests, riparian scrub, and riparian woodland. Occurs in drainages and riparian areas in sandy soil within chaparral and other habitats.	15-915 m; Perennial deciduous shrub; Blooms from May to September.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/MSHCP			
Horn's milk-vetch <i>Astragalus hornii</i> var. <i>hornii</i>	--	--	1B.1/--	Found in meadows, seeps, playas, lake margins, and alkaline sites.	90-890 m; Annual herb; Blooms May to October	Not Expected. The Project Site does not contain any of the aquatic-adjacent habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 15.1 miles north of the Project Site.
Jaeger's milk-vetch <i>Astragalus pachypus</i> var. <i>jaegeri</i>	--	--	1B.1/COV	Occurs in coastal scrub, chaparral, valley and foothill grassland, cismontane woodlands. Found on dry ridges and valleys and open sandy slopes; often in grassland and oak-chaparral.	460-1,060 m; Shrub; Blooms December to June	Not Expected. The Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 12.5 miles east of the Project Site.
San Jacinto Valley crownscale <i>Atriplex coronata</i> var. <i>notatior</i>	FE	--	1B.1/COV	Occurs in playas, valley and foothill grassland, vernal pools, and alkaline areas in the San Jacinto River Valley.	370-480 m; Annual herb; Blooms April to August	Not Expected. The Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 5.3 miles southeast of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/MSHCP			
south coast saltscale <i>Atriplex pacifica</i>	--	--	1B.2/--	Occurs in coastal scrub, coastal bluff scrub, playas, and coastal dunes; within alkali soils.	1-400 m; Annual herb; Bloom March to October.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.
Parish's brittlescale <i>Atriplex parishii</i>	--	--	1B.1/COV	Occurs in vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils.	30-500 m; Annual herb; Blooms June to October	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 5.7 miles southeast of the Project Site.
Davidson's saltscale <i>Atriplex serenana</i> var. <i>davidsonii</i>	--	--	1B.2/COV	Coastal bluff scrub, coastal scrub. Alkaline soil.	0-470 m; Annual herb; Blooms April to October	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 5.9 miles southeast of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/ MSHCP			
Nevin's barberry <i>Berberis nevinii</i>	FE	SE	1B.1/COV	Occurs in chaparral, cismontane woodland, coastal scrub, riparian scrub and on steep, north-facing slopes or in low grade sandy washes.	290-1,575 m; Shrub; Blooms March to June	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 8.5 miles north of the Project Site.
Payson's jewelflower <i>Caulanthus simulans</i>	--	--	4.2/COV	Chaparral, coastal scrub. Frequently in burned areas, or in disturbed sites such as streambeds; also on rocky, steep slopes. Sandy, granitic soils.	190-2,190 m; Annual herb; Blooms March to May	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 8.8 miles southeast of the Project Site.
Smooth tarplant <i>Centromadia pungens</i> ssp. <i>laevis</i>	--	--	1B.1/COV	Found in valley and foothill grassland, chenopod scrub, meadows, playas, riparian woodland. Occurs in alkali meadows, alkali scrub, and also in disturbed places.	0-640 m; Annual herb; Blooms April to September	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 3.8 miles northwest of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/MSHCP			
Salt marsh bird's-beak <i>Chloropyron maritimum</i> ssp. <i>maritimum</i>	FE	SE	1B.2/--	Occurs in coastal salt marsh, coastal dunes. Limited to the higher zones of the salt marsh habitat.	0-30 m; Annual herb; Blooms May to October	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 7.9 miles northwest of the Project Site.
Peninsular spineflower <i>Chorizanthe leptotheca</i>	--	--	4.2/COV	Occurs in chaparral, coastal scrub, and lower montane coniferous forest in granitic soils and/or alluvial fans.	300-1900 m; Annual herb; Blooms May to August.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.
Parry's spineflower <i>Chorizanthe parryi</i> var. <i>parryi</i>	--	--	1B.1/COV	Occurs in coastal scrub, chaparral, cismontane woodland, valley, and foothill grassland. Found in dry slopes and flats; sometimes at interface of two vegetation types, such as chaparral and oak woodland; dry, sandy soils.	225-1,220 m; Annual herb; Blooms April to June	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 6 miles northwest of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/ MSHCP			
Long-spined spineflower <i>Chorizanthe polygonoides</i> var. <i>longispina</i>	--	--	1B.2/COV	Occurs in chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Found in gabbroic clay.	110-1,610m; Annual herb; Blooms April to July	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 4.6 miles south of the Project Site.
White-bracted spineflower <i>Chorizanthe xanti</i> var. <i>leucotheca</i>	--	--	1B.2/--	Occurs in Mojavean desert scrub, pinyon-juniper woodland, coastal scrub (alluvial fans). Found in sandy or gravelly places.	390-1,630 m; Annual herb; Blooms April to June	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 16.6 miles northeast of the Project Site.
small-flowered morning-glory <i>Convolvulus simulans</i>	--	--	4.2/COV	Occurs in chaparral, coastal scrub, and valley and foothill grassland in wet clay and serpentine ridges.	30-700 m; Annual herb; Bloom March-July.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/MSHCP			
Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>			2B.2/--	Marshes and swamps (freshwater).	15-280 m; Annual herb/vine; Blooms July to October	Not Expected. The Project Site does not contain and is far from any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 13.2 miles northwest of the Project Site.
snake cholla <i>Cylindropuntia californica</i> var. <i>californica</i>	--	--	1B.1/--	Occurs in chaparral and coastal scrub.	15-290 m; perennial stem succulent; Blooms April to May.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.
paniculate tarplant <i>Deinandra paniculate</i>	--	--	4.2/--	Occurs in coastal scrub, valley and foothill grassland, and vernal pools. Usually in vernal mesic sites. Sometimes in vernal pools or on mima mounds near them.	25-940 m; Annual herb; Blooms April to November.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/MSHCP			
Slender-horned spineflower <i>Dodecahema leptoceras</i>	FE	SE	1B.1/COV	Occurs in chaparral, cismontane woodland, coastal scrub (alluvial fan sage scrub). Found in flood deposited terraces and washes; associates include <i>Encelia</i> , <i>Dalea</i> , and <i>Lepidospartum</i> . Sandy soils.	200-760 m; Annual herb; Blooms April to June	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 12.8 miles northwest of the Project Site.
Santa Ana River woollystar <i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	FE	SE	1B.1/COV	Occurs in coastal scrub and chaparral. Found in sandy soils on river floodplains or terraced fluvial deposits.	90-610 m; Perennial herb; Blooms May to September	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 12.2 miles northwest of the Project Site.
Alvin Meadow bedstraw <i>Galium californicum</i> ssp. <i>primum</i>	--	--	1B.2/COV	Found in chaparral and lower montane coniferous forest. Grows in shade of trees and shrubs at the lower edge of the pine belt in the pine forest-chaparral ecotone. Prefers granitic, sandy soils.	1,420-1,740 m; Perennial herb; Blooms May to July	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 9.9 miles northwest of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/ MSHCP			
Palmer's grapplinghook <i>Harpagonella palmeri</i>	--	--	4.2/COV	Found in chaparral, coastal scrub, valley and foothill grassland. Occurs in clay soils and open grassy areas within shrubland.	13-1,210 m; Annual herb; Blooms March to May	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 8.6 miles southwest of the Project Site.
Los Angeles sunflower <i>Helianthus nuttallii ssp. parishii</i>	--	--	1A/--	Found in marshes and swamps (coastal salt and freshwater).	40-910 m; Perennial herb (rhizomatous); Blooms August to October	Not Expected. The Project Site does not contain and is far from any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 12.8 miles northwest of the Project Site.
Mesa horkelia <i>Horkelia cuneata var. puberula</i>	--	--	1B.1/--	Occurs in chaparral, cismontane woodland, coastal scrub. Found on sandy or gravelly sites.	70-810 m; Perennial herb; Blooms February to July	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 14.2 miles northwest of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/MSHCP			
southern California black walnut <i>Juglans californica</i>	--	--	4.2/--	Occurs in chaparral, coastal scrub, cismontane woodland, and riparian woodland. Occurs on slopes, canyons, and/or alluvial habitats.	50-900 m; Perennial deciduous tree; Blooms March to August.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.
Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	--	--	1B.1/COV	Occurs in coastal salt marshes, playas, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands.	1-1,200 m; Annual herb; Blooms February to June	Not Expected. The Project Site does not contain and is far from any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 5.4 miles southeast of the Project Site.
heart-leaved pitcher sage <i>Lepechinia cardiophylla</i>	--	--	1B.2/COV	Occurs in closed-cone coniferous forest, chaparral, and cismontane woodland.	115-1345 m; Perennial shrub; Blooms April to July.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/MSHCP			
Robinson's pepper-grass <i>Lepidium virginicum</i> var. <i>robinsonii</i>	--	--	4.3/--	Occurs in chaparral, coastal scrub. Found on dry soils and shrubland.	1-885 m; Annual herb; Blooms January to July	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 6 miles northwest of the Project Site.
Parish's desert-thorn <i>Lycium parishii</i>	--	--	2B.3/--	Occurs in coastal scrub and Sonoran desert scrub communities.	160-1,030 m; Shrub; Blooms March to April	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 16.7 miles northwest of the Project Site.
Parish's bush-mallow <i>Malacothamnus parishii</i>	--	--	1A/--	Found in chaparral, coastal sage scrub, and washes.	0-2,440; Shrub; Blooms April to July	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 11.9 miles northwest of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/MSHCP			
Hall's monardella <i>Monardella macrantha</i> ssp. <i>hallii</i>	--	--	1B.3/COV	Occurs in broadleaved upland forest, chaparral, lower montane coniferous forest, cismontane woodland, valley, and foothill grassland. Found on dry slopes and ridges in openings within the above communities.	730-2,195 m; Perennial herb; Blooms June to October	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 18.1 miles northeast of the Project Site.
Pringle's monardella <i>Monardella pringlei</i>	--	--	1A/--	Occurs in Coastal scrub communities and on sandy hills.	280-350 m; Annual herb; Blooms May to June	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 14.2 miles northwest of the Project Site.
Little mousetail <i>Myosurus minimus</i> ssp. <i>apus</i>	--	--	3.1/COV	Found in vernal pools, valley and foothill grassland. This subspecies has taxonomic problems; distinguishing between this and <i>M. sessilis</i> is difficult. Occurs in alkaline soils.	30-770 m; Annual herb; Blooms March to June	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 8.5 miles southwest of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/ MSHCP			
Mud nama <i>Nama stenocarpa</i>	--	--	2B.2/COV	Found in marshes and swamps. Occurs in lake shores, river banks, and intermittently wet areas.	Annual herb; No elevation or blooming period information available	Not Expected. The Project Site does not contain and is far from any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 9.7 miles east of the Project Site.
Gambel's water cress <i>Nasturtium gambelii</i>	FE	ST	1B.1/--	Found in marshes and swamps. Occurs in freshwater and brackish marshes at the margins of lakes and along streams, in or just above the water level.	5-780 m; Perennial herb; Blooms April to October	Not Expected. The Project Site does not contain and is far from any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 13.7 miles northwest of the Project Site.
Spreading navarretia <i>Navarretia fossalis</i>	FT	--	1B.1/--	Found in vernal pools, chenopod scrub, marshes, swamps, and playas. Occurs in San Diego hardpan and San Diego claypan vernal pools; in swales and vernal pools, often surrounded by other habitat types.	90-1,070 m; Annual herb; Blooms April to June	Not Expected. The Project Site does not contain and is far from any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 5.4 miles southeast of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/MSHCP			
Parish's gooseberry <i>Ribes divaricatum var. parishii</i>	--	--	1A/--	Found in riparian woodlands. Occurs in <i>Salix</i> swales in riparian habitats.	290-310 m; Shrub; Blooms February to April	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 16.1 miles north of the Project Site.
Coulter's matilija poppy <i>Romneya coulteri</i>	--	--	4.2/COV	Found in coastal shrub and chaparral in washes and on slopes; also after burns.	20-1200 m; Perennial rhizomatous herb; Blooms March to July.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.
Parish's rupertia <i>Rupertia rigida</i>	--	--	4.3/--	Occurs in chaparral, lower montane coniferous forest, cismontane woodland, meadows and seeps, pebble plain, and valley and foothill grassland.	700-2500 m; Perennial herb; Blooms June to August.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/MSHCP			
chaparral ragwort <i>Senecio aphanactis</i>	--	--	2B.2/--	Found in chaparral, cismontane woodland, coastal scrub; alkaline flats.	20-855 m; annual herb; blooms January-April (May)	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 7.9 miles northwest of the Project Site.
San Gabriel ragwort <i>Senecio astephanus</i>	--	--	4.3/--	Found in chaparral and coastal bluff scrub on rocky slopes.	400-1500 m; Perennial herb; Blooms May to June.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.
Parish's checkerbloom <i>Sidalcea hickmanii ssp. parishii</i>	--	Rare	1B.2/--	Found in chaparral, cismontane woodland, and lower montane coniferous forest. Occurs in disturbed burned or cleared areas on dry, rocky slopes, in fuel breaks and fire roads along the mountain summits.	1,510 to 2,010 m; Perennial herb; Blooms June to August	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 18 miles northeast of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/ MSHCP			
Salt Spring checkerbloom <i>Sidalcea neomexicana</i>	--	--	2B.2/--	Occurs on playas, chaparral, coastal scrub, lower montane coniferous forest, and Mojavean desert scrub. Found in alkali springs and marshes.	0-1,390; Perennial herb; Blooms March to June	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 12.6 miles southeast of the Project Site.
Southern jewelflower <i>Streptanthus campestris</i>	--	--	1B.3/--	Found in chaparral, lower montane coniferous forest, and pinyon-juniper woodland. Occurs in open, rocky areas.	820-2,750 m; Perennial herb; Blooms May to July	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 19.4 miles northeast of the Project Site.
San Bernardino aster <i>Symphotrichum defoliatum</i>	--	--	1B.2/--	Occurs in meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, and grassland. Found in vernal mesic grassland or near ditches, streams and springs; disturbed areas.	2-2,040 m; Perennial herb; Blooms July to November	Not Expected. The Project Site does not contain and is far from any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 9.1 miles northeast of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/ MSHCP			
Wright's trichocoronis <i>Trichocoronis wrightii</i> var. <i>wrightii</i>	--	--	2B.1/COV	Found in marshes and swamps, riparian forest, meadows, seeps, and vernal pools. Occurs in mud flats of vernal lakes, drying river beds, and alkali meadows.	10-460 m; Annual herb; Blooms May to September	Not Expected. The Project Site does not contain and is far from any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 5.1 miles southeast of the Project Site.
MONOCOTS						
Yucaipa onion <i>Allium marvinii</i>	--	--	1B.2/COV	Found in chaparral in openings in clay soils.	850-1070 m; Perennial bulbiferous herb; Blooms April to May.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.
Munz's onion <i>Allium munzii</i>	FE	ST	1B.1/COV	Found in chaparral, coastal scrub, cismontane woodland, pinyon-juniper woodland, valley and foothill grassland. Occurs in heavy clay soils; grows in grasslands and openings within shrublands or woodlands.	350-1,070 m; Perennial herb; Blooms March to May	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 7.8 miles southwest of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/MSHCP			
Thread-leaved brodiaea <i>Brodiaea filifolia</i>	FT	FE	1B.1/COV	Found in chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools. Usually associated with annual grassland and vernal pools; often surrounded by shrubland habitats. Occurs in openings on clay soils.	40-1,130 m; Perennial herb (bulb); Blooms March to June	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 6 miles southeast of the Project Site.
Plummer's mariposa-lily <i>Calochortus plummerae</i>	--	--	4.2/COV	Occurs in coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, and lower montane coniferous forest. Found on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire.	140-1,920 m; Perennial herb (bulb); Blooms May to July	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 6.8 miles northeast of the Project Site.
Bristly sedge <i>Carex comosa</i>	--	--	2B.1/--	Marshes and swamps, coastal prairie, valley and foothill grassland. Lake margins, wet places; site below sea level is on a Delta island.	270-1,030 m; Perennial grasslike herb (rhizomatous); Blooms May to September	Not Expected. The Project Site does not contain and is far from any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 12.8 miles northwest of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/ MSHCP			
vernal barley <i>Hordeum intercedens</i>	--	--	3.2/COV	Found in valley and foothill grassland, vernal pools, coastal dunes, and coastal scrub habitat within vernal pools, dry saline streambeds, and/or alkaline flats.	5-1000 m; Annual herb; Blooms March to June	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.
California satintail <i>Imperata brevifolia</i>	--	--	2B.1/--	Found in coastal scrub, chaparral, riparian scrub, Mojavean scrub, meadows, seeps (alkali), and riparian scrub.	190-1,190; Perennial grass; Blooms September to May	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 13.1 miles northeast of the Project Site.
Duran's rush <i>Juncus duranii</i>	--	--	4.3/--	Found in meadows and seeps, lower montane coniferous forest, and upper montane coniferous forest. Occurs in wet places in montane coniferous forests.	1770-2805 m; Perennial rhizomatous herb; Blooms July to August	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the inundated habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/ MSHCP			
ocellated Humboldt lily <i>Lilium humboldtii</i> ssp. <i>ocellatum</i>	--	--	4.2/COV	Found in chaparral, coastal scrub, cismontane woodland, lower montane coniferous forest, and riparian forest. Occurs in yellow-pine forest or openings, or in oak canyons.	30-1800 m; Perennial bulbiferous herb; Blooms March to July.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.
crowned muilla <i>Muilla coronate</i>	--	--	4.2/--	Found in Joshua tree woodland, pinyon and juniper woodland, Mojavean desert scrub, and chenopod scrub. Occurs mostly on barren flats and ridges in sandy, granitic soils.	670-1960 m; Perennial bulbiferous herb; Blooms March to April.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.
narrow-petaled rein orchid <i>Piperia leptopetala</i>	--	--	4.3/--	Found in cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest.	380-2225 m; Perennial herb; Blooms May to July.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/ MSHCP			
Prairie wedge grass <i>Sphenopholis obtusata</i>	--	--	2B.2/--	Occurs in cismontane woodland, meadows, and seeps. Found in open moist sites, along rivers and springs, alkaline desert seeps.	240 to 2,870 m; Perennial grass; Blooms August to July	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 11.8 miles northwest of the Project Site.
Bryophytes						
California screw moss <i>Tortula californica</i>	--	--	1B.2/--	Found in chenopod scrub, valley, and foothill grassland. Moss growing on sandy soil.	Moss; No elevation or blooming period information available	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 8.9 miles southeast of the Project Site.
Lichens						
Woven-spored lichen <i>Texosporium sancti-jacobi</i>	--	--	3/--	Found in chaparral habitats. Occurs in open sites; in California with <i>Adenostoma fasciculatum</i> , <i>Eriogonum</i> , and <i>Selaginella</i> . Found at Pinnacles, on small mammal pellets.	Lichen; No elevation or blooming period information available	Not Expected. The Project Site does not contain and is far from any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site. The nearest documented occurrence of this species is approximately 8.7 miles southwest of the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Elevation Range; Life Form; Blooming Period	Potential Occurrence in the Project Area
	Federal	State	CNPS/ MSHCP			
Ferns						
western spleenwort <i>Asplenium verpertinum</i>	--	--	4.2/--	Found in chaparral, cismontane woodland, and coastal scrub at rocky sites.	180-1000 m; Perennial rhizomatous herb; Blooms February to June.	Not Expected. Although this species occurs within the general vicinity of the Project Site, the Project Site does not contain any of the habitat types or soil types required by this species. In addition, the Project Site is regularly disked, likely precluding this species from establishing on the Project Site.
Plant Communities						
Canyon Live Oak Ravine Forest						This plant community is not present on the Project Site.
Riversidian Alluvial Fan Sage Scrub						This plant community is not present on the Project Site.
Southern Coast Live Oak Riparian Forest						This plant community is not present on the Project Site.
Southern Cottonwood Willow Riparian Forest						This plant community is not present on the Project Site.
Southern Riparian Forest						This plant community is not present on the Project Site.
Southern Riparian Scrub						This plant community is not present on the Project Site.
Southern Sycamore Alder Riparian Woodland						This plant community is not present on the Project Site.
Southern Willow Scrub						This plant community is not present on the Project Site.

Appendix A: Special Status Plant Species with Potential to Occur on the Project Site.

STATUS KEY:

Federal

FE: Federally-listed Endangered

FT: Federally-listed Threatened

State

CE: California-listed Endangered

CT: California-listed Threatened

California Native Plant Society (CNPS)

1B: Plants listed as rare, threatened, or endangered in California and elsewhere

2B: Plants rare, threatened, or endangered in California, but more common elsewhere

3: Plants about which we need more information

CNPS added a decimal threat rank to the List rank to parallel that used by the CNDDB. This extension replaces the E (Endangerment) value from the R-E-D Code. CNPS ranks therefore read like this: 1B.1, 1B.2, etc. Threat code extensions and their meanings are as follows:

- .1 – Seriously endangered in California (over 80% of occurrences threatened / high degree of immediacy of threat)
- .2 – Fairly endangered in California (20-80% occurrences threatened)
- .3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

Western Riverside Multiple Species Habitat Conservation Plan (MSHCP)

COV: MSHCP Covered Species

SOURCES:

- 1 Calflora (April 2019)
- 2 CNPS Rare and Endangered Plant Inventory (April 2019)
- 3 CDFW CNDDB (April 2019)
- 4 Western Riverside MSHCP (2004)

**Appendix B
Special-Status Wildlife Species with Potential to Occur on the Project Site**

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
INVERTEBRATES					
Crotch bumble bee <i>Bombus crotchii</i>	--	--	--	Found along coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	Not Expected. The Project Site is entirely disked, surrounded by over one mile of heavy residential and commercial development, and does not contain any flowering plants required by this species. The nearest documented occurrence of this species is approximately 4.5 miles south of the Project Site.
Busck's gallmoth <i>Carolella busckana</i>	--	--	--	Inhabits coastal dunes and coastal scrub.	Not Expected. The Project Site does not contain any of the coastal dune or coastal scrub habitat required by this species. The nearest documented occurrence of this species is approximately 11 miles north of the Project Site.
Desert cuckoo wasp <i>Ceratochrysis longimale</i>	--	--	--	No habitat information available.	Low Potential. While not much is known about this species, the Project Site provides only extremely marginal habitat for wildlife with very sparse vegetation available for invertebrates. The nearest documented occurrence of this species is approximately 9.5 miles northwest of the Project Site.
Quino checkerspot butterfly <i>Euphydryas editha quino</i>	FE	--	COV	Found within sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties. Occurs in hills and mesas near the coast and requires high densities of food plants including <i>Plantago erecta</i> , <i>P. insularis</i> , and <i>Orthocarpus purpurescens</i> .	Not Expected. The Project Site does not contain the chaparral and/or coastal sage shrublands or the food plants required by this species. The nearest documented occurrence of this species is approximately 8.5 miles southwest of the Project Site.
Delhi Sands flower-loving fly <i>Rhaphiomidas terminatus abdominalis</i>	FE	--	COV	Found only in areas of the Delhi Sands formation in southwestern San Bernardino and northwestern Riverside counties. Requires fine, sandy soils, often with wholly or partly consolidated dunes and sparse vegetation.	Not Expected. The Project Site does not contain the sandy dune habitat required by this species. The nearest documented occurrence of this species is approximately 8 miles north of the Project Site.

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
CRUSTACEANS					
Riverside fairy shrimp <i>Streptocephalus woottoni</i>	FE	--	COV	Endemic to western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	Not Expected. The Project Site does not contain any aquatic habitat required by this species and is surrounded by over one mile of heavy residential and commercial development that would preclude any inundation and/or cyst transplantation into the Project Site. The nearest documented occurrence of this species is approximately 2 miles west of the Project Site, however this occurrence is listed as possibly extirpated.
FISHES					
Santa Ana sucker <i>Catostomus santaanae</i>	FT	--	COV	Endemic to Los Angeles Basin south coastal streams. Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.	Not Expected. The Project Site does not contain any riparian habitat required by this species. The nearest documented occurrence of this species is approximately 12 miles northwest of the Project Site.
Arroyo chub <i>Gila orcuttii</i>	--	CSC	COV	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mohave and San Diego river basins. Inhabits slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	Not Expected. The Project Site does not contain any riparian habitat required by this species. The nearest documented occurrence of this species is approximately 12 miles northwest of the Project Site.
steelhead-southern California DPS <i>Oncorhynchus mykiss irideus</i> pop. 10	FE	--	--	Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Occurs in aquatic and southern coastal streams. Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	Not Expected. The Project Site does not contain any riparian habitat required by this species. The nearest documented occurrence of this species is approximately 12 miles northwest of the Project Site.

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
Santa Ana speckled dace <i>Rhinichthys osculus</i> ssp. 3	--	CSC	--	Inhabits headwaters of the Santa Ana and San Gabriel rivers. May be extirpated from the Los Angeles River system. Requires permanent flowing streams with summer water temps of 17-20 Celsius. Usually inhabits shallow cobble and gravel riffles.	Not Expected. The Project Site does not contain any riparian habitat required by this species. The nearest documented occurrence of this species is approximately 15 miles northeast of the Project Site.
AMPHIBIANS					
Southern mountain yellow-legged frog <i>Rana muscosa</i>	FE	SE, CSC	COV	Species always encountered within a few feet of water. Tadpoles may require 2 to 4 years to complete their aquatic development.	Not Expected. The Project Site does not contain any suitable aquatic habitat for this species and is surrounded by over one mile of heavy residential and commercial development. The nearest documented occurrence of this species is approximately 15.5 miles northeast of the Project Site.
Western spadefoot <i>Spea hammondi</i>	--	CSC	COV	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Not Expected. The Project Site does not contain any grassland, woodland, and/or vernal pool habitat utilized by this species. In addition, the Project Site is surrounded by over one mile of heavy residential and commercial development that precludes this species migration into the Project Site. The nearest documented occurrence of this species is approximately 3.2 miles northwest of the Project Site within a Stephen's kangaroo rat reserve.
REPTILES					
southern California legless lizard <i>Anniella stebbinsi</i>	--	CSC	--	Generally south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County.	Not Expected. The Project Site is heavily disturbed with only marginal weedy and sparse vegetation. Additionally, the Project Site is surrounded by over one mile of heavy residential and commercial development that likely precludes this species migration into the Project Site. The nearest documented occurrence of this species is approximately 6 miles northeast of the Project Site.
California glossy snake <i>Arizona elegans occidentalis</i>	--	CSC	--	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast,	Not Expected. The Project Site is heavily disturbed with only marginal weedy and sparse vegetation. Additionally, the Project

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
				Transverse, and Peninsular ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Site is surrounded by over one mile of heavy residential and commercial development that likely precludes this species migration into the Project Site from occupied habitat in the Lake Perris State Recreation Area 1.2 miles southeast of the Project Site. The nearest documented occurrence of this species is approximately 1.8 miles southeast of the Project Site.
orange-throated whiptail <i>Aspidoscelis hyperythra</i>	--	CSC	COV	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food (i.e. termites).	Not Expected. The Project Site does not contain any of the coastal scrub, chaparral, and/or valley-foothill hardwood habitats preferred by this species. Additionally, the Project Site is heavily disturbed with only marginal weedy and sparse vegetation that likely does not support this species' prey. The Project Site is also surrounded by over one mile of heavy residential and commercial development that likely precludes this species' migration into the site. The nearest documented occurrence of this species is approximately 1.5 miles southeast of the Project Site.
Coastal whiptail <i>Aspidoscelis tigris stejnegeri</i>	--	--	COV	Found in deserts and semiarid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	Not Expected. The Project Site is heavily disturbed with only marginal weedy and sparse vegetation that likely cannot support this species. Additionally, the Project Site is surrounded by over one mile of heavy residential and commercial development that likely precludes this species' migration into the site. The nearest documented occurrence of this species is approximately 3.3 miles west of the Project Site.
San Diego banded gecko <i>Coleonyx variegatus abbotti</i>	--	CSC	COV	Found in granite or rocky outcrops in coastal scrub and chaparral habitats.	Not Expected. The Project Site is far from and does not contain any granite or rocky outcrops in coastal scrub and/or chaparral habitats required for this species. The nearest documented occurrence of this species is approximately 12 miles northwest of the Project Site.

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
Red-diamond rattlesnake <i>Crotalus ruber</i>	--	CSC	COV	Inhabits chaparral, Mojavean desert scrub, and Sonoran desert scrub from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks, or surface cover objects.	Not Expected. The Project Site does not contain any of the chaparral, Mojavean desert scrub, and/or Sonoran desert scrub habitat required by this species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that likely precludes this species' migration into the site. The nearest documented occurrence of this species is approximately 1.6 miles southeast of the Project Site.
San Bernardino ringneck snake <i>Diadophis punctatus modestus</i>	--	--	--	Most common in open, relatively rocky areas. Found in somewhat moist microhabitats near intermittent streams. Avoids moving through open or barren areas by restricting movements to areas of surface litter or herbaceous vegetation.	Not Expected. The Project Site does not contain and is not near any of the moist microhabitat near intermittent streams utilized by this species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that likely precludes this species' migration into the site. The nearest documented occurrence of this species is approximately 5 miles southwest of the Project Site.
Western pond turtle <i>Emys marmorata</i>	--	CSC	--	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and sandy banks or open grassy fields up to 0.5 kilometers from the water's edge for egg-laying.	Not Expected. The Project Site does not contain and is not near the aquatic habitat required by this species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that likely precludes this species' migration into the site. The nearest documented occurrence of this species is approximately 6 miles south of the Project Site.
California mountain kingsnake (San Bernardino population) <i>Lampropeltis zonata (parvirubra)</i>	--	CSC	COV	Inhabits bigcone spruce and chaparral at lower elevations. Inhabits black oak, incense cedar, Jeffrey pine, and ponderosa pine at higher elevations. Found in well-lit canyons with rocky outcrops or rocky talus.	Not Expected. The Project Site does not contain and is far from any of the hilly and/or mountainous spruce, chaparral, black oak, cedar, or pine habitat utilized by this species. The nearest documented occurrence of this species is approximately 19.5 miles northeast of the Project Site.
Coast horned lizard <i>Phrynosoma blainvillii</i>	--	CSC	COV	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Requires open areas for sunning, bushes	Not Expected. The Project Site is heavily disturbed with only marginal weedy and sparse vegetation that likely cannot support this species. Additionally, the

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
				for cover, patches of loose soil for refuge, and abundant supply of insects.	Project Site is surrounded by over one mile of heavy residential and commercial development that likely precludes this species' migration into the site. The nearest documented occurrence of this species is approximately 1.7 miles southwest of the Project Site.
coast patch-nosed snake <i>Salvadora hexalepis virgulata</i>	--	CSC	--	Brushy or shrubby vegetation in coastal Southern California. Requires small mammal burrows for refuge and overwintering sites.	Not Expected. The Project Site does not contain the shrubby coastal habitat or small mammal burrows utilized by this species. Additionally, the Project Site is surrounded by over one mile of heavy residential and commercial development that likely precludes this species' migration into the site. The nearest documented occurrence of this species is approximately 8.7 miles northeast of the Project Site.
two-striped garter snake <i>Thamnophis hammondi</i>	--	CSC	--	Found along coastal California from vicinity of Salinas to northwest Baja California. Inhabits areas from the sea to about 7,000 feet in elevation. Highly aquatic, found in or near permanent fresh water. Often found along streams with rocky beds and riparian growth.	Not Expected. The Project Site does not contain any aquatic habitat required for this species. Additionally, the Project Site is surrounded by over one mile of heavy residential and commercial development that likely precludes this species' migration through the site. The nearest documented occurrence of this species is approximately 16 miles north of the Project Site.
BIRDS					
Cooper's hawk <i>Accipiter cooperii</i>	--	--	COV	Found in woodland, chiefly of open, interrupted or marginal type. Nests mainly in riparian growths of deciduous trees located in canyon bottoms in river flood-plains and in live oaks.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain any of the riparian and/or woodlands near aquatic habitat typically utilized by this species. There is no suitable nesting habitat for this species as vegetation is sparse and very limited, lacking the capacity to support the large structure of a raptor nest. Additionally, the Project Site is surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
Tricolored blackbird <i>Agelaius tricolor</i>	--	SCE CSC	COV	Inhabits freshwater marsh, marsh and swamp, and wetland habitats. Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	species is approximately 5 miles north of the Project Site. Not Expected (nesting), Not Expected (foraging). The Project Site lacks and is far from the aquatic habitat and adjacent upland habitat typically preferred by this species. Additionally, the Project Site is surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 5 miles northeast of the Project Site.
Southern California rufous-crowned sparrow <i>Aimophila ruficeps canescens</i>	--	--	COV	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	Not Expected (nesting), Low Potential (foraging). The Project Site lacks the coastal sage scrub, sparse mixed chaparral, and/or rocky hillside habitat typically utilized by this species. Additionally, the Project Site is surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 3.7 miles southwest of the Project Site.
Golden eagle <i>Aquila chrysaetos</i>	--	--	COV	Inhabits rolling foothills, mountain areas, sage-juniper flats, and desert. Nesting habitat includes cliff-walled canyons and large trees in open areas.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain any of the habitat typically utilized by this species. In addition, the vegetation within the Project Site cannot support the size and structure of this species' nest or the habitat required by this species typical prey (small mammals). The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 9.3 miles northwest of the Project Site within a mountainous and rural region.

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
Bell's sage sparrow <i>Artemisospiza belli belli</i>	--	--	COV	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range.	Not Expected (nesting), Not Expected (foraging). The Project Site lacks the chaparral with chamise and/or coastal sage scrub typically utilized by this species. Additionally, the Project Site is surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 5.5 miles north of the Project Site.
Long-eared owl <i>Asio otus</i>	--	CSC	--	Inhabits riparian bottomlands grown to tall willows and cottonwoods as well as belts of live oak paralleling stream courses. Requires adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain any of the habitat typically utilized by this species. In addition, the vegetation within the Project Site cannot support the size and structure of this species' nest or the habitat required by this species typical prey (small mammals). The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 8.2 miles southwest of the Project Site.
Burrowing owl <i>Athene cunicularia</i>	--	CSC	COV	Inhabits open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel (<i>Otospermophilus beecheyi</i>).	Not Expected (nesting), Low (foraging). The Project Site is regularly disked and does not contain the California ground squirrel and/or other small mammal burrows required by this species for both nesting and most foraging. If the Project Site lies fallow for enough time for rodent and/or small common reptile species to establish, this species may rarely forage within the Project Site. The nearest documented occurrence of this species is approximately 1.5 miles southeast of the Project Site.
Ferruginous hawk <i>Buteo regalis</i>	--	--	COV	Found in open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain any of the habitat typically utilized

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
				Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	by this species. In addition, the vegetation within the Project Site cannot support the size and structure of this species' nest or the habitat required by this species typical prey (small mammals).The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 5.8 miles northeast of the Project Site.
Swainson's hawk <i>Buteo swainsoni</i>	--	ST	COV	Occurs in Great Basin grassland, riparian forest, riparian woodland, valley and foothill grassland habitats. Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain any of the habitat typically utilized by this species. In addition, the vegetation within the Project Site cannot support the size and structure of this species' nest or the habitat required by this species typical prey (small mammals).The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 14 miles northeast of the Project Site, however this species is also very rare to the region of the Project Site.
Coastal cactus wren <i>Campylorhynchus brunneicapillus sandiegensis</i>	--	CSC	COV	Inhabits southern California coastal sage scrub communities. Wrens require tall opuntia cactus for nesting and roosting.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain the coastal sage scrub habitat required by this species for both nesting and foraging. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 11 miles east of the Project Site.

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FT	SE	COV	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow (<i>Salix</i> sp.) often mixed with cottonwoods (<i>Populus</i> sp.), with lower story of blackberry (<i>Rubus</i> sp.), nettles (<i>Urtica</i> sp.), or wild grape (<i>Vitis girdiana</i>).	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain and is not near the riparian habitat required by this species for both nesting and foraging. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 5.3 miles north of the Project Site.
White-tailed kite <i>Elanus leucurus</i>	--	--	COV	Inhabits rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodlands. Requires open grasslands, meadows or marshes for foraging in proximity to isolated, dense-topped trees for nesting and perching.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain any of the habitat typically utilized by this species. In addition, the vegetation within the Project Site cannot support the size and structure of this species' nest or the habitat required by this species typical prey (small mammals and/or reptiles). The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 9 miles southwest of the Project Site.
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	FE	SE	COV	Inhabits riparian and wetland thickets, generally of willow, tamarisk, or both, sometimes boxelder or Russian olive.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain and is not near the riparian or wetland habitat required by this species for both nesting and foraging. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 9.4 miles northeast of the Project Site.
California horned lark <i>Eremophila alpestris actia</i>	--	--	COV	Coastal regions, chiefly from Sonoma Co. to San Diego Co. Also main part of San Joaquin Valley & east to foothills. Short-	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain the grassland, prairie, meadows,

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
				grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	coastal plains, grain fields, and/or alkali flat habitat typically utilized by this species for both nesting and foraging. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 3.4 miles west of the Project Site.
merlin <i>Falco columbarius</i>	--	WL	COV	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands & deserts, farms & ranches. Clumps of trees or windbreaks are required for roosting in open country.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain the coastal, woodland, savannah, grassland, or agricultural habitat typically utilized by this species for nesting and foraging. In addition, the Project Site lacks vegetation large enough to support and/or protect this species while nesting. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 13.3 miles northwest of the Project Site.
Bald eagle <i>Haliaeetus leucocephalus</i>	DL	SE	COV	Ocean shore, lake margins, & rivers for both nesting & wintering. Most nests within 1 mi of water. Nests in large, old-growth, or dominant live tree w/open branches, especially ponderosa pine. Roosts communally in winter.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain any of the aquatic or aquatic-adjacent habitat typically utilized by this species for both nesting and foraging. In addition, the vegetation within the Project Site cannot support the size and structure of this species' nest or the habitat required by this species typical prey (fish).The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 8.8 miles southwest of the Project Site.

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
Yellow-breasted chat <i>Icteria virens</i>	--	CSC	COV	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain and is not near the riparian habitat required by this species for both nesting and foraging. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 5.3 miles north of the Project Site.
California black rail <i>Laterallus jamaicensis coturniculus</i>	--	ST FP	--	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain and is not near the marsh and/or wetland habitat required by this species for both nesting and foraging. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 9.5 miles northwest of the Project Site.
Loggerhead shrike <i>Lanius ludovicianus</i>	--	CSC	COV	Inhabits broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain the woodland, savannah, pinyon-juniper, Joshua tree and/or riparian woodland habitat typically utilized by this species for both nesting and foraging. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 3.2 miles west of the Project Site.
White-faced ibis <i>Plegadis chihi</i>	--	--	COV	Inhabits shallow, fresh-water marshes. Requires dense thickets for nesting interspersed with areas of shallow water for foraging.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain and is not near the marsh and/or wetland habitat required by this species for both nesting and foraging. The Project Site

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
					is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 6.4 miles east of the Project Site.
Coastal California gnatcatcher <i>Polioptila californica californica</i>	FT	CSC	COV	Obligate, permanent resident of coastal sage scrub below 2,500 feet in Southern California. Inhabits low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain and is not near any coastal sage scrub habitat required for this species for both nesting and foraging. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 4.5 miles southwest of the Project Site.
Yellow warbler <i>Setophaga petechia</i>	--	CSC	COV	Occurs in riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain and is not near any riparian, montane shrubbery, and/or conifer forest habitat typically utilized by this species for both nesting and foraging. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 9.2 miles northeast of the Project Site.
Lawrence's goldfinch <i>Spinus lawrencei</i>	--	--	--	Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding. Closely associated with oaks.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain and is not near any woodland, chaparral, and/or aquatic habitat typically utilized by this species for nesting. In addition, the Project Site has only very sparse and weedy vegetation that would not support this species' foraging. The Project Site is also surrounded by over one

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
					mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 5.3 north of the Project Site.
Least Bell's vireo <i>Vireo bellii pusillus</i>	FE	SE	COV	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways (usually <i>salix</i> , <i>baccharis</i> , <i>Prosopis</i>).	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain and is not near the riparian habitat required by this species for both nesting and foraging. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 3.2 miles west of the Project Site.
yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>	--	CSC	--	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	Not Expected (nesting), Not Expected (foraging). The Project Site does not contain and is not near the marsh and/or other aquatic habitat typically utilized by this species for both nesting and foraging. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 12.9 miles southeast of the Project Site.
MAMMALS					
Pallid bat <i>Antrozous pallidus</i>	--	CSC	--	Occurs in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Not Expected. The Project Site does not contain and is not near the desert, grassland, shrubland, woodland, and/or forests typically utilized by this species for roosting. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 11.3 miles north of the Project Site.

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
Northwestern San Diego pocket mouse <i>Chaetodipus fallax fallax</i>	--	CSC	COV	Inhabits chaparral, coastal scrub, chaparral, grasslands, and sagebrush habitats in western San Diego County. Found in sandy, herbaceous areas, usually in association with rocks or coarse gravel.	Not Expected. The Project Site does not contain and is not near the chaparral, coastal scrub, chaparral, grassland, and/or sagebrush habitat typically utilized by this species. The Project Site is also outside this species' typical range within western San Diego county. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 3.8 miles north of the Project Site.
San Bernardino kangaroo rat <i>Dipodomys merriami parvus</i>	FE	CSC	COV	Inhabits alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains.	Not Expected. The Project Site is not located and is not near alluvial scrub vegetation or sandy loam habitat typically utilized by this species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 3.4 miles west of the Project Site.
Stephens' kangaroo rat <i>Dipodomys stephensi</i>	FE	ST	COV	Inhabits primarily annual and perennial grasslands, but also occurs in coastal scrub and sagebrush with sparse canopy cover. Prefers buckwheat (<i>Eriogonum sp.</i>), chamise (<i>Adenostoma fasciculatum</i>), brome grass (<i>Bromus sp.</i>) and filaree (<i>Erodium sp.</i>). Will burrow into firm soil.	Not Expected. The Project Site does not contain the annual and/or perennial grassland, coastal scrub, and/or sagebrush habitat, or any of the preferred plant species typically utilized by this species. In addition, the Project Site is regularly disked, preventing establishment of this burrowing species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 2.2 miles west of the Project Site within the Riverside National Cemetery.
Western mastiff bat <i>Eumops perotis californicus</i>	--	CSC	--	Inhabits many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, valley and	Not Expected. The Project Site does not contain and is not near the woodland, coastal scrub valley/foothill grassland,

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
				foothill grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	and/or chaparral habitat with cliff faces, high buildings, trees, and/or tunnels typically utilized by this species for foraging and roosting. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 0.9 mile northeast of the Project Site, however the occurrence is from 29 years ago before much of the development within the general vicinity of the Project Site.
Western yellow bat <i>Lasiurus xanthinus</i>	--	CSC	--	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	Not Expected. The Project Site does not contain and is not near any of the valley foothill riparian, desert riparian, desert wash, or palm oasis habitats typically utilized by this species for roosting. The Project Site also does not contain and is not near freshwater water sources required by this species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 0.9 mile northeast of the Project Site, however the occurrence is from 29 years ago before much of the development within the general vicinity of the Project Site.
Lesser long-nosed bat <i>Leptonycteris yerbabuena</i>	FE	--	--	Found in arid regions such as desert grasslands and shrub land. Suitable day roosts (caves and mines) and suitable concentrations of food plants (columnar cacti and agaves) are critical resources. Caves and mines are used as day roosts and caves, mines, rock crevices, trees, shrubs, and abandoned buildings are used as night roosts for digesting meals.	Not Expected. The Project Site does not contain any of the roosting habitat or foraging requirements of this species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
				Nectar, pollen, and fruit eating bat; primarily feeding on agaves, saguaro, and organ pipe cactus.	species is approximately 14 miles northeast of the Project Site.
San Diego black-tailed jackrabbit <i>Lepus californicus bennettii</i>	--	CSC	COV	Found in intermediate canopy stages of shrub habitats and open shrub/herbaceous and tree/herbaceous edges. Inhabits coastal sage scrub habitats in Southern California.	Not Expected. The Project Site does not contain and is not near any of the shrub and/or coastal sage scrub habitat typically utilized by this species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 5.5 miles west of the Project Site.
San Diego desert woodrat <i>Neotoma lepida intermedia</i>	--	CSC	COV	Inhabits coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops and rocky cliffs and slopes.	Not Expected. The Project Site does not contain and is not near the coastal scrub habitat typically utilized by this species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 6.7 miles west of the Project Site.
Pocketed free-tailed bat <i>Nyctinomops femorosaccus</i>	--	CSC	--	Inhabits a variety of arid areas in Southern California, including pine-juniper woodlands, desert scrub, palm oasis, desert wash, and desert riparian. Prefers rocky areas with high cliffs.	Not Expected. The Project Site does not contain and is not near any of the woodland, scrub, palm oasis, desert wash, and/or desert riparian habitat typically utilized by this species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 1.9 miles west of the Project Site.
Southern grasshopper mouse <i>Onychomys torridus ramona</i>	--	CSC	--	Inhabits desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover.	Not Expected. The Project Site does not contain any of the scrub habitat typically utilized by this species and is regularly disked, precluding this burrowing species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

Species	Status			Habitat Requirements	Potential for Occurrence
	Federal	State	MSHCP		
					species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 3.2 miles northwest of the Project Site.
Los Angeles pocket mouse <i>Perognathus longimembris brevinasus</i>	--	CSC	COV	Inhabits lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin. Found in open ground with fine sandy soils. May not dig extensive burrows, hiding under weeds and dead leaves instead.	Not Expected. The Project Site does not contain and is not near any of the grassland and/or coastal sage habitat typically utilized by this species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. There are several nearby documented occurrences of this species, however they are from 27-29 years ago before much of the development within the general vicinity of the Project Site.
American badger <i>Taxidea taxus</i>	--	CSC	--	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not Expected. The Project Site does not have the open, uncultivated tracts of land required by this species. The Project Site is also surrounded by over one mile of heavy residential and commercial development that makes this species' migration through the site unlikely. The nearest documented occurrence of this species is approximately 5.7 miles east of the Project Site.

Appendix B: Special-Status Animal Species with Potential to Occur on the Project Site.

KEY:

(nesting and/or wintering) = For most taxa, the CNDDDB is interested in information that indicates the presence of a resident population. For some species (primarily birds), the CNDDDB only tracks certain parts of the species range or life history (e.g., nesting locations).

STATUS:

Federal

FE: Federally-listed Endangered

FT: Federally-listed Threatened

FD: Federally-delisted

State

SE: State-listed Endangered

ST: State-listed Threatened

CSC: State Species of Special Concern

WL: Watch List

FP: Fully-Protected

SCE: State-listed Candidate Endangered

MSHCP

COV: MSHCP Covered Species

SOURCES:

1 California Natural Diversity Database (CNDDDB 2019) and BIOS 5 Data Viewer were used to identify preferred habitat for each species

2 Western Riverside MSHCP (2004)

Appendix C
State and Federal Database Search Results for Special-Status Plant and Wildlife Species

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)



Selected Elements by Common Name
 California Department of Fish and Wildlife
 California Natural Diversity Database



Query Criteria: Quad (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 (Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes) AND CNPS List (1A OR 1B OR 1B.1 OR 1B.2 OR 1B.3 OR 2A OR 2B OR 2B.1 OR 2B.2 OR 2B.3 OR 3 OR 3.1 OR 3.2 OR 3.3 OR 4 OR 4.1 OR 4.2 OR 4.3)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plan Rank/CDF SSC or FP
Alvin Meadow bedstraw <i>Galium californicum ssp. primum</i>	PDRUB0N0E6	None	None	G5T2	S2	1B.2
bristly sedge <i>Carex comosa</i>	PMCYP032Y0	None	None	G5	S2	2B.1
California satintail <i>Imperata brevifolia</i>	PMPOA3D020	None	None	G4	S3	2B.1
California screw moss <i>Tortula californica</i>	NBMUS7L090	None	None	G2G3	S2S3	1B.2
chaparral ragwort <i>Senecio aphanactis</i>	PDAST8H060	None	None	G3	S2	2B.2
chaparral sand-verbena <i>Abronia villosa var. aurita</i>	PDNYC010P1	None	None	G5T2?	S2	1B.1
Coulter's goldfields <i>Lasthenia glabrata ssp. coulteri</i>	PDAST5L0A1	None	None	G4T2	S2	1B.1
Davidson's saltscale <i>Atriplex serenana var. davidsonii</i>	PDCHE041T1	None	None	G5T1	S1	1B.2
Gambel's water cress <i>Nasturtium gambelii</i>	PDBRA270V0	Endangered	Threatened	G1	S1	1B.1
Hall's monardella <i>Monardella macrantha ssp. hallii</i>	PDLAM180E1	None	None	G5T3	S3	1B.3
Horn's milk-vetch <i>Astragalus hornii var. hornii</i>	PDFAB0F421	None	None	G4G5T1T2	S1	1B.1
Jaeger's milk-vetch <i>Astragalus pachypus var. jaegeri</i>	PDFAB0F6G1	None	None	G4T1	S1	1B.1
little mousetail <i>Myosurus minimus ssp. apus</i>	PDRAN0H031	None	None	G5T2Q	S2	3.1
long-spined spineflower <i>Chorizanthe polygonoides var. longispina</i>	PDPGN040K1	None	None	G5T3	S3	1B.2
Los Angeles sunflower <i>Helianthus nuttallii ssp. parishii</i>	PDAST4N102	None	None	G5TH	SH	1A
marsh sandwort <i>Arenaria paludicola</i>	PDCAR040L0	Endangered	Endangered	G1	S1	1B.1

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plan Rank/CDF SSC or FF
mesa horkelia <i>Horkelia cuneata</i> var. <i>puberula</i>	PDR0S0W045	None	None	G4T1	S1	1B.1
mud nama <i>Nama stenocarpa</i>	PDHYD0A0H0	None	None	G4G5	S1S2	2B.2
Munz's onion <i>Allium munzii</i>	PMLIL022Z0	Endangered	Threatened	G1	S1	1B.1
Nevin's barberry <i>Berberis nevinii</i>	PDBER060A0	Endangered	Endangered	G1	S1	1B.1
Palmer's grapplinghook <i>Harpagonella palmeri</i>	PDBOR0H010	None	None	G4	S3	4.2
Parish's brittle scale <i>Atriplex parishii</i>	PDCHE041D0	None	None	G1G2	S1	1B.1
Parish's bush-mallow <i>Malacothamnus parishii</i>	PDMAL0Q0C0	None	None	GXQ	SX	1A
Parish's checkerbloom <i>Sidalcea hickmanii</i> ssp. <i>parishii</i>	PDMAL110A3	None	Rare	G3T1	S1	1B.2
Parish's desert-thorn <i>Lycium parishii</i>	PDSOL0G0D0	None	None	G3?	S1	2B.3
Parish's gooseberry <i>Ribes divaricatum</i> var. <i>parishii</i>	PDGRO020F3	None	None	G5TX	SX	1A
Parry's spineflower <i>Chorizanthe parryi</i> var. <i>parryi</i>	PDPGN040J2	None	None	G3T2	S2	1B.1
Payson's jewel flower <i>Caulanthus simulans</i>	PDBRA0M0H0	None	None	G4	S4	4.2
Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	PDCUS01111	None	None	G5T4?	SH	2B.2
Plummer's mariposa-lily <i>Calochortus plummerae</i>	PMLIL0D150	None	None	G4	S4	4.2
prairie wedge grass <i>Sphenopholis obtusata</i>	PMPOA5T030	None	None	G5	S2	2B.2
Pringle's monardella <i>Monardella pringlei</i>	PDLAM180J0	None	None	GX	SX	1A
Robinson's pepper-grass <i>Lepidium virginicum</i> var. <i>robinsonii</i>	PDBRA1M114	None	None	G5T3	S3	4.3
salt marsh bird's-beak <i>Chloropyron maritimum</i> ssp. <i>maritimum</i>	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
salt spring checkerbloom <i>Sidalcea neomexicana</i>	PDMAL110J0	None	None	G4	S2	2B.2
San Bernardino aster <i>Symphotrichum defoliatum</i>	PDASTE80C0	None	None	G2	S2	1B.2
San Jacinto Valley crown scale <i>Atriplex coronata</i> var. <i>notatior</i>	PDCHE040C2	Endangered	None	G4T1	S1	1B.1

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plan Rank/CDF SSC or FP
Santa Ana River woollystar <i>Eriastrum densifolium ssp. sanctorum</i>	PDPLM03035	Endangered	Endangered	G4T1	S1	1B.1
slender-horned spineflower <i>Dodecahema leptoceras</i>	PDPGN0V010	Endangered	Endangered	G1	S1	1B.1
smooth tarplant <i>Centromadia pungens ssp. laevis</i>	PDAST4R0R4	None	None	G3G4T2	S2	1B.1
southern jewelflower <i>Streptanthus campestris</i>	PDBRA2G0B0	None	None	G3	S3	1B.3
spreading navarretia <i>Navarretia fossalis</i>	PDPLM0C080	Threatened	None	G2	S2	1B.1
thread-leaved brodiaea <i>Brodiaea filifolia</i>	PMLIL0C050	Threatened	Endangered	G2	S2	1B.1
white-bracted spineflower <i>Chorizanthe xanti var. leucotheca</i>	PDPGN040Z1	None	None	G4T3	S3	1B.2
woven-spored lichen <i>Texosporium sancti-jacobi</i>	NLTEST7980	None	None	G3	S1	3
Wright's trichocoronis <i>Trichocoronis wrightii var. wrightii</i>	PDAST9F031	None	None	G4T3	S1	2B.1

Record Count: 46

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Query Criteria: Quad (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 (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects) AND (Endangered OR Threatened OR Proposed Endangered OR Proposed Threatened OR Candidate OR All CNDDDB element occurrences OR Delisted) OR State Listing Status (Endangered OR Threatened OR Rare OR All CNDDDB element occurrences OR Delisted OR Candidate Endangered OR Candidate Threatened))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plan Rank/CDF SSC or FP
American badger <i>Taxidea taxus</i>	AMAJF04010	None	None	G5	S3	SSC
arroyo chub <i>Gila orcuttii</i>	AFCJB13120	None	None	G2	S2	SSC
bald eagle <i>Haliaeetus leucocephalus</i>	ABNKC10010	Delisted	Endangered	G5	S3	FP
Bell's sage sparrow <i>Artemisiospiza belli belli</i>	ABPBX97021	None	None	G5T2T3	S3	WL
burrowing owl <i>Athene cunicularia</i>	ABNSB10010	None	None	G4	S3	SSC
Busck's gallmoth <i>Carolella busckana</i>	IILEM2X090	None	None	G1G3	SH	
California black rail <i>Laterallus jamaicensis coturniculus</i>	ABNME03041	None	Threatened	G3G4T1	S1	FP
California glossy snake <i>Arizona elegans occidentalis</i>	ARADB01017	None	None	G5T2	S2	SSC
California horned lark <i>Eremophila alpestris actia</i>	ABPAT02011	None	None	G5T4Q	S4	WL
California mountain kingsnake (San Bernardino population) <i>Lampropeltis zonata (parvirubra)</i>	ARADB19062	None	None	G4G5	S2?	WL
coast horned lizard <i>Phrynosoma blainvillii</i>	ARACF12100	None	None	G3G4	S3S4	SSC
coast patch-nosed snake <i>Salvadora hexalepis virgultea</i>	ARADB30033	None	None	G5T4	S2S3	SSC
coastal cactus wren <i>Campylorhynchus brunneicapillus sandiegensis</i>	ABPBG02095	None	None	G5T3Q	S3	SSC
coastal California gnatcatcher <i>Poliophtila californica californica</i>	ABPBJ08081	Threatened	None	G4G5T2Q	S2	SSC
coastal whiptail <i>Aspidoscelis tigris stejnegeri</i>	ARACJ02143	None	None	G5T5	S3	SSC

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)



Selected Elements by Common Name
 California Department of Fish and Wildlife
 California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plan Rank/CDF SSC or FP
Cooper's hawk <i>Accipiter cooperii</i>	ABNKC12040	None	None	G5	S4	WL
Crotch bumble bee <i>Bombus crotchii</i>	IIHYM24480	None	None	G3G4	S1S2	
Delhi Sands flower-loving fly <i>Rhaphiomidas terminatus abdominalis</i>	IIDIP05021	Endangered	None	G1T1	S1	
Desert cuckoo wasp <i>Ceratochrysis longimala</i>	IIHYM71040	None	None	G1	S1	
ferruginous hawk <i>Buteo regalis</i>	ABNKC19120	None	None	G4	S3S4	WL
golden eagle <i>Aquila chrysaetos</i>	ABNKC22010	None	None	G5	S3	FP
Lawrence's goldfinch <i>Spinus lawrencei</i>	ABPBY06100	None	None	G3G4	S3S4	
least Bell's vireo <i>Vireo bellii pusillus</i>	ABPBW01114	Endangered	Endangered	G5T2	S2	
lesser long-nosed bat <i>Leptonycteris yerbabuena</i>	AMACB03030	Delisted	None	G4	S1	
loggerhead shrike <i>Lanius ludovicianus</i>	ABPBR01030	None	None	G4	S4	SSC
long-eared owl <i>Asio otus</i>	ABNSB13010	None	None	G5	S3?	SSC
Los Angeles pocket mouse <i>Perognathus longimembris brevinasus</i>	AMAFD01041	None	None	G5T1T2	S1S2	SSC
merlin <i>Falco columbarius</i>	ABNKD06030	None	None	G5	S3S4	WL
northwestern San Diego pocket mouse <i>Chaetodipus fallax fallax</i>	AMAFD05031	None	None	G5T3T4	S3S4	SSC
orange-throated whiptail <i>Aspidoscelis hyperythra</i>	ARACJ02060	None	None	G5	S2S3	WL
pallid bat <i>Antrozous pallidus</i>	AMACC10010	None	None	G5	S3	SSC
pocketed free-tailed bat <i>Nyctinomops femorosaccus</i>	AMACD04010	None	None	G4	S3	SSC
quino checkerspot butterfly <i>Euphydryas editha quino</i>	IILEPK405L	Endangered	None	G5T1T2	S1S2	
red-diamond rattlesnake <i>Crotalus ruber</i>	ARADE02090	None	None	G4	S3	SSC
Riverside fairy shrimp <i>Streptocephalus woottoni</i>	ICBRA07010	Endangered	None	G1G2	S1S2	
San Bernardino kangaroo rat <i>Dipodomys merriami parvus</i>	AMAFD03143	Endangered	None	G5T1	S1	SSC

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plan Rank/CDF SSC or FP
San Bernardino ringneck snake <i>Diadophis punctatus modestus</i>	ARADB10015	None	None	G5T2T3	S2?	
San Diego banded gecko <i>Coleonyx variegatus abbotti</i>	ARACD01031	None	None	G5T3T4	S1S2	SSC
San Diego black-tailed jackrabbit <i>Lepus californicus bennettii</i>	AMAEB03051	None	None	G5T3T4	S3S4	SSC
San Diego desert woodrat <i>Neotoma lepida intermedia</i>	AMAFF08041	None	None	G5T3T4	S3S4	SSC
Santa Ana speckled dace <i>Rhinichthys osculus ssp. 3</i>	AFCJB3705K	None	None	G5T1	S1	SSC
Santa Ana sucker <i>Catostomus santaanae</i>	AFCJC02190	Threatened	None	G1	S1	
southern California legless lizard <i>Anniella stebbinsi</i>	ARACC01060	None	None	G3	S3	SSC
southern California rufous-crowned sparrow <i>Aimophila ruficeps canescens</i>	ABPBX91091	None	None	G5T3	S3	WL
southern grasshopper mouse <i>Onychomys torridus ramona</i>	AMAFF06022	None	None	G5T3	S3	SSC
southern mountain yellow-legged frog <i>Rana muscosa</i>	AAABH01330	Endangered	Endangered	G1	S1	WL
southwestern willow flycatcher <i>Empidonax traillii extimus</i>	ABPAE33043	Endangered	Endangered	G5T2	S1	
steelhead - southern California DPS <i>Oncorhynchus mykiss irideus pop. 10</i>	AFCHA0209J	Endangered	None	G5T1Q	S1	
Stephens' kangaroo rat <i>Dipodomys stephensi</i>	AMAFD03100	Endangered	Threatened	G2	S2	
Swainson's hawk <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S3	
tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
two-striped gartersnake <i>Thamnophis hammondi</i>	ARADB36160	None	None	G4	S3S4	SSC
western mastiff bat <i>Eumops perotis californicus</i>	AMACD02011	None	None	G5T4	S3S4	SSC
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC
western spadefoot <i>Spea hammondi</i>	AAABF02020	None	None	G3	S3	SSC
western yellow bat <i>Lasiurus xanthinus</i>	AMACC05070	None	None	G5	S3	SSC
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	ABNRB02022	Threatened	Endangered	G5T2T3	S1	

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plan Rank/CDF SSC or FP
white-faced ibis <i>Plegadis chihi</i>	ABNGE02020	None	None	G5	S3S4	WL
white-tailed kite <i>Elanus leucurus</i>	ABNKC06010	None	None	G5	S3S4	FP
yellow warbler <i>Setophaga petechia</i>	ABPBX03010	None	None	G5	S3S4	SSC
yellow-breasted chat <i>Icteria virens</i>	ABPBX24010	None	None	G5	S3	SSC
yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 62

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Plant List

Inventory of Rare and Endangered Plants

63 matches found. [Click on scientific name for details](#)

Search Criteria

Found in Quads 3411713, 3411712, 3411711, 3311783, 3311782, 3311781, 3311773 3311772 and 3311771;

[Modify Search Criteria](#)
[Export to Excel](#)
[Modify Columns](#)
[Modify Sort](#)
[Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Abronia villosa var. aurita	chaparral sand-verbena	Nyctaginaceae	annual herb	(Jan)Mar-Sep	1B.1	S2	G5T2?
Allium marvinii	Yucaipa onion	Alliaceae	perennial bulbiferous herb	Apr-May	1B.2	S1	G1
Allium munzii	Munz's onion	Alliaceae	perennial bulbiferous herb	Mar-May	1B.1	S1	G1
Arenaria paludicola	marsh sandwort	Caryophyllaceae	perennial stoloniferous herb	May-Aug	1B.1	S1	G1
Artemisia palmeri	San Diego sagewort	Asteraceae	perennial deciduous shrub	(Feb)May-Sep	4.2	S3?	G3?
Asplenium vespertinum	western spleenwort	Aspleniaceae	perennial rhizomatous herb	Feb-Jun	4.2	S4	G4
Astragalus hornii var. hornii	Horn's milk-vetch	Fabaceae	annual herb	May-Oct	1B.1	S1	G4G5T1T2
Astragalus pachypus var. jaegeri	Jaeger's bush milk-vetch	Fabaceae	perennial shrub	Dec-Jun	1B.1	S1	G4T1
Atriplex coronata var. notatior	San Jacinto Valley crowscale	Chenopodiaceae	annual herb	Apr-Aug	1B.1	S1	G4T1
Atriplex pacifica	South Coast saltscale	Chenopodiaceae	annual herb	Mar-Oct	1B.2	S2	G4
Atriplex parishii	Parish's brittle scale	Chenopodiaceae	annual herb	Jun-Oct	1B.1	S1	G1G2
Atriplex serenana var. davidsonii	Davidson's saltscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S1	G5T1
Berberis nevinii	Nevin's barberry	Berberidaceae	perennial evergreen shrub	(Feb)Mar-Jun	1B.1	S1	G1
Brodiaea filifolia	thread-leaved brodiaea	Themidaceae	perennial bulbiferous herb	Mar-Jun	1B.1	S2	G2
Calochortus plummerae	Plummer's mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	4.2	S4	G4
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	2B.1	S2	G5
Caulanthus simulans	Payson's jewelflower	Brassicaceae	annual herb	(Feb)Mar-May(Jun)	4.2	S4	G4
	smooth tarplant	Asteraceae	annual herb	Apr-Sep	1B.1	S2	G3G4T2

<u>Centromadia pungens ssp. laevis</u>								
<u>Chloropyron maritimum ssp. maritimum</u>	salt marsh bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct(Nov)	1B.2	S1	G4?T1	
<u>Chorizanthe leptotheca</u>	Peninsular spineflower	Polygonaceae	annual herb	May-Aug	4.2	S3	G3	
<u>Chorizanthe parryi var. parryi</u>	Parry's spineflower	Polygonaceae	annual herb	Apr-Jun	1B.1	S2	G3T2	
<u>Chorizanthe polygonoides var. longispina</u>	long-spined spineflower	Polygonaceae	annual herb	Apr-Jul	1B.2	S3	G5T3	
<u>Chorizanthe xanti var. leucotheca</u>	white-bracted spineflower	Polygonaceae	annual herb	Apr-Jun	1B.2	S3	G4T3	
<u>Convolvulus simulans</u>	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	4.2	S4	G4	
<u>Cuscuta obtusiflora var. glandulosa</u>	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	Jul-Oct	2B.2	SH	G5T4?	
<u>Cylindropuntia californica var. californica</u>	snake cholla	Cactaceae	perennial stem succulent	Apr-May	1B.1	S1	G3T2	
<u>Deinandra paniculata</u>	paniculate tarplant	Asteraceae	annual herb	(Mar)Apr-Nov(Dec)	4.2	S4	G4	
<u>Dodecahema leptoceras</u>	slender-horned spineflower	Polygonaceae	annual herb	Apr-Jun	1B.1	S1	G1	
<u>Eriastrum densifolium ssp. sanctorum</u>	Santa Ana River woollystar	Polemoniaceae	perennial herb	Apr-Sep	1B.1	S1	G4T1	
<u>Galium californicum ssp. primum</u>	Alvin Meadow bedstraw	Rubiaceae	perennial herb	May-Jul	1B.2	S2	G5T2	
<u>Harpagonella palmeri</u>	Palmer's grapplinghook	Boraginaceae	annual herb	Mar-May	4.2	S3	G4	
<u>Helianthus nuttallii ssp. parishii</u>	Los Angeles sunflower	Asteraceae	perennial rhizomatous herb	Aug-Oct	1A	SH	G5TH	
<u>Hordeum intercedens</u>	vernal barley	Poaceae	annual herb	Mar-Jun	3.2	S3S4	G3G4	
<u>Horkelia cuneata var. puberula</u>	mesa horkelia	Rosaceae	perennial herb	Feb-Jul(Sep)	1B.1	S1	G4T1	
<u>Imperata brevifolia</u>	California satintail	Poaceae	perennial rhizomatous herb	Sep-May	2B.1	S3	G4	
<u>Juglans californica</u>	Southern California black walnut	Juglandaceae	perennial deciduous tree	Mar-Aug	4.2	S4	G4	
<u>Juncus duranii</u>	Duran's rush	Juncaceae	perennial rhizomatous herb	Jul-Aug	4.3	S3	G3	
<u>Lasthenia glabrata ssp. coulteri</u>	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	1B.1	S2	G4T2	
<u>Lepechinia cardiophylla</u>	heart-leaved pitcher sage	Lamiaceae	perennial shrub	Apr-Jul	1B.2	S2S3	G3	
<u>Lepidium virginicum var. robinsonii</u>	Robinson's pepper-grass	Brassicaceae	annual herb	Jan-Jul	4.3	S3	G5T3	
<u>Lilium humboldtii ssp. ocellatum</u>	ocellated Humboldt lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	4.2	S4?	G4T4?	
<u>Malacothamnus parishii</u>	Parish's bush-mallow	Malvaceae	perennial deciduous shrub	Jun-Jul	1A	SX	GXQ	

Monardella macrantha ssp. hallii	Hall's monardella	Lamiaceae	perennial rhizomatous herb	Jun-Oct	1B.3	S3	G5T3
Monardella pringlei	Pringle's monardella	Lamiaceae	annual herb	May-Jun	1A	SX	GX
Muilla coronata	crowned muilla	Themidaceae	perennial bulbiferous herb	Mar-Apr(May)	4.2	S3	G3
Myosurus minimus ssp. apus	little mousetail	Ranunculaceae	annual herb	Mar-Jun	3.1	S2	G5T2Q
Nama stenocarpa	mud nama	Namaceae	annual / perennial herb	Jan-Jul	2B.2	S1S2	G4G5
Nasturtium gambelii	Gambel's water cress	Brassicaceae	perennial rhizomatous herb	Apr-Oct	1B.1	S1	G1
Navarretia fossalis	spreading navarretia	Polemoniaceae	annual herb	Apr-Jun	1B.1	S2	G2
Piperia leptopetala	narrow-petaled rein orchid	Orchidaceae	perennial herb	May-Jul	4.3	S4	G4
Ribes divaricatum var. parishii	Parish's gooseberry	Grossulariaceae	perennial deciduous shrub	Feb-Apr	1A	SX	G5TX
Romneya coulteri	Coulter's matilija poppy	Papaveraceae	perennial rhizomatous herb	Mar-Jul(Aug)	4.2	S4	G4
Rupertia rigida	Parish's rupertia	Fabaceae	perennial herb	Jun-Aug	4.3	S4	G4
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
Senecio astephanus	San Gabriel ragwort	Asteraceae	perennial herb	May-Jul	4.3	S3	G3
Sidalcea hickmanii ssp. parishii	Parish's checkerbloom	Malvaceae	perennial herb	(May)Jun-Aug	1B.2	S1	G3T1
Sidalcea neomexicana	salt spring checkerbloom	Malvaceae	perennial herb	Mar-Jun	2B.2	S2	G4
Sphenopholis obtusata	prairie wedge grass	Poaceae	perennial herb	Apr-Jul	2B.2	S2	G5
Streptanthus campestris	southern jewelflower	Brassicaceae	perennial herb	(Apr)May-Jul	1B.3	S3	G3
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov(Dec)	1B.2	S2	G2
Texosporium sancti-jacobi	woven-spored lichen	Caliciaceae	crustose lichen (terricolous)		3	S1	G3
Tortula californica	California screw-moss	Pottiaceae	moss		1B.2	S2S3	G2G3
Trichocoronis wrightii var. wrightii	Wright's trichocoronis	Asteraceae	annual herb	May-Sep	2B.1	S1	G4T3

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IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Riverside County, California



Local office

Carlsbad Fish And Wildlife Office

☎ (760) 431-9440

📠 (760) 431-5901

2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385

<http://www.fws.gov/carlsbad/>

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME

STATUS

San Bernardino Merriam's Kangaroo Rat *Dipodomys merriami parvus* Endangered
 There is **final** critical habitat for this species. Your location is outside the critical habitat.
<https://ecos.fws.gov/ecp/species/2060>

Stephens' Kangaroo Rat *Dipodomys stephensi* (incl. *D. cascus*) Endangered
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/3495>

Birds

NAME	STATUS
Coastal California Gnatcatcher <i>Poliophtila californica californica</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo <i>Vireo bellii pusillus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered

Crustaceans

NAME	STATUS
Riverside Fairy Shrimp <i>Streptocephalus woottoni</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8148	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
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<p>Nevin's Barberry <i>Berberis nevinii</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8025</p>	Endangered
<p>San Diego Ambrosia <i>Ambrosia pumila</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8287</p>	Endangered
<p>San Jacinto Valley Crownscale <i>Atriplex coronata</i> var. <i>notatior</i> There is final critical habitat for this species. However, no <i>actual</i> acres or miles were designated due to exemptions and/or exclusions. See Federal Register publication for details. https://ecos.fws.gov/ecp/species/4353</p>	Endangered
<p>Santa Ana River Woolly-star <i>Eriastrum densifolium</i> ssp. <i>sanctorum</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6575</p>	Endangered
<p>Spreading Navarretia <i>Navarretia fossalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1334</p>	Threatened
<p>Thread-leaved Brodiaea <i>Brodiaea filifolia</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6087</p>	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

<p>Burrowing Owl <i>Athene cunicularia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737</p>	Breeds Mar 15 to Aug 31
<p>Common Yellowthroat <i>Geothlypis trichas sinuosa</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084</p>	Breeds May 20 to Jul 31
<p>Costa's Hummingbird <i>Calypte costae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470</p>	Breeds Jan 15 to Jun 10
<p>Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680</p>	Breeds Jan 1 to Aug 31
<p>Lawrence's Goldfinch <i>Carduelis lawrencei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464</p>	Breeds Mar 20 to Sep 20
<p>Nuttall's Woodpecker <i>Picoides nuttallii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410</p>	Breeds Apr 1 to Jul 20
<p>Song Sparrow <i>Melospiza melodia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Feb 20 to Sep 5
<p>Spotted Towhee <i>Pipilo maculatus clementae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4243</p>	Breeds Apr 15 to Jul 20

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ

“Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

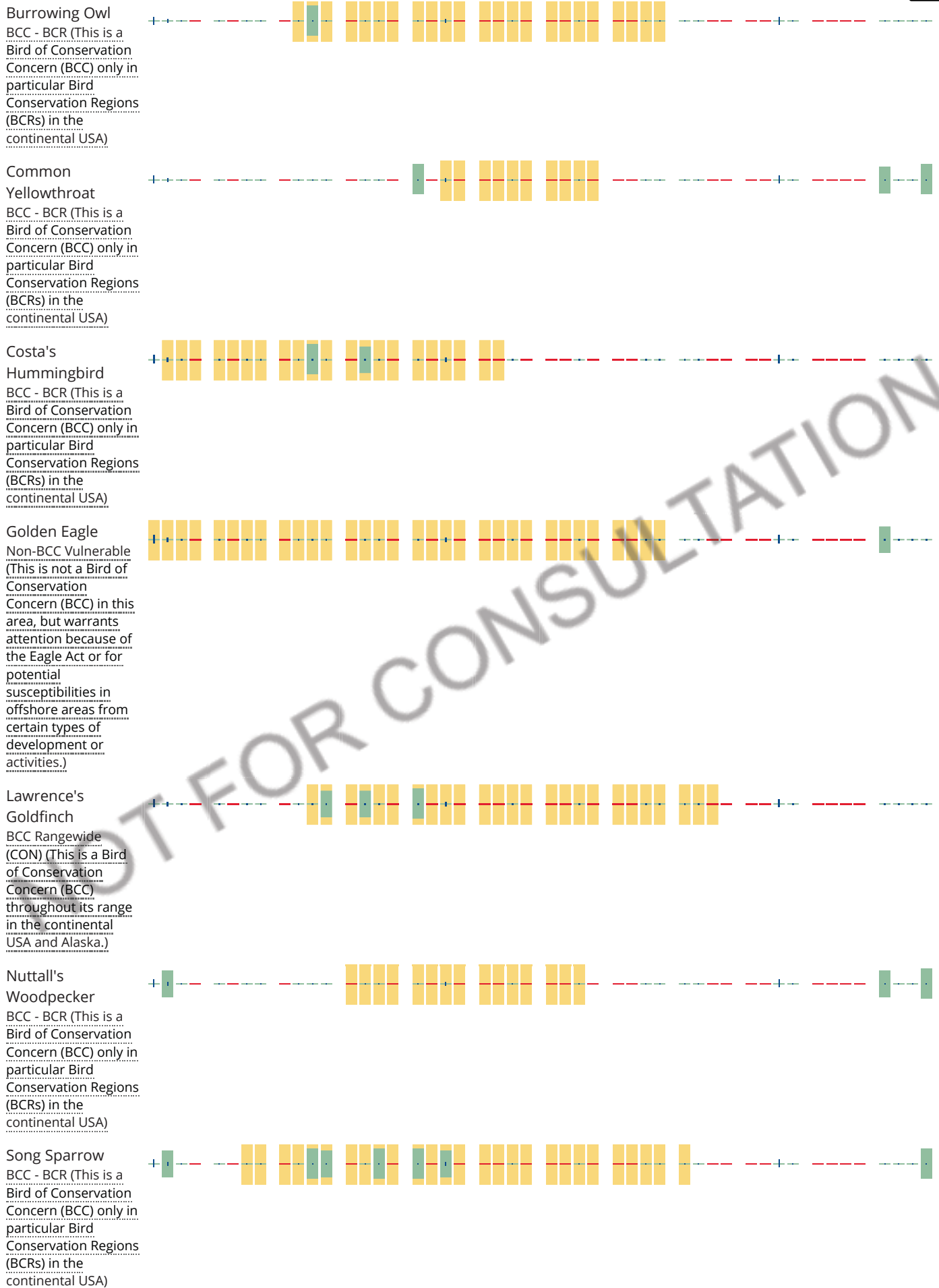
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort — no data

SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC



Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Spotted Towhee
 BCC - BCR (This is a
 Bird of Conservation
 Concern (BCC) only in
 particular Bird
 Conservation Regions
 (BCRs) in the
 continental USA)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Determination of Biologically Equivalent or Superior Preservation Report

Krameria Avenue Project Site

City of Moreno Valley, Western Riverside County, California



Applicant:

PI Properties No. 67 LLC
610 North Santa Anita Avenue
Arcadia, CA 91006

Consultant:

MIG
109 West Union Avenue
Fullerton, CA 92832



January 2020

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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Appendices

Appendix A General Biological Resource Assessment

Appendix B Jurisdictional Delineation Report

Appendix C CRAM Report

1.0 EXECUTIVE SUMMARY

This document presents the results of a Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) Determination of Biologically Equivalent or Superior Preservation (DBESP) analysis conducted for the Krameria Avenue Project Site as required under MSHCP (2004) Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*. This document is informed by the December 11, 2019 pre-application meeting with the Western Riverside County Regional Conservation Authority (RCA) and participating regulatory agencies.

All onsite MSHCP riparian (0.010 ac) and riverine (0.108 ac) resources will be impacted as a result of project implementation. In order to mitigate to an equivalent or superior level, 0.118 acres of re-establishment credits will be purchased at the Riverpark Mitigation Bank (1:1 mitigation ratio). Due to the low biological value of current onsite drainage (overall CRAM score = 41), this purchase will result in the re-establishment of biologically superior riparian/riverine resources.

2.0 INTRODUCTION

2.1 Project Area

The 20.18-acre Project Site is located in the City of Moreno Valley, Riverside County, California and includes Assessor Parcel Numbers (APNs) 316-110-005, -006, -022, -023, and -024. The Project Site is located south of Krameria Avenue, east of Tarano Lane, and west of Perris Boulevard (Figure 1, *Vicinity Map* and Figure 2, *Project Site Map*). The Project Site occurs within the United States Geological Survey (USGS) 7.5' series Sunnymead Quadrangle, Township 3S, Range 3W, Section 30 and is located within the Lower San Jacinto River watershed (HUC 1807020203).

The Project Site is located within the Western Riverside County MSHCP Reche Canyon/Badlands Area Plan and occurs within a predetermined survey area for burrowing owl (*Athene cunicularia*). The Project Site is not located within an MSHCP criteria area or area plan subunit. Therefore, an MSHCP Habitat Evaluation and Acquisition Negotiation Strategy (HANS) and Joint Project Review (JPR) will not be required. The Project Site does not occur within or adjacent to an MSHCP Core, Linkage, Constrained Linkage, or Non-Contiguous Habitat Block. The Project Site does not occur within an MSHCP predetermined survey area for narrow endemic plants, criteria area plants, mammals, or amphibians.

A review of historical aerial photography indicate that the Project Site and environs were agriculture in 1966 (Figure 3, *Historical Aerial Photographs*). By 1997, residential land uses had nearly enveloped the Project Site. Currently, the Project Site is relatively flat, with elevations ranging between approximately 1,480-1,490 feet above mean sea level (AMSL). Residential land use borders the Project Site on all sides. An unnamed, ephemeral drainage flows north to south along the western boundary of the Project Site.

2.2 Project Description

The Project Site is approximately 20.18 acres and is currently vacant. The project includes the subdivision of the Project Site into sixty-six (66) single-family residential lots ranging in size from 7,212 square feet to 15,950 square feet. (Figure 2, *Project Site Map*). The Project also includes one (1) lettered lot at the southwest corner of the site, which would be designated for future use as an infiltration basin. The MSHCP riverine resource onsite drains into this basin. Access to the Project Site would be provided via a 35-foot

wide driveway on Krameria Avenue just west of Perris Boulevard, and via the extension of the existing Kettenburg Lane on the south side of the site. Interior circulation will be provided via a roadway connecting both site access points. The Project will also include landscape and utility easements, street and sidewalk improvements, drainage improvements, and a six-foot high block wall around the entire site. The proposed project will connect to existing water, sanitary sewer, electricity, and gas facilities. Water and sewer service is provided by the Eastern Municipal Water District. Electricity would be provided by Moreno Valley Electric Utility and natural gas will be provided by the Southern California Gas Company. Utility undergrounding would be required.

All 20.18 acres of the Project Site, including all 0.118 acres of MSHCP riparian/riverine resources, will be permanently impacted as a result of project activities. Currently, the entire Project Site is characterized by highly disturbed vegetation communities and exotic species (Section 2.3.2). The episodic drainage that flows along the western Project Site boundary is similarly dominated by non-native plant species. No sensitive vegetation communities occur onsite and no onsite preservation is warranted or proposed. Therefore, there are no alternatives to the proposed project design.

Project-proponents engaged in a pre-application meeting with the Regional Conservation Authority (RCA) and regulatory agency officials (USACE, CDFW, RWQCB) on December 11, 2019. During this meeting, the USACE indicated that they will not be taking jurisdiction over the onsite drainage (D1) due to its characterization as an ephemeral feature that flows only in response to rainfall.

2.3 Existing Conditions

Survey and reports completed to date for the Project Site are listed in Table 1, *Survey History*. The Project Site is flat with elevations ranging between 1,480 to 1,490 feet AMSL (Figure 2, *Project Site Map*). The Project Site is regularly disked, although ruderal vegetation was growing robustly during the April 1, 2019 habitat assessment survey (Appendix A, *General Biological Resource Assessment*). Residential land uses border the Project Site on all sides. An unnamed, ephemeral drainage flows north to south along the western boundary of the Project Site.

Table 1. Survey History

Survey	Survey Date
General Biological Resource Assessment	April 2019
Focused Burrowing Owl Survey (Phase I and Phase II)	April 2019
Jurisdictional Delineation	June 2019
CRAM Analysis	August 2019

2.3.1 Soils

The Web Soil Survey reports the following soils within the boundary of the 20.18-acre Project Site, as shown on Figure 4, *Soil Map* (USDA NRCS 2019):

- Greenfield sandy loam, 0 to 2 percent slopes (GyA: 14.73 ac)
- Exeter sandy loam, deep, 0 to 2 percent slopes (EpA: 4.39 ac)
- Exeter sandy loam, 0 to 2 percent slopes (EnA: 0.68 ac)
- Exeter very fine sandy loam, 0 to 5 percent slopes (EwB: 0.38 ac)

2.3.2 Vegetation Communities

Vegetation communities observed onsite during the April 1, 2019 habitat assessment survey are described in detail below and depicted in Figure 5, *Vegetation Community Map* (Appendix A, *General Biological Resource Assessment*). No sensitive natural communities are present onsite. Project-related construction activities will permanently impact all onsite vegetation communities (Table 2, *Vegetation Community Impacts*).

Ruderal (19.03 acres)

The Project Site is regularly disked and is currently dominated by ruderal species that have arisen following recent winter and spring rains. The Project Site is dominated by non-native annual herbs and grasses including foxtail barley (*Hordeum murinum*), wild oats (*Avena fatua*), red brome (*Bromus madritensis* ssp. *rubens*), soft chess (*Bromus hordeaceus*), shepard's purse (*Capsella bursa-pastoris*), wild radish (*Raphanus sativus*), stinknet (*Oncosiphon piluliferum*), London rocket (*Sisymbrium irio*), big heron bill (*Erodium botrys*), coastal heron's bill (*Erodium cicutarium*), and cheeseweed (*Malva parviflora*). Native annual herbs found onsite include common fiddleneck (*Amsinckia intermedia*), slender goldfields (*Lasthenia gracilis*), and miniature lupine (*Lupinus bicolor*).

Developed (1.07 acres)

Sidewalks and roads bound the northern, western, and eastern perimeters of the Project Site. Developed areas are typically devoid of vegetation, but ornamental and/or weedy species may be occasional.

Exotic Tree (0.07 acres)

A Peruvian pepper tree (*Schinus molle*) is the only free-standing tree located onsite and is located in the northeast corner of the Project Site. A Peruvian pepper tree, eucalyptus (*Eucalyptus* sp.), and queen palm (*Syagrus romanzoffiana*) are rooted just south of the Project Site in neighboring residential properties and overhang onto the Project Site.

Black Willow (0.01 acres)

A single black willow (*Salix goodingii*) is present on the western boundary of the Project Site, adjacent to Tarano Lane and overhanging the unnamed MSHCP riverine resource onsite.

Table 2. Vegetation Community Impacts

Vegetation Community	Onsite (ac)	Impact (ac)
Ruderal	19.03	19.03
Developed	1.07	1.07
Exotic Tree	0.07	0.07
Black Willow	0.01	0.01
TOTAL	20.18	20.18

2.3.3 General Wildlife

Wildlife species that were observed onsite during the April 1, 2019 habitat assessment survey include: red-tailed hawk (*Buteo jamaicensis*), European starling (*Sturnus vulgaris*), black phoebe (*Sayornis nigricans*), Anna's hummingbird (*Calypte anna*), house finch (*Haemorhous mexicanus*), northern mockingbird (*Mimus polyglottus*), common raven (*Corvus corvax*), American crow (*Corvus brachyrhynchos*), house sparrow (*Passer domesticus*), mourning dove (*Zenaidura macroura*), and western kingbird (*Tyrannus verticalis*).

3.0 RIPARIAN/RIVERINE MITIGATION

3.1 Methods

All onsite habitats were assessed to determine if MSHCP riparian/riverine resources and/or vernal pools, pursuant to Section 6.1.2 of the Western Riverside MSHCP (2004) are present onsite. MIG wetland delineator Jonathan Campbell conducted a jurisdictional delineation on June 13, 2019 (Appendix B, Jurisdictional Delineation Report). The delineation survey area included the entire 20.18-acre Project Site (Figure 2, *Project Site Map*). The wetland delineation was completed according to the USACE's 1987 Wetland Delineation Manual (Environmental Laboratory 1987) in conjunction with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Arid West Supplement)* (USACE 2008). Vegetation, hydrology, and soils data were collected at two sample point locations (SP1 and SP2) to determine if CWA Section 404 wetlands and/or other waters were present onsite. During this delineation, MSHCP riparian/riverine resources were identified and mapped according to the requirements set forth in Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*.

A California Rapid Assessment Method (CRAM) analysis was conducted on the episodic riverine drainage (Appendix C, *CRAM Report*). A single assessment area (AA1) encompassed the entire onsite drainage feature. The overall score for AA1 is 41 (Buffer and Landscape Context = 36; Hydrology = 75; Physical Structure = 25; Biotic Structure = 28). Stressors identified at AA1 include point source discharges, non-point source discharges, plowing/discing, vegetation management, trash/refuse, mowing, urban residential, industrial/commercial, military training/air traffic, flow disruption, and transportation corridors.

3.2 Results/Impacts

3.2.1 Riverine Resources

A single, disturbed ephemeral wash (0.108 ac) is located onsite and represents an MSHCP riverine resource. This unnamed drainage flows north to south along the western perimeter of the Project Site (Figure 6, *MSHCP Riparian/Riverine Resource Map*; Figure 7, *Current Project Site Photographs*). All onsite MSHCP riverine resources will be impacted as a result of project implementation (Table 3, *MSHCP Resource Impacts*).

3.2.2 Riparian Resources

A single, small arroyo willow tree is present along the western boundary of the Project Site (Figure 7, *Current Project Site Photographs*). This tree is situated along the western bank of the unnamed drainage described above and represents an MSHCP riparian resource (0.010 ac). The entire MSHCP riparian resource will be impacted as a result of project implementation (Table 3, *MSHCP Resource Impacts*). Despite the presence of limited MSHCP riparian resources (a single, small arroyo willow tree), the Project Site does not possess suitable habitat for riparian birds as described in MSHCP Section 6.1.2 (including least Bell's vireo, southwestern willow flycatcher, and/or yellow-billed cuckoo).

3.2.3 Vernal Pool Resources

No vernal pool resources are present on or adjacent to the Project Site due to the lack of suitable soils, vegetation communities, topography, and hydrology, as well as a review of historic aerial photography (NETROnline 2019).

Table 3. MSHCP Resource Impacts

Resource	Onsite (ac)	Impact (ac)
MSHCP Riverine	0.108	0.108
MSHCP Riparian	0.010	0.010
Vernal Pool	-	-
TOTAL	0.118	0.118

3.3 Mitigation and Equivalency

3.3.1 Direct Effects

All onsite MSHCP riparian (0.010 ac) and riverine (0.108 ac) resources will be permanently impacted as a result of project implementation (Figure 6, *MSHCP Riparian/Riverine Resource Map*). In order to mitigate to an equivalent or superior level, the applicant will offset these impacts by purchasing 0.118 acres of credits at the Riverpark Mitigation Bank. Due to the low biological value of current onsite drainage (overall CRAM score = 41), this credit purchase will result in the re-establishment of biologically superior riparian/riverine resources.

The Riverpark Mitigation Bank is a 619-ac mitigation bank located along the San Jacinto River in western Riverside County (Figure 1, *Vicinity Map*). The Project Site is located within the Lower San Jacinto River watershed (HUC 1807020203) and therefore falls within the service area of the Riverpark Mitigation Bank. The US Army Corp of Engineers (USACE 2015) describes the Riverpark Mitigation Bank as follows:

The primary objective of the proposed mitigation bank would be to replace functions and services of aquatic resources and associated habitats that have been degraded or destroyed as a result of activities conducted in compliance or in violation of Section 404 of the CWA. The proposed mitigation bank would provide mitigation for both permanent and temporary impacts to waters of the U.S. In addition, the proposed mitigation bank may be used to offset environmental losses resulting from unavoidable impacts related to regulated activities by the California Department of Fish and Wildlife and the San Diego and Santa Ana Regional Water Quality Control Boards. Specific objectives include:

- *Restoration of fluvial processes on site within the San Jacinto River floodplain.*
- *Restoration of alkali playa and vernal pool habitat.*
- *Expansion of existing sensitive plant populations across the site.*
- *Removal of ongoing agricultural activities on the site.*
- *Removal of existing berms and the low flow channel.*
- *Permanent protection of the site through transfer of fee title to the Western Riverside Regional Conservation Authority (RCA).*
- *Permanent management of the site through funding of a non-wasting endowment.*

3.3.2 Indirect Effects

The guidelines pertaining to the Urban/Wildlands Interface (MSHCP Section 6.1.4) are intended to address indirect effects associated with locating developments in proximity to the MSHCP Conservation Area. The Project Site is not located proximal to an existing MSHCP Conservation Area and is surrounded on all sides

by residential development. Project design will incorporate the following guidelines to minimize indirect effects associated with project implementation.

Drainages

Project work has the potential to result in indirect impacts to downstream waters through an increase in sedimentation and decrease in water quality and cumulative impacts resulting in the degradation of overall habitat quality for aquatic plant and wildlife species. In order to avoid and minimize these potential effects during construction activities, the following measures will be implemented:

- Appropriate sediment and erosion control best management practices (BMPs) (e.g., use of silt fencing and/or straw wattles around the perimeter of the construction zone) will be implemented to minimize surface runoff originating from the development and thereby protect water quality of downstream areas. Erosion/sediment control BMPs will be implemented during project construction, will be described in the project's SWPPP, and could include the following:
 - Scheduling
 - Soil Binders
 - Earth Dike and Drainage Swales
 - Soil Preparation-Roughening
 - Wind Erosion Control
 - Silt Fence
 - Gravel Bag Berm
 - Street Sweeping
 - Storm Drain Inlet Protection
 - Stabilized Construction Entrance/Exit
- Prior to the onset of construction activities, construction personnel will be briefed on the location of sensitive habitat and other resources that will be preserved and the importance of avoidance.
- All fueling and maintenance of vehicles and other equipment and staging areas will be at least 50 feet (15 meters) from storm drains or drainages. During refueling and maintenance of vehicles and equipment, secondary containment will be used.
- No vehicle or equipment cleaning will take place on site during construction.
- Vehicles will be checked daily and maintained in accordance with manufactures' specifications to minimize potential for leaks. Cleanup materials will be kept on-site to recover any accidental spills. Spills will be cleaned up immediately upon discovery.
- Disturbed soil areas and soil stockpiles will be covered with tarps prior to forecasted rain events.
- Waste facilities will be maintained. Waste facilities include concrete wash-out facilities, porta-potties, and hydraulic fluid containers. Waste will be removed to a proper disposal site. The dumpster will be covered at the end of each business day and prior to rain events.

A Water Quality Management Plan will be implemented to ensure that the project would not cause an increase in storm water runoff and would include water quality treatment prior to discharge from the site. The project will include permanent BMPs and source control BMPs to protect downstream watercourses after construction. The existing site generally drains from the northeast corner to the southwest corner with portions of the flows entering into Kettenburg Lane where they continue southerly. Once developed, all private lots will drain to a public street. All street drainage from the interior streets, Tarano Lane and private lots will be directed to one of two bioretention areas to be constructed at the southwest corner of the site. The bioretention areas consist of a 6" deep ponding area with mulch and planting, with engineered soil

media below ground. Once treated in the bioretention area media, flows will enter an underdrain and will outlet to a proposed storm drain in Kettenburg Lane. This storm drain is proposed to be extended from Northern Dancer Drive. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically.

Runoff from the Krameria Avenue frontage, adjacent parkway and landscape easement will be directed to one of three proposed bioretention swales, via curb openings. The bioretention swales will include engineered soil media below ground. Once treated in the soil media, runoff will enter an underdrain, ultimately directing flows to the existing storm drain in Krameria Avenue. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically.

Toxics

Stormwater conveyance systems will be designed to prevent the release of toxins, chemicals, or biohazards that could degrade or injure downstream biological resources. To accomplish this, the project will incorporate structural Best Management Practices (BMPs), as required by Waste Discharge Requirements (WDRs) and the National Pollutant Discharge and Elimination System (NPDES) permit system.

Lighting

The Project Site is not located in or adjacent to an MSHCP Conservation Area and indirect impacts from lighting are not expected on common wildlife species. Adjacent land uses are residential on all sides.

Noise

Short-term noise related to construction-activities will be reduced by ensuring that all construction machinery is equipped with properly operating mufflers. In addition, all construction and haul truck deliveries will occur within standard, daytime construction hours.

Invasive Species

The landscaping plan shall avoid the use of invasive, exotic species, as listed in MSHCP Table 6.2, *Plants That Should be Avoided Adjacent to the MSHCP Conservation Area*.

Barriers

The Project Site is not located adjacent to an existing MSHCP Conservation Area, but temporary construction fencing will limit local movement in and out of the Project Site during construction.

4.0 NARROW ENDEMIC PLANT SPECIES MITIGATION

The Project Site does not occur within a predetermined Survey Area for Narrow Endemic Plant Species (WRC-RCA Information Tool, September 2019). No further action is required.

5.0 ADDITIONAL SURVEYS

5.1 Criteria Area Plant Species

The Project Site does not occur within a predetermined Survey Area for Criteria Area Plant Species. No surveys are required.

5.2 Burrowing Owl

The Project Site occurs within a predetermined Survey Area for the burrowing owl. A focused burrowing owl survey was initiated on April 1, 2019 (MSHCP 2006). Although suitable burrowing owl habitat is present onsite in the ruderal vegetation community (Step 1 – Habitat Assessment), burrowing owls are not expected to occur in or around the Project Site due to the lack of suitable burrows (Step 2a – Focused Burrow Survey) (Appendix A, *General Biological Resource Assessment*). Regardless, a 30-day pre-construction survey is required prior to the initiation of construction to ensure protection of this species and compliance with the conservation goals as outlined in the MSHCP (Section 7.2).

5.3 Mammals

The Project Site does not occur within a predetermined Survey Area for mammal species. No surveys are required.

5.4 Amphibians

The Project Site does not occur within a predetermined Survey Area for amphibian species. No surveys are required.

6.0 DELHI SANDS FLOWER-LOVING FLY

The Project Site does not possess Delhi Sands soils (Figure 4, *Soils Map*) (USDA 2019). No further action is required.

7.0 REFERENCES

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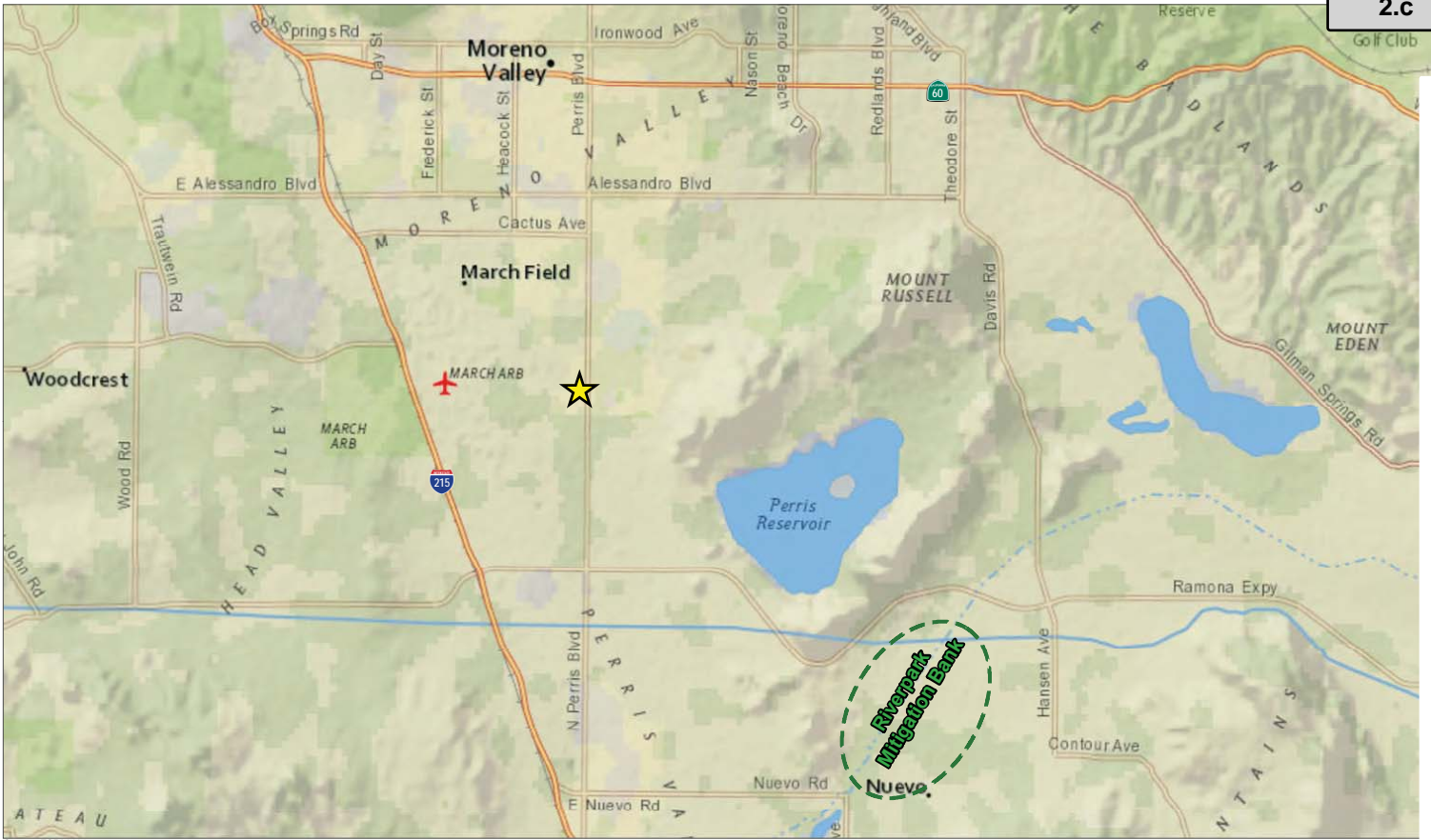
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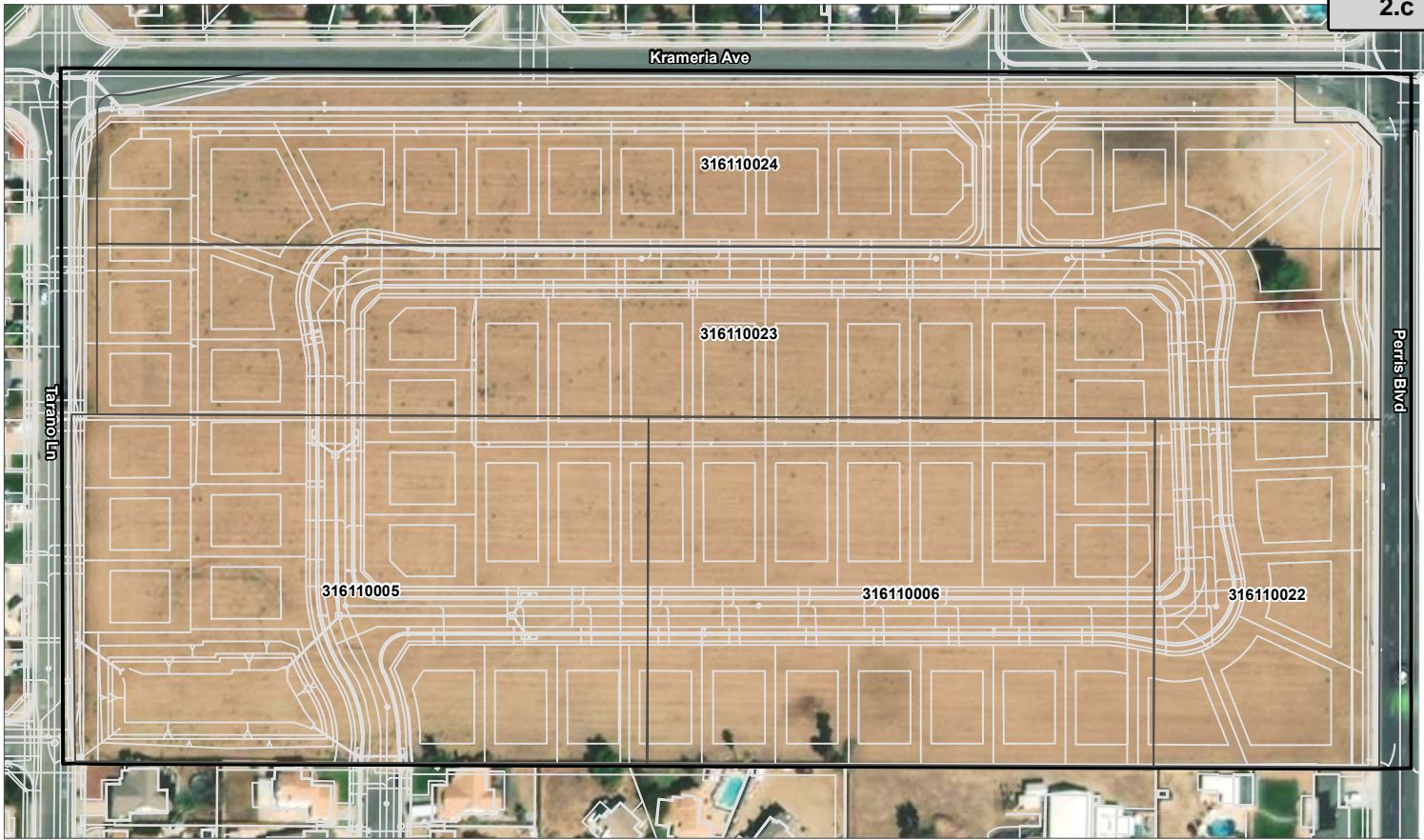
USDA. 2019. Web Soil Survey. NRCS. Available online at <http://websoilsurvey.nrcs.usda.gov/>. [Accessed April 2019].



- ★ Project Location
- Riverpark Mitigation Bank (Approximate)



Figure 1 Vicinity Map
 Krameria Project Site, Moreno Valley,

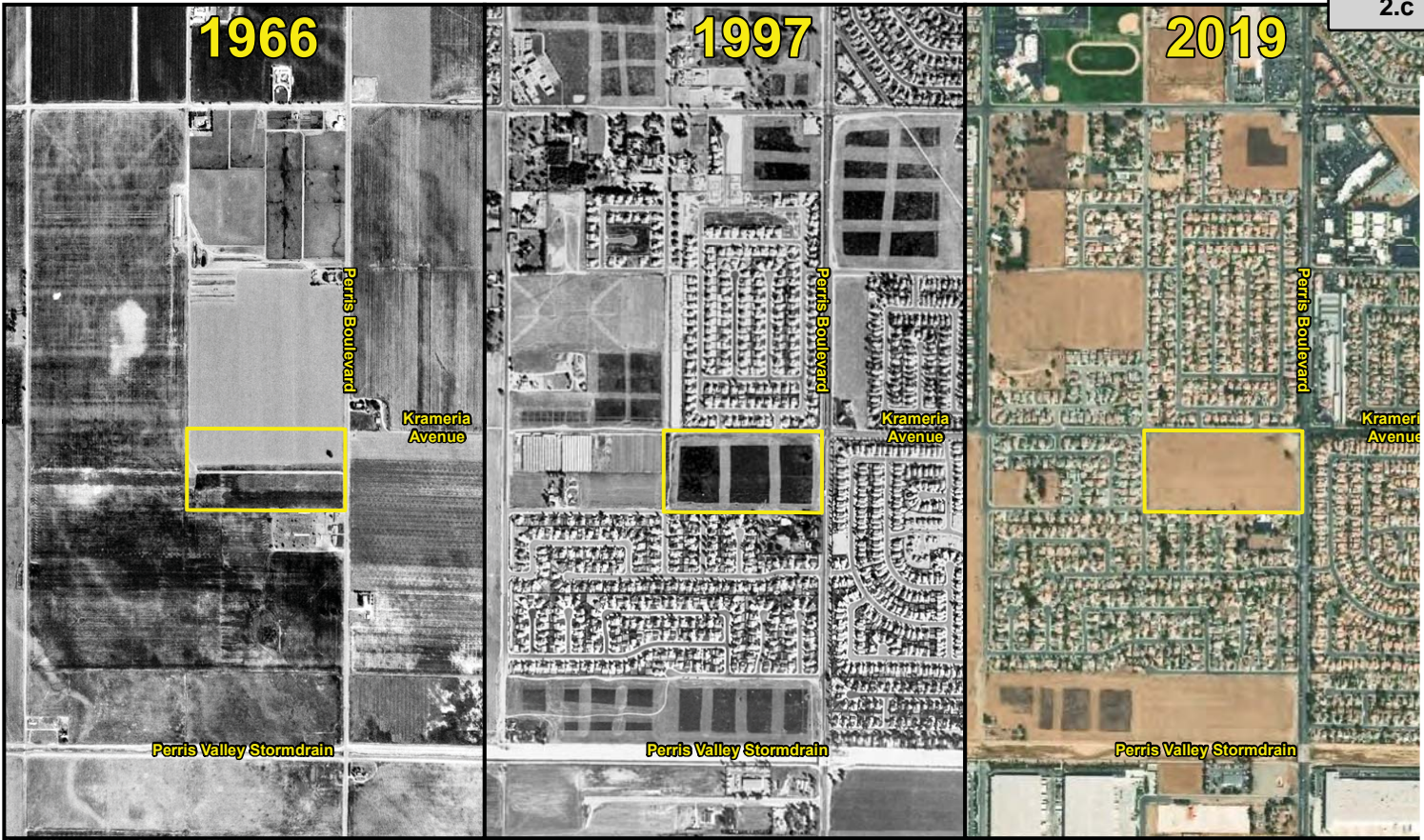


Source: ESRI 2019, Riverside County 2019


- Project Site Boundary (20.18 ac)
- Parcels
- Development Plan (20.18 ac)



Figure 2 Project Site Map
 Krameria Avenue Project Site, Moreno Valley, CA



Source: ESRI 2019, Riverside County 2019, NEI/Online Historical Aerials 2019.

 Project Site Boundary (20.18 ac)

0 500 1,000 2,000 Feet

Figure 3 Historical Aerial Photograph
 Krameria Avenue Project Site, Moreno Valley,










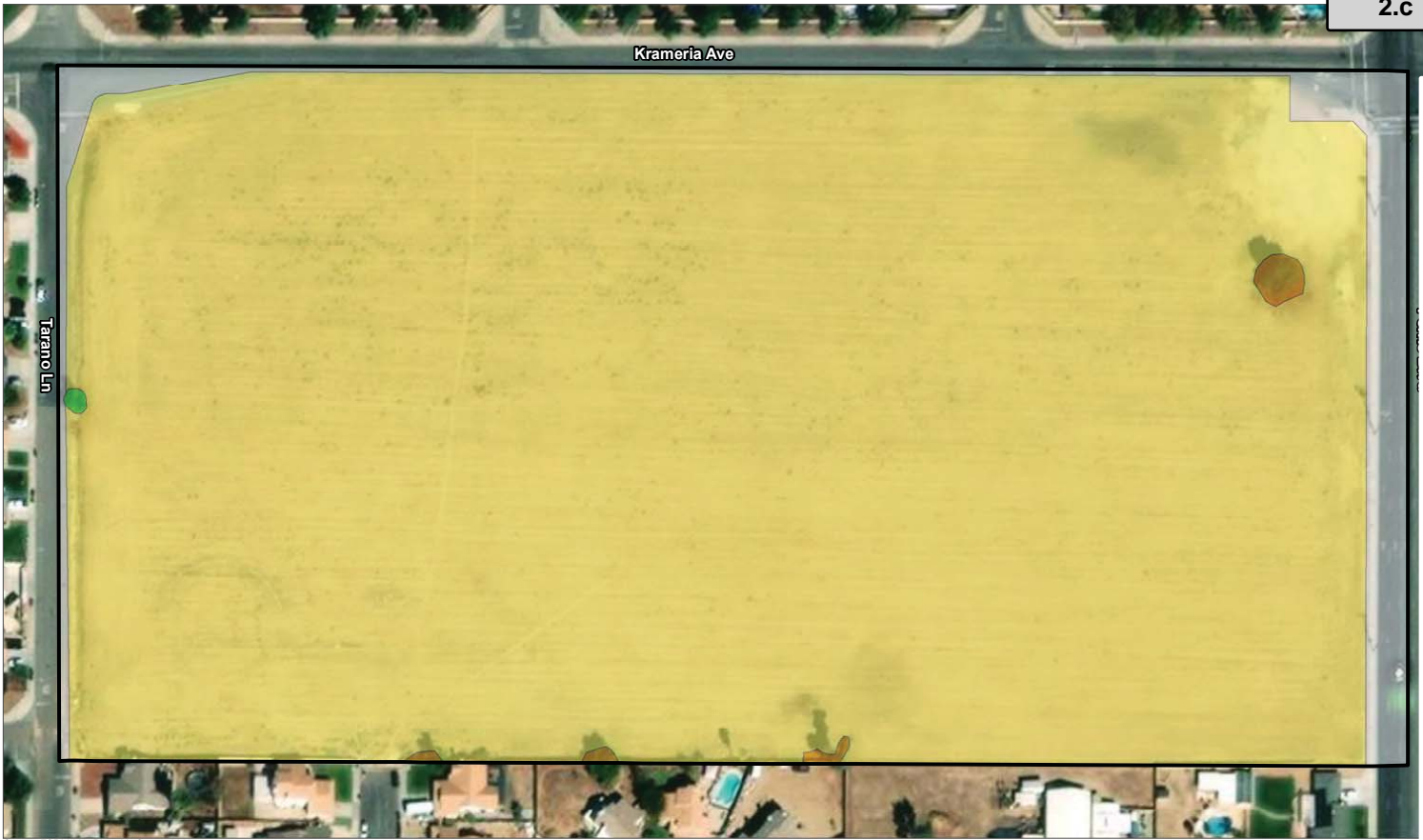
-  Project Site Boundary (20.18 ac)
- Soils**
-  GyA: Greenfield sandy loam, 0 to 2 percent slopes (14.73 ac)
-  EpA: Exeter sandy loam, deep, 0 to 2 percent slopes (4.39 ac)
-  EnA: Exeter sandy loam, 0 to 2 percent slopes (0.68 ac)
-  EwB: Exeter very fine sandy loam, 0 to 5 percent slopes (0.38 ac)



Figure 4 Soil Map Appendices
Krameria Project Site, Moreno Valley,

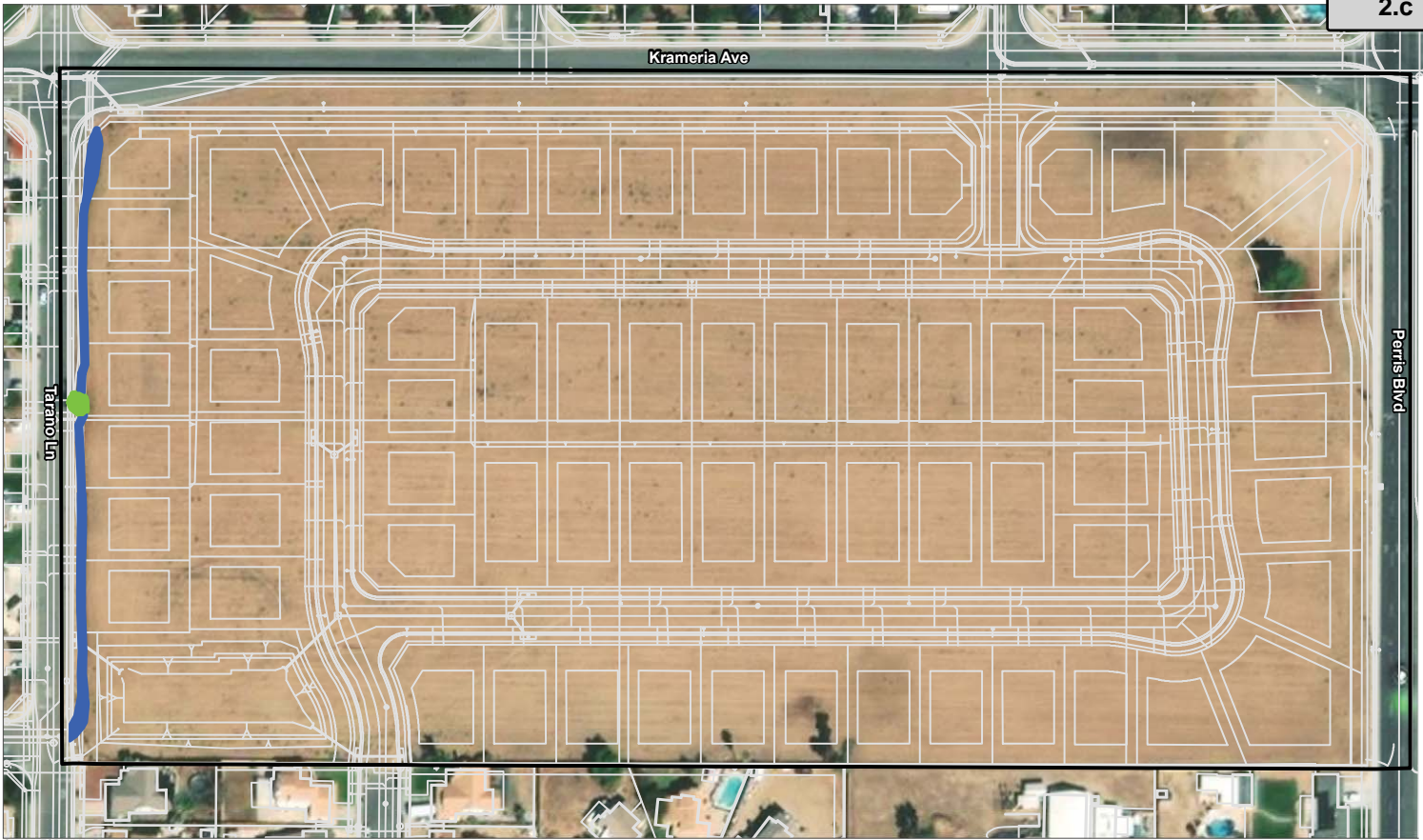


Source: ESRI 2019, Riverside County 2019

- Project Site Boundary (20.18 ac)
- Vegetation Community
- Ruderal (19.03 ac)
- Developed (1.07 ac)
- Exotic Tree (0.07 ac)
- Black Willow (0.01 ac)



Figure 5 Vegetation Community Map
 Krameria Avenue Project Site, Moreno Valley, CA



Source: ESRI 2019, Riverside County 2019

- Project Site Boundary (20.18 ac)
- Permanently Impacted MSHCP Riverine Area (0.108 ac)
- Permanently Impacted MSHCP Riparian Area (0.010 ac)
- Development Plan

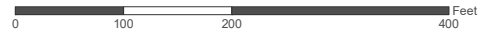


Figure 6 MSHCP Riparian/Riverine Resources Map
 Krameria Avenue Project Site, Moreno Valley, CA



PHOTOGRAPH 1 - Looking upstream from downstream portion of AA1. Tarano Lane serves to confine flows along the western bank of the unnamed drainage.



PHOTOGRAPH 2 - Looking downstream from downstream portion of AA1. The channel widens as it flows southward. At the southern end of the AA1, the unnamed drainage flows onto Tarano Lane and subsequently into a roadside storm drain.

Figure 7 Current Project Site Photographs

Krameria Avenue Project Site, Moreno Valley, CA

Krameria Avenue Project Site Jurisdictional Delineation Report



Prepared for:

PI Properties No. 67 LLC
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- Appendix C: USDA NRCS Soils Report
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List of Abbreviated Terms

AMSL	Above Mean Sea Level
APN	Assessor's Parcel Number
AWRS	Arid West Regional Supplement
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CDFW	California Department of Fish and Wildlife
CNRFC	California Nevada River Forecast Center
CWA	Clean Water Act
EPA	Environmental Protection Agency
°F	degrees Fahrenheit
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
FEMA	Federal Emergency Management Agency
GPS	Global Positioning System
HUC	Hydrologic Unit Code
LSAA	Lake and Streambed Alteration Agreement
MSCHP	Multiple Species Habitat Conservation Plan
NCDC	National Climatic Data Center
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NTCHS	National Technical Committee for Hydric Soils
NWI	National Wetland Inventory
NWS	National Weather Service
OBL	Obligate
OHWM	Ordinary High Water Mark
RPW	Relatively Permanent Waters
RWQCB	Regional Water Quality Control Board
SP	Sample Point
SWANCC	Solid Waste Agency of Northern Cook County
TNW	Traditional Navigable Water
TOB	Top of Bank
UPL	Upland
US	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1 Introduction

MIG, Inc. (MIG) was retained by PI Properties No. 67 LLC to conduct a jurisdictional delineation of potential wetlands and waters of the United States (US) for the Krameria Avenue Project Site (Project Site) located in the City of Moreno Valley, Riverside County, California (Figure 1, *Vicinity Map*, Figure 2, *USGS Topographic Map*, and Figure 3, *Aerial Photograph of the Project Site*). The purpose of this report is to determine the location and extent of wetland and/or water features within the Project Site that are potentially regulated by the US Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA). Findings in this report are considered preliminary until the USACE has completed its formal review and verification process. This report also provides maps and acreages of Waters of the State that fall under the jurisdiction of the Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and Western Riverside Multiple Species Habitat Conservation Plan (MHSCP).

This jurisdictional delineation report has been prepared in compliance with the USACE's Minimum Standards for Acceptance for Preliminary Delineations (USACE 2001) and Final Map and Drawing Standards for the South Pacific Division Regulatory Program (USACE 2012).

1.1 Project Site Location and Setting

The 20.18-acre Project Site is located in the City of Moreno Valley, Riverside County, California and includes Assessor Parcel Numbers (APN): 316-110-005, -006, -022, -023, and -024 (Figure 1, *Vicinity Map* and Figure 3, *Aerial Photograph of the Project Site*). The Project Site is south of Krameria Avenue, east of Tarano Lane, and west of Perris Boulevard. The Project Site occurs within the United States Geological Survey (USGS) 7.5' series Sunnymead Quadrangle, Township 3S, Range 3W, Section 30 (Figure 2, *USGS Topographic Map*). The Project Site is relatively flat, with elevations ranging between approximately 1,480-1,490 feet above mean sea level (AMSL). Residential land use borders the Project Site on all sides.

1.2 Applicant Information

PI Properties No. 67 LLC
610 North Santa Anita Avenue
Arcadia, CA 91006

1.3 Project Site Directions

Regional access to the Project Site is provided by taking the Cactus Avenue exit east of Interstate 215 (I-215). Follow Cactus Avenue 3.2 miles east of I-215, turn south on Perris Boulevard. Travel south for 2.0 miles to Krameria Avenue. The Project Site is located southwest of the intersection of Krameria Avenue and Perris Boulevard.

1.4 Project Description

The project proposes to subdivide 20.18 acres into sixty-six (66) single-family residential lots ranging in size from 7,212 SF to 15,950 SF, and one lettered lot. All street drainage from the Project Site will be directed to a 0.483 acre bioretention area to be constructed at the southwest corner of the site. The bioretention area consists of a 6" deep ponding area with mulch and planting, with 3' of engineered soil media below ground. Once treated in the bioretention area media, flows will enter an underdrain and will outlet via a sump and pump and drain to Tarano Lane. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake, as they have historically.

2 Regulatory Setting

Environments and habitats associated with wetlands and other aquatic features are regulated under federal, state, and local laws. Each of the laws is administered independently and in coordination with the following agencies: USACE, US Fish and Wildlife Service (USFWS), the US Environmental Protection Agency (EPA), CDFW, RWQCB, and the Western Riverside MSHCP.

2.1 Waters of the US

2.1.1 Section 404 of the Clean Water Act

The objective of the CWA is to maintain and restore the chemical, physical, and biological integrity of the Waters of the US (33 CFR Part 328 Section 328.4). "Waters of the US" is the encompassing term for areas that qualify for federal regulation under Section 404 of the CWA. Section 404 of the CWA gives the EPA and the USACE regulatory and permitting authority regarding discharge of dredged or fill material into "navigable waters of the US." Section 502(7) of the CWA defines navigable waters as "waters of the US, including territorial seas." Section 328 of Chapter 33 in the Code of Federal Regulations (CFR) defines the term "waters of the US" as it applies to the jurisdictional limits of the authority of the USACE under the CWA. A summary of this definition of "waters of the US" in 33 CFR 328.3 includes (1) waters used for commerce and subject to tides; (2) interstate waters and wetlands; (3) "other waters" such as intrastate lakes, rivers, streams, and wetlands; (4) impoundments of waters; (5) tributaries of waters; (6) territorial seas; and (7) wetlands adjacent to waters. Therefore, for purposes of determining USACE jurisdiction under the CWA, "navigable waters" as defined in the CWA are the same as "waters of the US" defined in the Code of Federal Regulations above. Waters of the U.S include non-isolated "wetlands" and "other waters of the US"

Section 404 Wetlands

The term "wetlands" (a subset of waters of the US) is defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." The USACE developed field methods for identifying the location and extent of jurisdictional wetlands (a subset of waters of the US) using the USACE Wetland Delineation Manual (Environmental Laboratory 1987): Arid West Regional Supplement [AWRS] (USACE 2008a). This supplement was intended to address specific wetland issues within the arid west and supersedes much of the 1987 Wetland Delineation Manual in arid regions.

Section 404 Other Waters

In the absence of wetlands, other waters of the US refer to unvegetated waterways and other water bodies with a defined bed and bank, such as drainages, creeks, rivers, and lakes. This approximately translates to the bank to bank portion of water bodies, up to the ordinary high water mark (OHWM) (USACE 2008b). The limits of USACE jurisdiction in non-tidal waters, such as intermittent streams, extend to the ordinary high water mark (OHWM) which is defined at 33 CFR 328.3(e) as: "...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

The OHWM in the Arid West Region is consistent with the physical and biological signature¹ established and maintained at the boundaries of the active channel.² Delineation of the active channel signature, and thus the OHWM, is based largely on identification of three primary physical or biological indicators—topographic break in slope, change in sediment characteristics, and change in vegetation characteristics. A break in slope refers to a localized and distinct change in the lateral topographic gradient (i.e., perpendicular to the principal direction of flow) within a stream system. Changes in sediment characteristics include any transition in the physical, chemical, or biological qualities of the sediments within and adjacent to a stream channel. For the purposes of OHWM identification, changes in vegetation characteristics include any lateral transition (i.e., perpendicular to the principal direction of flow) in the abundance, growth stage, or plant cover and composition within and adjacent to a stream channel. Supporting features including drift/wrack (i.e., debris deposits), signs of erosion/scour, bank undercutting, root exposure, point bars (meanders), silt deposits, and shelving (“benches” and breaks in slope along the active channel), were also used to help determine the location of the OHWM.

2.1.2 Isolated Areas Excluded from Section 404 Jurisdiction

In addition to areas that may be exempt from Section 404 jurisdiction, some isolated wetlands and waters may also be considered outside of USACE jurisdiction as a result of the Supreme Court’s decision in *Solid Waste Agency of Northern Cook County (SWANCC) v. US Army Corps of Engineers* (531 US 159 [2001]). The key factor in this decision was language in the CWA that relates to navigable waters. Isolated wetlands and waters are those areas that do not have a connection to and are not adjacent to a navigable “waters of the US,” and do not otherwise exhibit an interstate commerce connection. Under Section 404 of the CWA, federal protection extends to those wetlands located on or adjacent to navigable waters of the US or their tributary systems. Wetlands that do not meet this requirement, such as isolated wetlands with no link to interstate commerce, are not regulated as waters of the US and are therefore not protected under the CWA. In general, the USACE considers isolated wetlands to be those of any size that are not adjacent to or do not have a sufficient hydrologic connection to navigable waters.

2.1.3 Executive Order 11990 for Protection of Wetlands

Executive Order 11990 for the Protection of Wetlands (May 24, 1977) establishes a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. On federally funded projects, impacts on wetlands must be identified in the environmental document. Alternatives that avoid wetlands must be considered. If wetland impacts cannot be avoided, then all practicable measures to minimize harm must be included. This must be documented in a specific “Wetlands Only Practicable Alternative Finding” in the final environmental document. An additional requirement is to provide early public involvement in projects affecting wetlands.

¹ A combination of physical and biological features that act to form a distinct mark on the landscape.

² The hydrogeomorphic unit of a stream system within which the local hydrologic regime and geo-morphic processes are effective in maintaining a linear topographic depression or conduit on the land surface, typically characterized by the presence of a bed and banks.

2.2 Waters of the State

2.2.1 Section 401 of the Clean Water Act

The RWQCB regulates activities in “Waters of the State”, including wetlands, through Section 401 of the CWA. While the USACE administers permitting programs that authorize impacts to waters of the US, any USACE permit authorized for a project would be invalid unless the RWQCB has issued a project-specific water quality certification or waiver of water quality. A water quality certification requires a finding by the RWQCB that the activities permitted by the USACE will not violate water quality standards individually or cumulatively over the term of the issued USACE permit.

2.2.2 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Act (Porter-Cologne Act) (California Water Code Section 13260) requires “any person discharging waste, or proposing to discharge waste, within any region that could affect the “Waters of the State” to file a report of discharge” with the RWQCB through an application for waste discharge. “Waters of the State” are defined by the Porter-Cologne Control Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The RWQCB protects all waters in its regulatory scope but has special responsibility for isolated wetlands and headwaters. These water bodies have high resource value, are vulnerable to filling, and may not be regulated by other programs, such as Section 404 of the CWA.

2.2.3 California Fish and Game Code Section 1600-1603

Under Section 1602 of California Fish and Game Code, CDFW has authority over any proposed activity that may substantially modify a river, stream, or lake. The CDFW requires notification for any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

The notification requirement applies to any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. The CDFW typically considers a river, stream, or lake to include its riparian vegetation, but it may also extend to its floodplain. The term “stream”, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as follows: “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life”. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFW 1994). Riparian is defined as “on, or pertaining to, the banks of a stream”; therefore, riparian vegetation is defined as, “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFW 1994).

If the CDFW determines that the activity may substantially adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement (LSAA) will be prepared, which includes reasonable conditions necessary to protect those resources. The applicant may then proceed with the activity in accordance with

the final LSAA. Section 1602 does not extend to isolated wetlands and waters, such as small ponds not located on drainages.

2.3 Western Riverside MSHCP

2.3.1 MSHCP Riparian/Riverine and Vernal Pools

Habitats were assessed to determine if MSHCP riparian/riverine resources and/or vernal pools, pursuant to section 6.1.2 of the MSHCP are present onsite. MSHCP riparian/riverine resources are defined as, *“those lands that contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year. Vernal pools are seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season”* (MSHCP 2004). In addition, stock ponds, ephemeral pools, and other areas of potential fairy shrimp habitat are noted, if applicable.

3 Methods

The methods utilized in the preparation of this report included a background information review and multiple site visits to collect pertinent wetland field data. Prior to conducting the initial field visit a 200-scale color aerial photograph of the Project Site and USGS topographic maps were assessed to determine the locations of potential federal and state jurisdictional habitats. Suspected jurisdictional areas were then field-checked and or sampled where access was feasible for the presence of wetland vegetation, soils, and hydrology. The presence of potentially jurisdictional features on the site was evaluated using the methodologies described below.

3.1 Background Information Review

Prior to conducting field studies, available reference materials were reviewed including but not limited to:

- US Department of Agriculture (USDA) National Resources Conservation Service (NRCS) Online Soil Survey of Western Riverside County, California (USDA NRCS 2019). <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>
- National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) WETS Table https://www.wcc.nrcs.usda.gov/climate/navigate_wets.html (NOAA NCDC 2019a)
- NOAA Palmer Drought Indices. <https://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers/> (NOAA NCDC 2019b)
- NOAA California Nevada River Forecast Center. (NOAA CNRFC 2019). <http://www.cnrfc.noaa.gov>
- National Wetland Inventory (NWI) Map Data (USFWS 2019) for the Sunnymead 7.5 Minute USGS quadrangle that characterize wetland and waters of the US according to the Classification of Wetlands and Deepwater Habitats of the United States developed by USFWS (Cowardin et al. 1979).

3.2 Jurisdictional Delineation

MIG wetland delineator Jonathan Campbell conducted a jurisdictional delineation on June 13, 2019. The delineation survey area included the entire 20.18-acre Project Site (Figure 3, *Aerial Photograph of Project Site*). The wetland delineation was completed according to the USACE's 1987 Wetland Delineation Manual (Environmental Laboratory 1987) in conjunction with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Supplement) (USACE 2008a). Vegetation, hydrology, and soils data were collected at two sample point locations (SP1 and SP2) to determine if CWA Section 404 wetlands and/or other waters were present onsite (Appendix A, *Wetland Delineation Data Forms*). The methods of assessing each of these parameters is discussed below.

3.2.1 Hydrophytic Vegetation

Hydrophytic vegetation is generally defined as plant species that are adapted to grow in wet, oxygen-poor soils. Hydrophytic vegetation is determined to be present when the plant community is dominated by species that can tolerate prolonged inundations or soil saturation during the growing season. The National Wetland Plant List (Lichvar et al. 2016) provides a wetland indicator status for all hydrophytic plant species in the US. The wetland indicator status is a predictor of the likelihood of the plant to occur in wetlands, and is defined as follows:

- Obligate Plant (OBL): a plant that almost always occurs in wetlands
- Facultative Wetland Plant (FACW): a plant that usually occurs in wetlands, but may occur in non-wetlands
- Facultative Plant (FAC): a plant that occurs in wetlands and non-wetlands
- Facultative Upland Plant (FACU): a plant that usually occurs in non-wetlands, but may occur in wetlands
- Upland Plant (UPL): a plant that almost never occurs in wetlands
-

The Arid West Supplement (USACE 2008a) requires that a three-step process be conducted to determine if hydrophytic vegetation is present. The procedure first requires the delineator to apply the “50/20 rule” (Indicator 1) described in the manual. For each sampling point, the biologists visually estimated absolute percent cover of plant species within an approximately 10-foot radius and the wetland indicator status (i.e., OBL, FACW, FAC, FACU, and UPL) of the species was recorded. For species not on the 2016 National Wetland Plant List for the Arid West Region, the indicator status was assumed to be UPL (USACE 2008a). To apply the “50/20 rule”, dominant species are evaluated within each herb, shrub, and tree stratum of the community. In general, dominants are the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total. If greater than 50 percent of the dominant species can be classified by an OBL, FACW, or FAC wetland indicator status, ignoring + and - qualifiers, hydrophytic vegetation is present. If the community passes Indicator 1 then the community is hydrophytic. If the community fails Indicator 1 and both hydric soils and wetland hydrology are not present, then hydrophytic vegetation is not present, unless the site is a problematic wetland situation. However, if the plant community fails Indicator 1 but hydric soils and wetland hydrology are both present, the delineator must apply Indicator 2.

Indicator 2 is known as the Prevalence Index. The prevalence index is a weighted average of the wetland indicator status for all plant species within the sampling plot. Each indicator status is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5). Indicator 2 requires the delineator to estimate the percent cover of each species in every stratum of the community and sum the cover estimates for any species that is present in more than one stratum. All species are then organized into groups according to their wetland indicator status and the Prevalence Index is calculated using the following formula:

$$PI = \frac{A_{OBL} + 2A_{FACW} + 3A_{FAC} + 4A_{FACU} + 5A_{UPL}}{A_{OBL} + A_{FACW} + A_{FAC} + A_{FACU} + A_{UPL}}$$

The Prevalence Index will yield a number between 1 and 5. If the Prevalence Index is equal or less than 3, hydrophytic vegetation is present. However, if the community fails Indicator 2, the delineator must proceed to Indicator 3.

Indicator 3 is known as Morphological Adaptations. Some hydrophytes in the Arid West Region develop easily recognized physical characteristics (or morphological adaptations) when they occur in wetland areas. Some of these adaptations may include, but are not necessarily limited to, adventitious roots and shallow root systems developed on or near the soil surface. If more than 50 percent of the individuals of a FACU species exhibit morphological adaptations for life in wetlands that species is considered to be a hydrophyte and its wetland indicator status should be reassigned to FAC. If such observations are made, the delineator must

recalculate Indicator 1 and 2 using a FAC indicator status for this species. The vegetation is hydrophytic if either test is satisfied.

3.2.2 Hydric Soils

The National Technical Committee for Hydric Soils (NTCHS) defines hydric soils as “a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” (US Department of Agriculture [USDA], Soil Conservation Service [SCS] 1994). Nearly all hydric soils exhibit characteristic morphologies that result from repeated periods of saturation or inundation for more than a few days, including redoximorphic features such as orange oxidized mottles or light-colored (high value, low chroma) reduced matrix or mottle colors. The AWRS (USACE 2008a) contains a list of 23 hydric soil indicators that are known to occur in the Arid West region. Soils samples were collected and described according to the methodology provided in the AWRS. Soil chroma and values were determined by utilizing a standard Munsell soil color chart (Munsell 2000). Hydric soils were determined to be present if any of the soil samples met one or more of the 23 hydric soil indicators described in the AWRS (USACE 2008a). Characteristic field indicators of hydric soils include the presence of a histic epipedon, the presence of sulfidic material, the presence of an aquic or peraquic moisture regime, reducing soil conditions, soil color (including gleyed soils or soils with a low matrix chroma, with or without bright mottles), iron or manganese concretions, and soils listed as hydric by the USDA on the National Hydric Soils List (NRCS 2019).

3.2.3 Wetland Hydrology

Wetland hydrology is indicated by an area that is inundated or saturated for a period long enough to create anaerobic vegetation and soil conditions during the growing season. (USACE 2008a, Section 4). Primary field indicators of wetland hydrology include surface water, soil saturation, sediment deposits, drift deposits, surface soil cracks, oxidized rhizospheres along living roots. Secondary indicators include drainage patterns. Wetland hydrology was determined to be present if one or more primary indicators or two or more secondary indicators were observed. According to the AWRS (USACE 2008a), wetland hydrology is satisfied if the sampled area is seasonally inundated or saturated to the surface for a minimum of 14 consecutive days during the growing season.

During the wetland delineation, the hydrological setting of the Project Site was evaluated to identify the jurisdictional boundaries of wetlands and waters of the US and their connection to off-site navigable waters. In addition, the overall landforms and climatic/hydrological conditions were assessed.

3.3 Jurisdictional Other Waters Delineation

For non-wetland, “other water” features, the extent of USACE jurisdiction is defined by the OWHM. Delineation of other waters was based on observing indicators for the OWHM (33 CFR 328.3), following established USACE criteria and considering hydrological connectivity or isolation. The OWHM was determined through an examination of both recent and past physical evidence of surface flows. Common physical characteristics that indicate the presence of an OWHM include, but are not limited to, a clear natural line impressed on the bank; evidence of scour; recent bank erosion; destruction of native terrestrial vegetation; sediment deposition; and the presence of litter and debris. The bank-to-bank extent (i.e., bankfull width) of drainages and ponds or lakes that contain water during a normal rainfall year generally serves as a reliable approximation of the lateral limit of USACE jurisdiction.

The limit of the OHWM was recorded in the field based on observations of changes in vegetation and break in bank slope. The upper limit of flow fluctuations by a sharp break in the bank slope, with a corresponding change in vegetation and/or scour; this level was typically mapped as the OHWM.

3.4 Mapping CDFW Jurisdictional Lakes and Streambeds

Streams with associated woody vegetation were assessed to determine if these areas would be considered riparian habitat by the CDFW following A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607, California Fish and Game Code (CDFG 1994). CDFW streambeds include unvegetated waterways and other water bodies with a defined bed and bank, such as streams, lakes, drainages and rivers. CDFW jurisdiction was delineated by measuring outer width boundaries of state jurisdiction (lakes or streambeds), consisting of the greater of either the “top of bank” (TOB) measurement or the extent of associated riparian vegetation. Delineation of CDFW lakes and streambeds was based on indicators of an ephemeral, intermittent or perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks and (2) existing fish or wildlife resources. In the Project Site, the TOB was identified as a distinct break in the bank slope.

4 Environmental Setting

4.1 Topography and Soils

The Project Site is relatively flat, with elevations ranging between approximately 1,480-1,490 feet AMSL. Residential land use borders the Project Site on all sides. The site is regularly and recently disked. The USDA NRCS has identified two soil map units within the Project Site: Exeter and Greenfield. The National List of Hydric Soils was reviewed to determine if the soils within the Project Site are hydric (USDA NRCS 2018). The following soil descriptions, listed below, are from the Online Soil Survey of Western Riverside Area (USDA NRCS 2019) and are depicted on Figure 4, *Map of Soils within the Project Site* and Appendix C, *USDA NRCS Soils Report*.

- Greenfield sandy loam, 0 to 2 percent slopes (GyA: 14.73 ac)
- Exeter sandy loam, deep, 0 to 2 percent slopes (EpA: 4.39 ac)
- Exeter sandy loam, 0 to 2 percent slopes (EnA: 0.68 ac)
- Exeter very fine sandy loam, 0 to 5 percent slopes (EwB: 0.38 ac)

Greenfield sandy loam (GyA). These soils are located throughout all but the southwestern portion of the Project Site. This gently to moderately sloping soil occurs on alluvial fans and terraces. These well-drained soils developed in alluvium consisting mainly of granitic materials. The vegetation is chiefly non-native annual grasses and forbs. In a typical profile, the surface layer is brown sandy loam about 26 inches thick. The subsoil is brown sandy loam and pale-brown loam and extends to a depth of about 60 inches. Permeability of the soil is moderate. Runoff is slow to medium, and the hazard of erosion is light to moderate. The available water holding capacity of 7.5 to 10.0 inches. The root zone is more than 60 inches deep. This is not classified as a hydric soil (USDA NRCS 2019).

Exeter sandy loam (EnA, EpA, EwB). The Exeter series consists of moderately deep to moderately well drained soils that formed in alluvium mainly from granitic sources. Exeter soils are on alluvial fans and stream terraces and have slopes of 0 to 5 percent. Vegetation found on Exeter soils is primarily annual grasses and forbs. The mean annual precipitation is about 11 inches and the mean annual air temperature is about 64 degrees F. This series, which includes three map units within the Project Site, is not classified as a hydric soil (USDA NRCS 2019).

4.2 Vegetation Communities and Land Cover Types

Vegetation communities were mapped in the field onto a color aerial photograph (Figure 5, *Vegetation Communities Map*) and classified according to *A Manual of California Vegetation*, Second Edition (Sawyer et al 2009) or *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), as appropriate. The Project Site supports three (3) vegetation communities and/or land cover types. Nomenclature used for dominant plant species discussed below follows *The Jepson Manual: Vascular Plants of California*, Second Edition (Baldwin et al 2012). Nomenclature changes made after the publication date of this manual follow the Jepson eFlora (2019) website.

The 20.18-acre Project Site is dominated by ruderal vegetation. A non-native Peruvian pepper tree (*Schinus mole*) is present in the northeast portion of the Project Site, while several non-native trees overhang the southern boundary. Vegetation communities observed onsite during the June 13, 2019 field survey are described in detail below.

Ruderal (19.03 acres)

The entire Project Site has been recently disked and is dominated by non-native annual herbs and grasses including foxtail barley (*Hordeum murinum*), wild oats (*Avena fatua*), red brome (*Bromus madritensis* ssp. *rubens*), soft chess (*Bromus hordeaceus*), shepard's purse (*Capsella bursa-pastoris*), wild radish (*Raphanus sativus*), stinknet (*Oncosiphon piluliferum*), London rocket (*Sisymbrium irio*), big heron bill (*Erodium botrys*), coastal heron's bill (*Erodium cicutarium*), and cheeseweed (*Malva parviflora*). Native annual herbs found onsite include common fiddleneck (*Amsinckia intermedia*), slender goldfields (*Lasthenia gracilis*), and miniature lupine (*Lupinus bicolor*). A single arroyo willow (*Salix lasiolepis*) tree is present along the western boundary of the Project Site.

Developed (1.07 acres)

A sidewalk is present along the eastern boundary of the Project Site. Developed areas are generally devoid of vegetation.

Exotic Tree (0.07 acres)

A Peruvian pepper tree is located in the northeast corner of the Project Site. Additional Peruvian pepper trees, eucalyptus (*Eucalyptus* sp.), and queen palms (*Syagrus romanzoffiana*) are located just south of the Project Site in neighboring residential properties and their canopies overhang onto the Project Site.

Black Willow (0.01 ac)

A single black willow (*Salix goodingii*) tree is found on the western boundary of the Project Site, along Tarano Lane.

4.3 Climate and Precipitation

The climate within the Project Site is characterized as Mediterranean, bordering on a semi-arid climate with dry, hot summers and mild, wet winters. At the nearest National Weather Service (NWS) station with at least 20 years of data (RIVERSIDE FIRE STATION 3, CA), the mean annual precipitation in the vicinity of the Project Site is 9.31 inches (average calculated from 1950-2019), with the majority of rain falling from November through March (NOAA NCDC 2019a). Climate data from this weather station indicate that the growing season (based on air temperature thresholds of greater than 32 degrees Fahrenheit [°F] at a frequency of 5 years in 10) is approximately 365 days. The Palmer Drought Index's (NOAA NCDC 2019b) most recent data (June 22, 2019) show that the Project Site region maintained "Near Normal" conditions (-1.9 to +1.9) at the time of the field survey.

4.4 Hydrology

The Project Site is located in the San Jacinto Watershed (USGS Hydrologic Unit 18070202). The Perris Valley Storm Drain is the nearest named hydrologic feature, which is located approximately 1,900 feet to the south of the Project Site (Figure 6, *Local Hydrology*). The Perris Valley Storm Drain is confluent to the San Jacinto River, which flows into Lake Elsinore. Lake Elsinore generally acts as a sink, although high water flows are occasionally diverted through the Elsinore Spillway Channel to Temescal Creek. Temescal Creek flows to the Santa Ana River (nearest Traditional Navigable Water [TNW]) and finally to the Pacific Ocean.

Primary sources of hydrology that support the unnamed drainage (D1) onsite include storm flows, as well as "nuisance flows" from surrounding residential areas.

4.5 NWI Features

According to the USFWS NWI map (USFWS 2019), no wetland features are present in or around the Project Site.

4.6 FEMA Flood Zone

The Federal Emergency Management Agency (FEMA) produces maps which depict flood zones which are generally associated with rivers, oceans and other water bodies. Like NWI maps, FEMA flood zone maps are based predominantly on topography and regional modeling. Based upon a review of local FEMA flood zone maps, the entire Project Site is characterized as Zone X (Area of Minimal Flood Hazard) (Appendix D, *FEMA National Flood Hazard Layer FIRMette*) (FEMA 2019).

5 Results

The 20.18-acre Project Site was evaluated for the presence of waters of the US subject to USACE jurisdiction, as well as Waters of the State which are regulated by RWQCB/CDFW, and Western Riverside MSHCP riparian/riverine resources. Wetlands and other water features were delineated and mapped based on federal and state delineation guidance, methodology, and regulatory framework and code, as described in Section 2 (Regulatory Setting). The results of this delineation are based on conditions observed at the time of the field surveys conducted on June 13, 2019. All other waters and wetlands (including final acreages and types) delineated within the Project Site are subject to final determination performed by USACE.

Field data were recorded on standard USACE AWRS datasheets provided in Appendix A, *Wetland Delineation Data Forms*. Per USACE mapping guidelines, the delineation map shown in Figures 7, 8, and 9 depict the extent of potential federal, state, and local jurisdictional features mapped within Project Site at a scale of 1 inch = 200 feet. Representative photographs taken during site surveys to document existing conditions at each Sample Point (SP) location are provided in Appendix B, *Current Project Site Photographs*. Soils mapped by the USDA NRCS within the Project Site is provided in Appendix C, *USDA NRCS Soils Report*. A summary of jurisdictional resources is presented in Table 1.

Table 1. Jurisdictional Resources (D1)

Agency	Length (lf)	Area (ac)
USACE	N/A	N/A
RWQCB	592	0.067
CDFW	592	0.118
MSHCP Riverine	26	0.108
MSHCP Riparian	566	0.010
MSHCP Vernal Pool	N/A	N/A

5.1 USACE Jurisdictional Resources / Non-Waters of the US

A single unnamed ephemeral drainage (D1) (0.067 ac) originates from a concrete storm drain outlet located at the northwest corner of the Project Site and flows directly south to the southwest corner (Appendix B, *Current Project Site Photographs*). At the southwest corner, this drainage begins to dissipate and flow onto Tarano Boulevard for approximately 490 feet and into a storm drain inlet that flows to the Perris Valley Storm Drain and then into the San Jacinto River. D1 is a tributary to the Perris Valley Storm Drain (Figure 6, *Local Hydrology*), which is ultimately a tributary to the Pacific Ocean. As D1 is an ephemeral feature that contains water only during or in response to rainfall, the USACE does not exert jurisdiction over this drainage.

Two wetland sample points were taken proximal to D1 (Appendix A, *Wetland Delineation Data Forms*). Sample Point 1 (SP1) is located under the canopy of a black willow (*Salix goodingii*) and adjacent to the

drainage feature's top of bank. Sample Point 2 (SP2) is located within the OHWM of D1 and just south of the drainage outlet at the northwest corner of the Project Site. Based on the results of SP1 and SP2, no wetland features are present within the Project Site.

5.2 RWQCB Jurisdictional Resources

The RWQCB protects all waters in its regulatory scope but has special responsibility for regulating isolated wetlands and headwaters that may not be regulated by Section 404 of the CWA. Therefore, in addition to all features potentially regulated by Section 404 of the CWA, all wetlands and other water features identified as isolated from CWA 404 jurisdiction, as well those not regulated by USACE due to the lack of a significant nexus to a Traditional Navigable Water, may be considered jurisdictional by RWQCB pursuant to the Section 401 of the Clean Water Act and/or Porter-Cologne Act. There is a total of 0.067 acres in the Project Site that may be regulated by RWQCB as Waters of the State (Figure 7, *RWQCB Jurisdictional Resources Map*; Appendix B, *Current Project Site Photographs*; and Table 1, *Jurisdictional Resources*).

5.3 CDFW Jurisdictional Resources

Pursuant to Division 2, Chapter 6, Section 1600-1603 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife. A total of 0.118 acres of CDFW jurisdictional areas were mapped on the Project Site and include a streambed feature measured from the top of bank and riparian vegetation associated with this feature, measured from the dripline (Figure 8, *CDFW Jurisdictional Resources Map*; Appendix B, *Current Project Site Photographs*; and Table 1, *Jurisdictional Resources*).

5.4 Western Riverside MSHCP Jurisdictional Resources

Based on Section 6.1.2 of the MSHCP (2004), the onsite ephemeral drainage (D1) receives small amounts of residential nuisance water and also conveys freshwater flow during short duration seasonal rain events. The onsite drainage contains both MSHCP riparian (0.010 ac) and riverine (0.108 ac) resources pursuant to Section 6.1.2 of the MSHCP (Figure 9, *MSHCP Riparian/Riverine Resources Map*; Appendix B, *Current Project Site Photographs*; and Table 1, *Jurisdictional Resources*). No vernal pool resources were observed on the Project Site.

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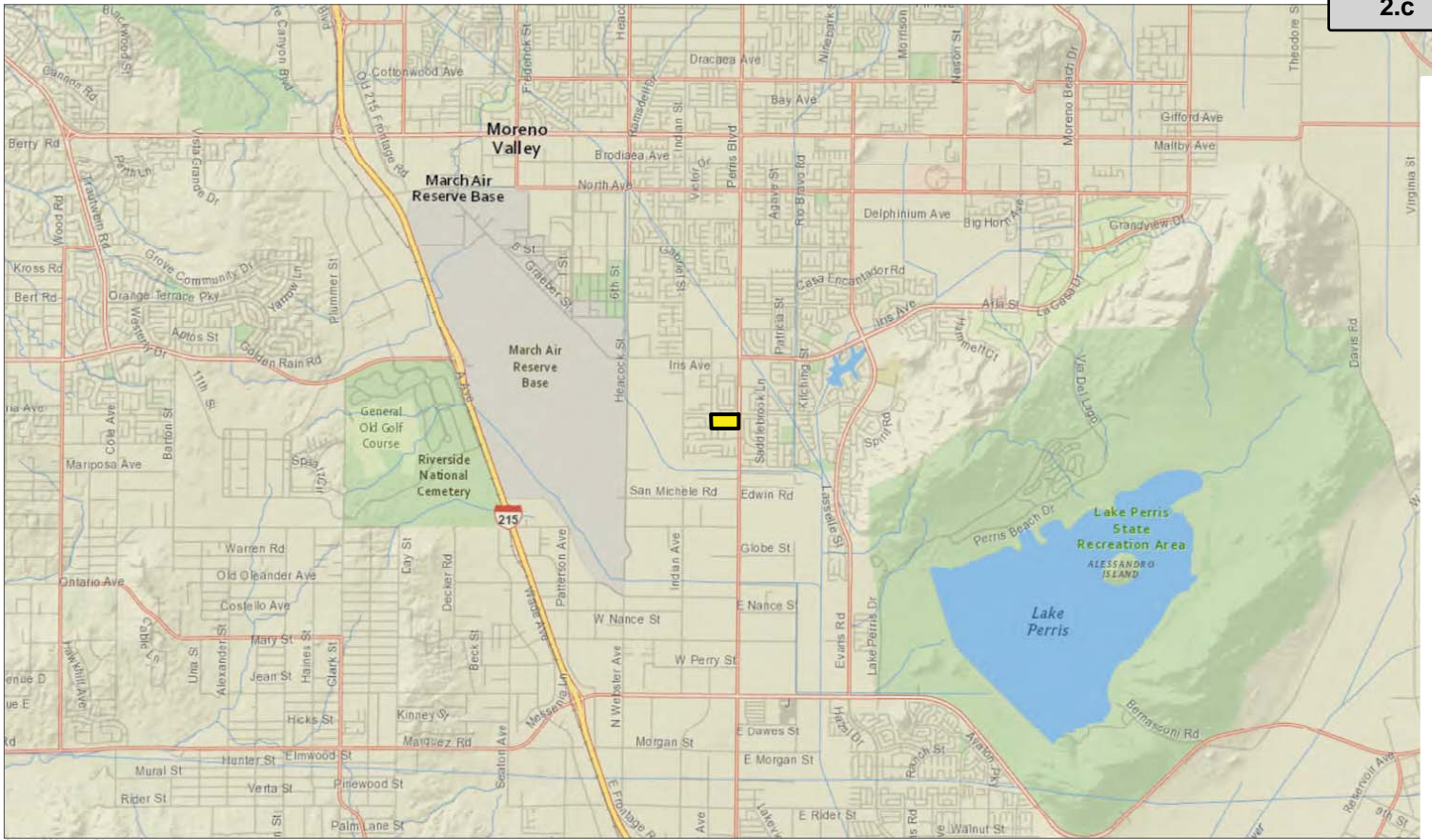
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FIGURES



Source: ESRI 2019, Riverside County 2019

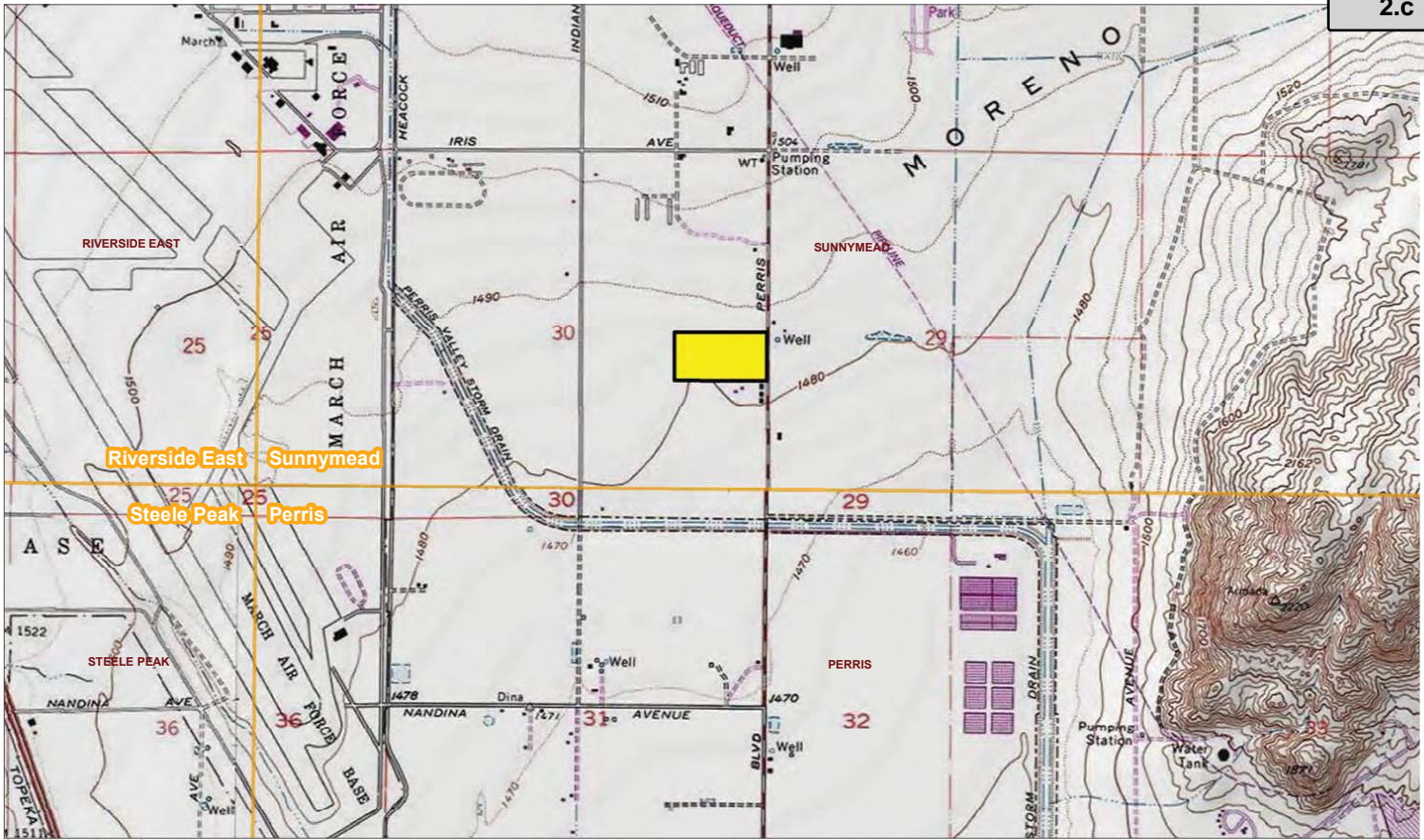
 Project Site Boundary (20.18 ac)

0 0.5 1 2 Miles



Figure 1 Vicinity Map

Krameria Avenue Project Site, Moreno Valley, CA



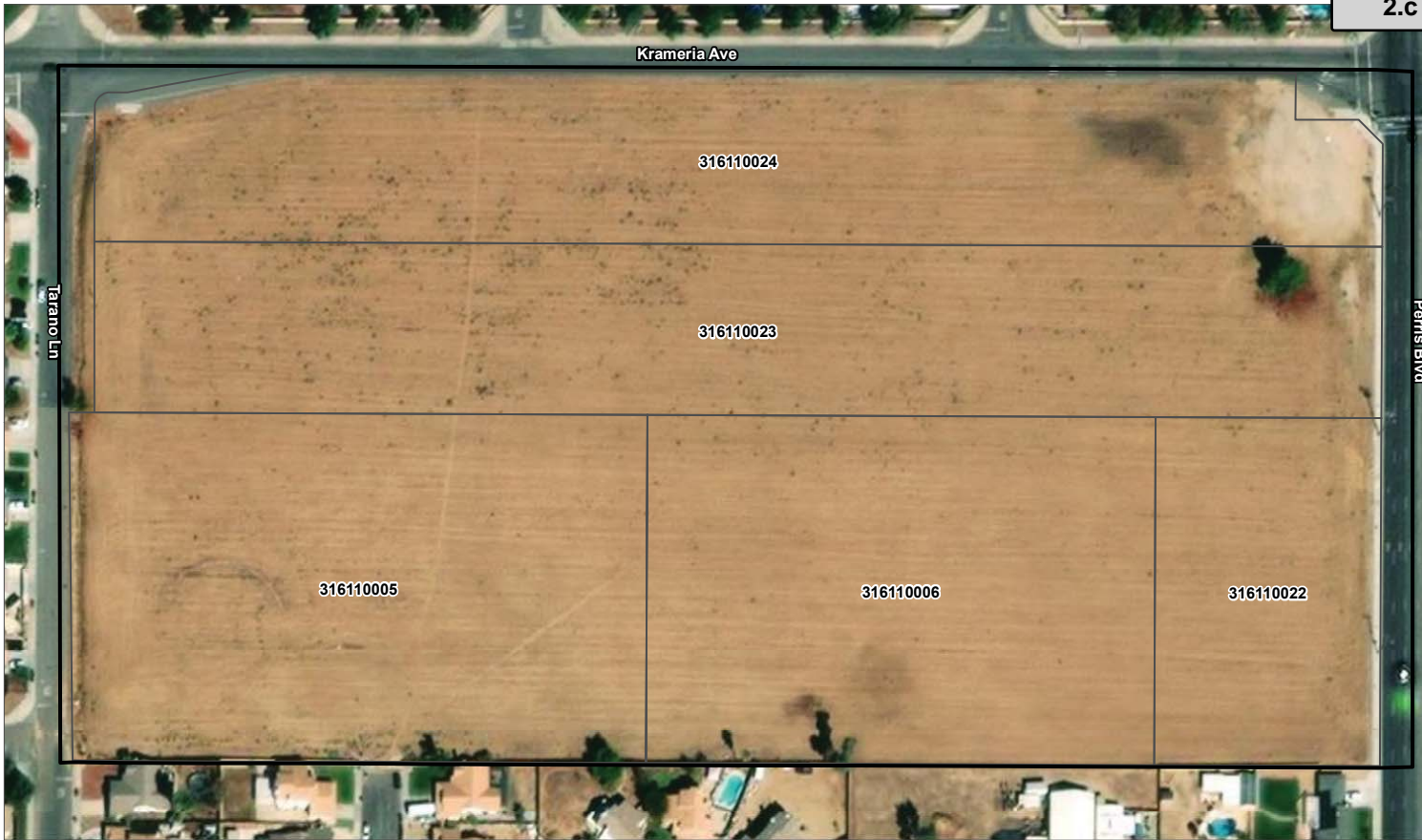
Project Site Boundary (20.18 ac)
 USGS 7.5' Quadrangle

0 0.25 0.5 1 Miles

1:24,000
Section 30, Township 3S, Range 3W

Figure 2 USGS Topographic Map
Krameria Avenue Project Site, Moreno Valley, CA





Source: ESRI 2019, Riverside County 2019



-  Project Site Boundary (20.18 ac)
-  Parcels



Figure 3 Aerial Photograph of Project Site
 Krameria Avenue Project Site, Moreno Valley,

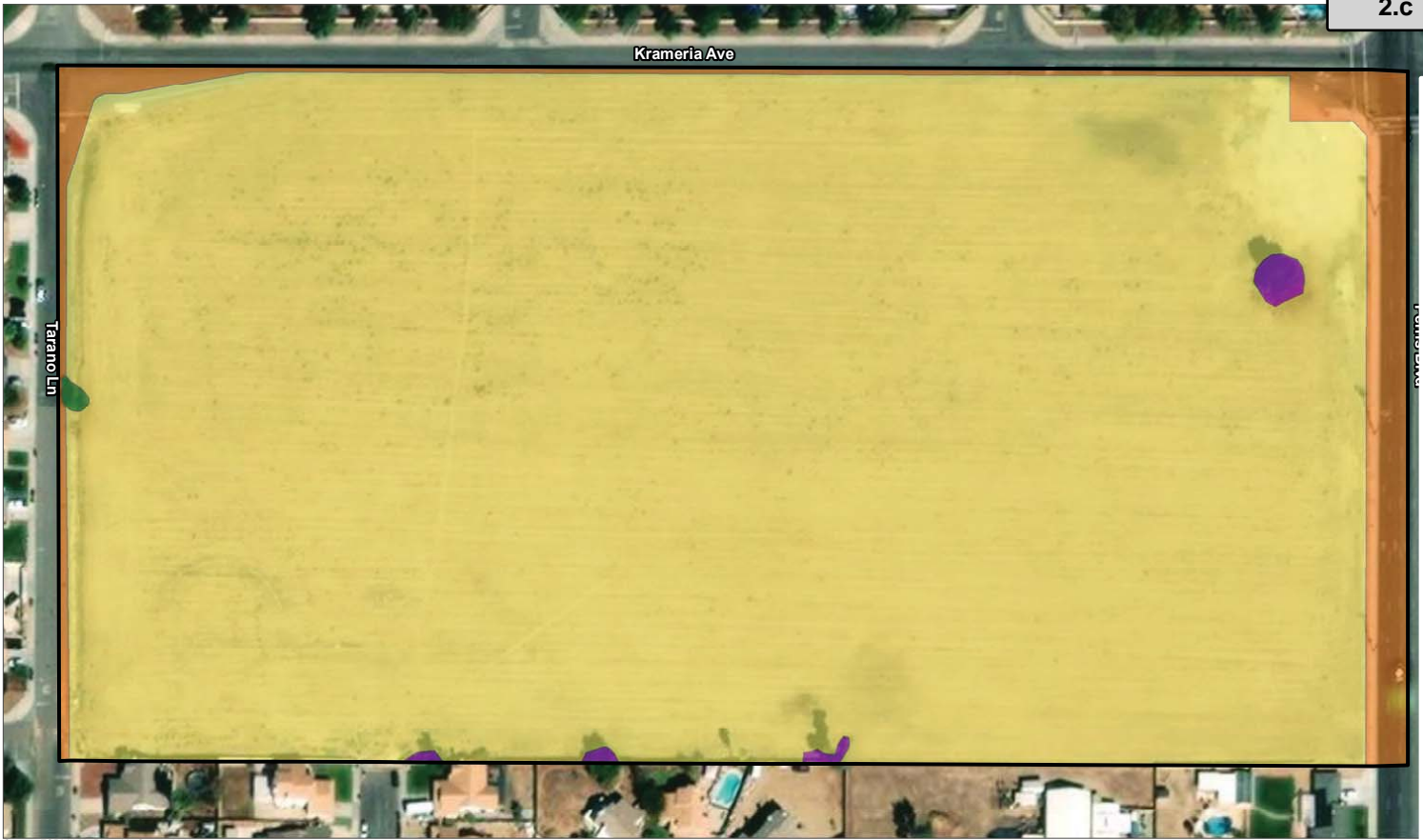


Source: ESRI 2019, Riverside County 2019, USDA NRCS 2019

- Project Site Boundary (20.18 ac)
- Soils
- Greenfield sandy loam, 0 to 2 percent slopes (GyA: 14.73 ac)
- Exeter sandy loam, deep, 0 to 2 percent slopes (EpA: 4.39 ac)
- Exeter sandy loam, 0 to 2 percent slopes (EnA: 0.68 ac)
- Exeter very fine sandy loam, 0 to 5 percent slopes (EwB: 0.38 ac)



Figure 4 Map of Soils within the Project Site
 Krameria Avenue Project Site, Moreno Valley, CA

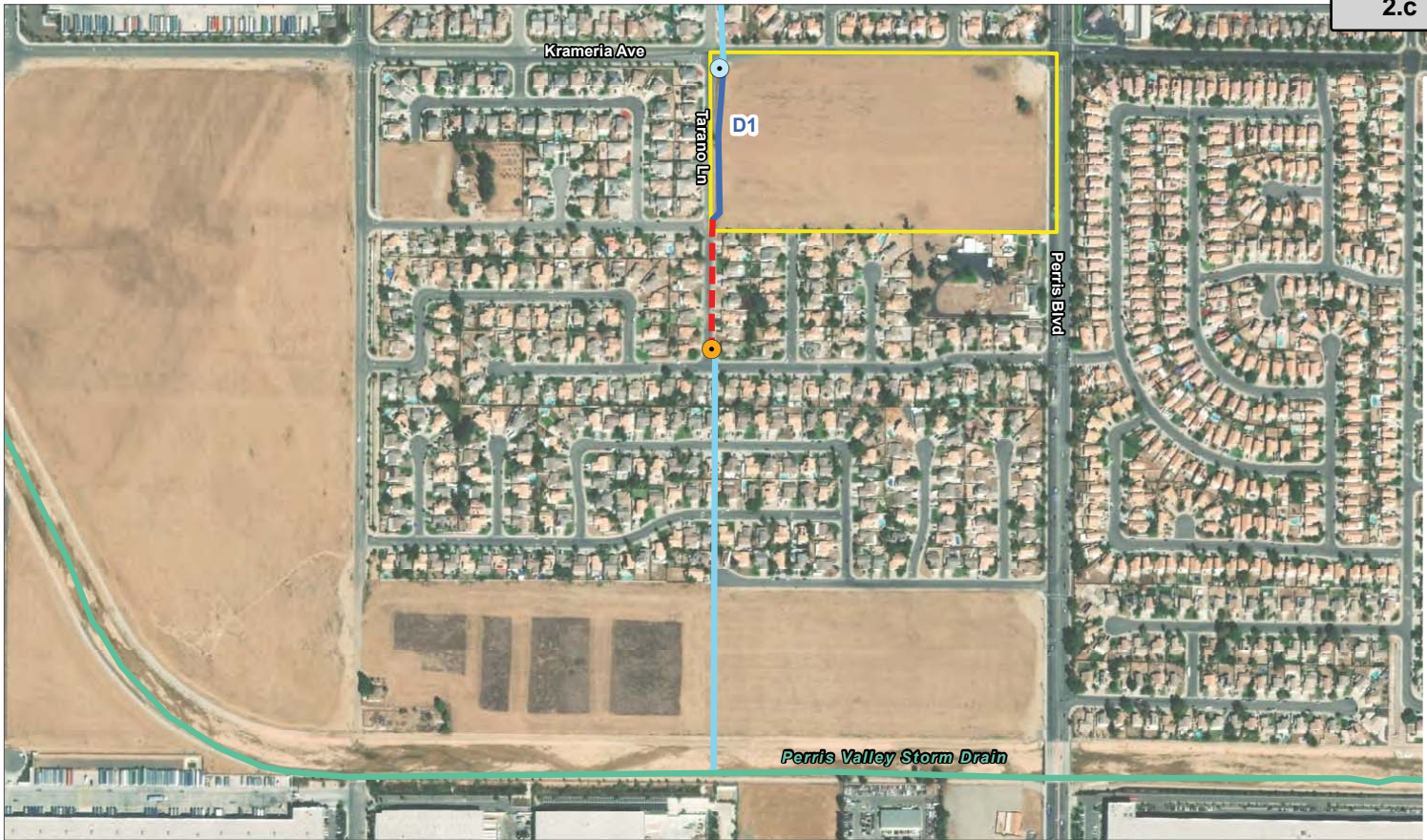


Source: ESRI 2019, Riverside County 2019

- Project Site Boundary (20.18 ac)
- Vegetation Community
- Ruderal (19.03 ac)
- Developed (1.07 ac)
- Exotic Tree (0.07 ac)
- Black Willow (0.01 ac)



Figure 5 Biological Resources Map
 Krameria Avenue Project Site, Moreno Valley, CA



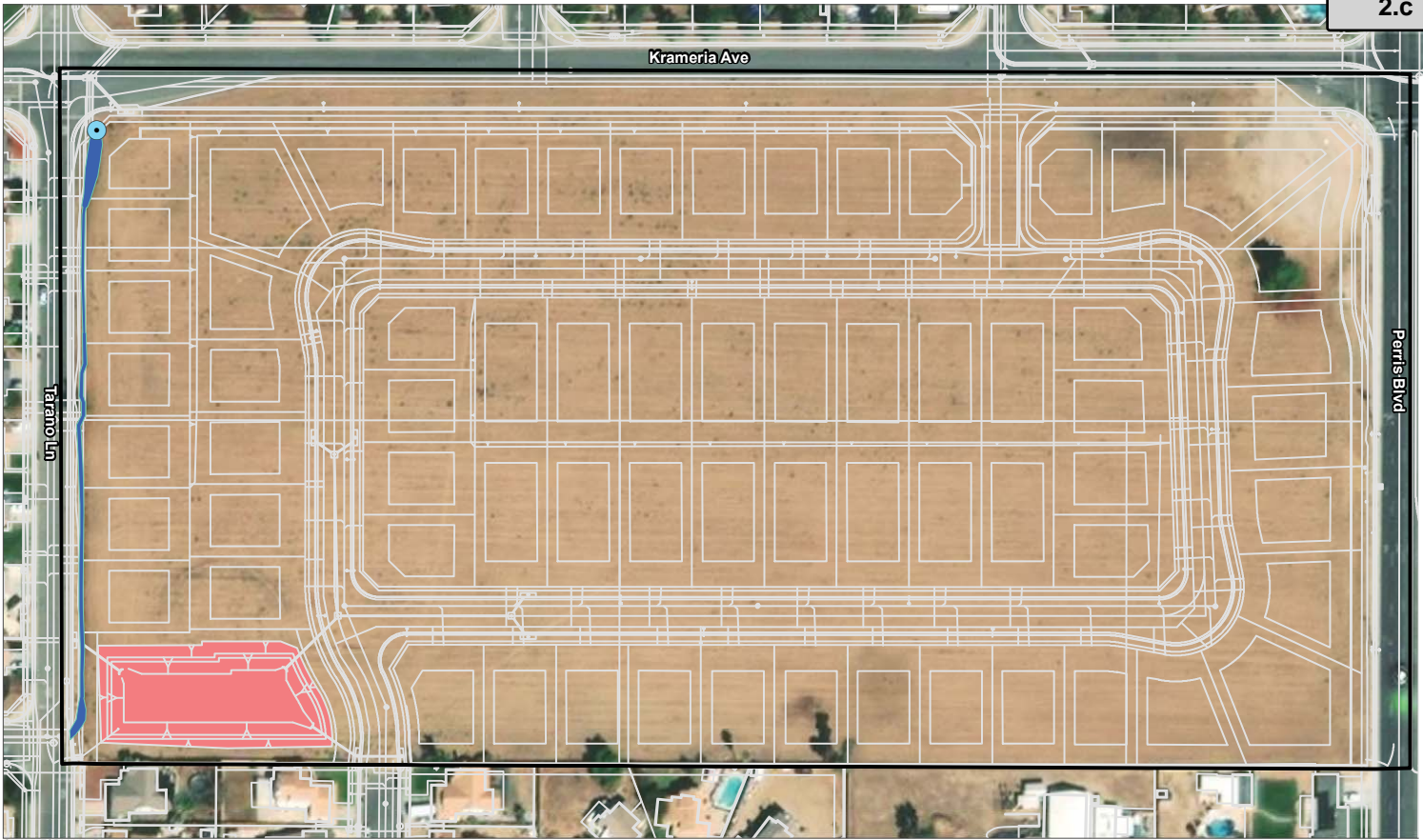
Source: ESRI 2019, Riverside County 2019

- Project Site Boundary (20.18 ac)
- Perris Valley Storm Drain
- Unnamed Drainage (D1)
- Sheet Flow on Tarano Lane
- Unnamed Storm Drain (subsurface)
- Storm Drain Outlet
- Storm Drain Inlet



Figure 6 Local Hydrology

Krameria Avenue Project Site, Moreno Valley, CA



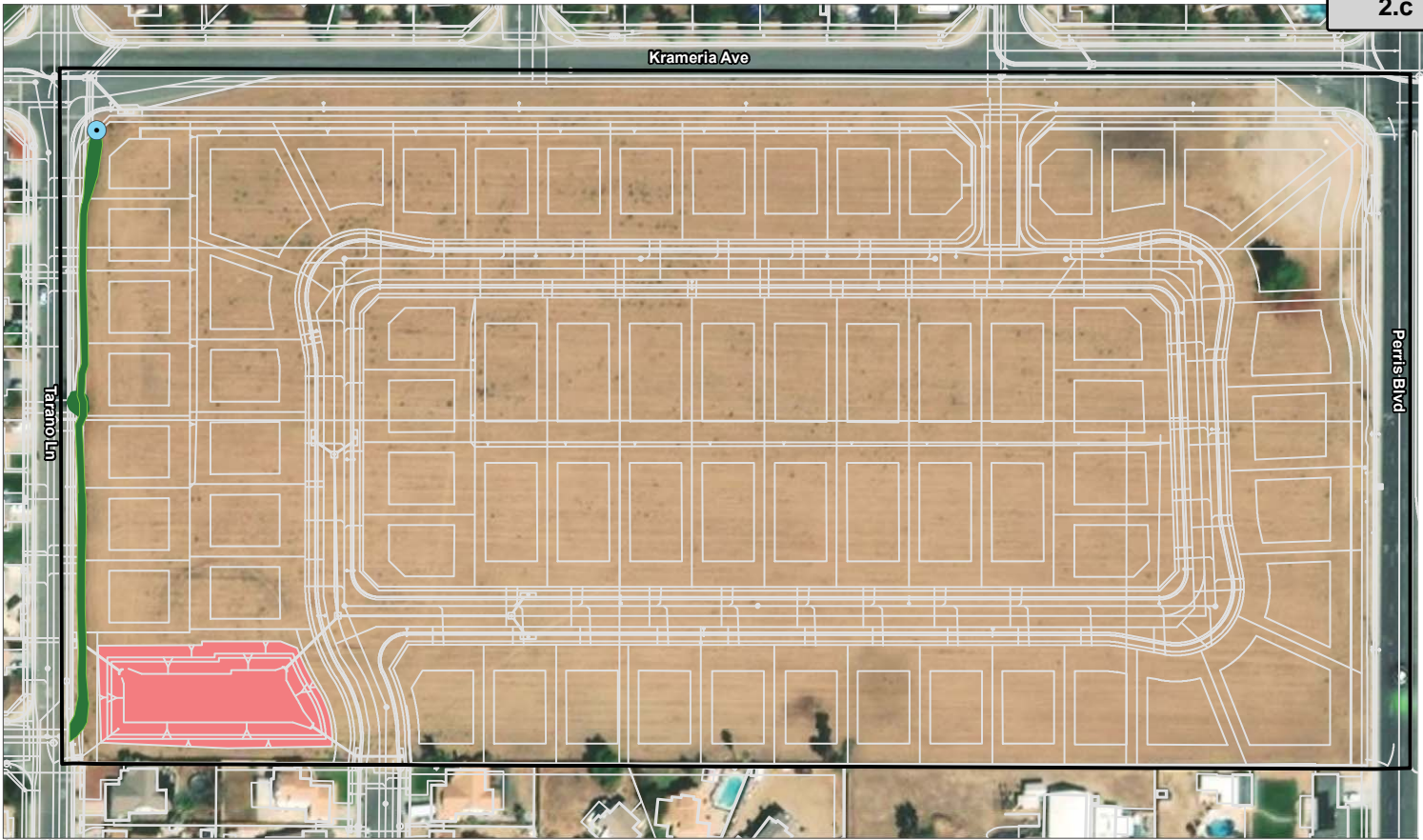
Source: ESRI 2019, Riverside County 2019

- Project Site Boundary (20.18 ac)
- Proposed Bioretention Area (0.483 ac)
- Ordinary High Water Mark (OHWM)
- Permanently Impacted RWQCB Jurisdictional Area (0.067 ac)
- Development Plan
- Drainage Outlet

Date of Map Preparation: 10/07/2019
 Imagery: ESRI (10/19/2018)
 Coordinate System: State Plane, Zone VI
 Datum: NAD83
 Vertical Datum: NAVD88
 Map Created by: Jonathan Campbell
 Delineation by: Jonathan Campbell



Figure 7 RWQCB Jurisdictional Resources Map
 Krameria Avenue Project Site, Moreno Valley, CA



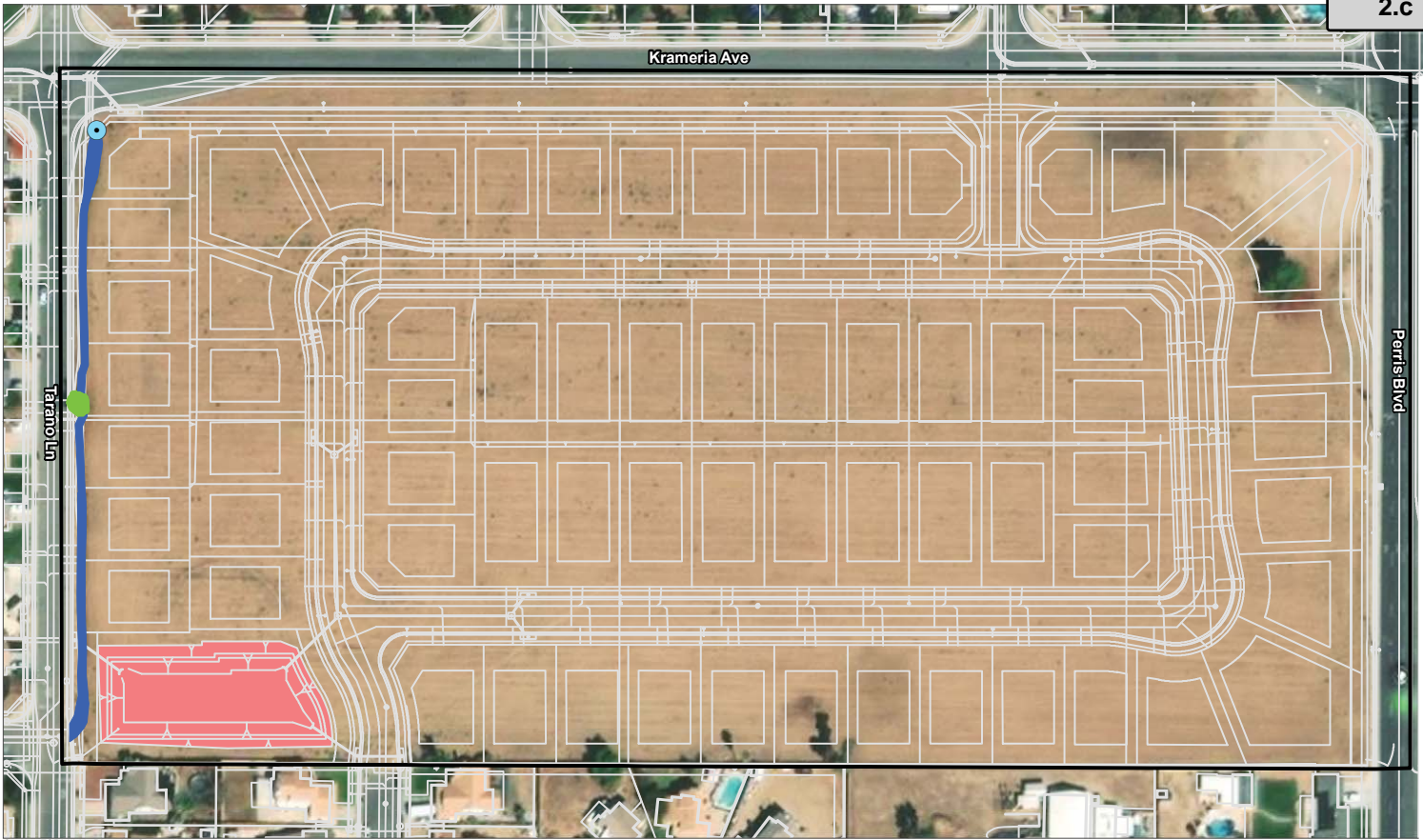
Source: ESRI 2019, Riverside County 2019

- Project Site Boundary (20.18 ac)
- Proposed Bioretention Area (0.483 ac)
- Top of Bank
- Permanently Impacted CDFW Jurisdictional Area (0.118 ac)
- Development Plan
- Drainage Outlet

Date of Map Preparation: 10/07/2019
 Imagery: ESRI (10/19/2018)
 Coordinate System: State Plane, Zone VI
 Datum: NAD83
 Vertical Datum: NAVD88
 Map Created by: Jonathan Campbell
 Delineation by: Jonathan Campbell



Figure 8 CDFW Jurisdictional Resources Map
 Krameria Avenue Project Site, Moreno Valley, CA



- Project Site Boundary (20.18 ac)
- Proposed Bioretention Area (0.483 ac)
- Permanently Impacted MSHCP Riverine Area (0.108 ac)
- Permanently Impacted MSHCP Riparian Area (0.010 ac)
- Development Plan
- Drainage Outlet

Date of Map Preparation: 10/07/2019
 Imagery: ESRI (10/19/2018)
 Coordinate System: State Plane, Zone VI
 Datum: NAD83
 Vertical Datum: NAVD88
 Map Created by: Jonathan Campbell
 Delineation by: Jonathan Campbell



Figure 9 MSHCP Riparian/Riverine Resources Map
 Krameria Avenue Project Site, Moreno Valley, CA

APPENDICES

Appendix A – Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Krameria Project Site City/County: Moreno Valley, Riverside Co Sampling Date: 06/11/2019
 Applicant/Owner: PI Properties No. 67, LLC State: CA Sampling Point: SP1
 Investigator(s): Jonathan Campbell Section, Township, Range: 30, 3S, 3W
 Landform (hillslope, terrace, etc.): drainage ditch Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): C Lat: 33.88015N Long: -117.23045W Datum: WGS84
 Soil Map Unit Name: Exeter sandy loam, deep, 0 to 2 percent slopes (EpA) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: SP1 has been subject to recent disking.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>2mx2m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix lasiolepis</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>17%</u> (A/B)
2. _____				
3. _____				
4. _____				
	<u>30</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>2mx2m</u>)				
1. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>30</u> x 2 = <u>60</u> FAC species _____ x 3 = _____ FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>30</u> x 5 = <u>150</u> Column Totals: <u>80</u> (A) <u>290</u> (B) Prevalence Index = B/A = <u>3.625</u>
2. _____				
3. _____				
4. _____				
5. _____				
Herb Stratum (Plot size: <u>2mx2m</u>)				
1. <u>Avena fatua</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Hordeum murinum</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Bromus hordaceus</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Erodium cicutarium</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	
5. <u>Malva parviflora</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	
6. _____				
7. _____				
8. _____				
	<u>50</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>2mx2m</u>)				
1. _____				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>50</u> % Cover of Biotic Crust <u>0</u>				
Remarks:				

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

SOIL

Sampling Point: SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 4/3	100					sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:
recently and regularly disked

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____

Water Table Present? Yes _____ No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No Depth (inches): _____

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Krameria Project Site City/County: Moreno Valley, Riverside Co Sampling Date: 06/11/2019
 Applicant/Owner: PI Properties No. 67, LLC State: CA Sampling Point: SP2
 Investigator(s): Jonathan Campbell Section, Township, Range: 30, 3S, 3W
 Landform (hillslope, terrace, etc.): drainage ditch Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): C Lat: 33.88090N Long: -117.23045W Datum: WGS84
 Soil Map Unit Name: Exeter sandy loam, deep, 0 to 2 percent slopes (EpA) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>1mx3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>1mx3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
_____ = Total Cover				
Herb Stratum (Plot size: <u>1mx3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Echinochloa colona</u>	<u>65</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Portulaca oleracea</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>Malva parviflora</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
4. <u>Polygonum aviculara</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5. <u>Lepidium didymum</u>	<u>3</u>	<u>N</u>	<u>UPL</u>	
6. <u>Sonchus oleraceus</u>	<u>2</u>	<u>N</u>	<u>UPL</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>1mx3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust <u>0</u>				
Remarks:				

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

SOIL

Sampling Point: SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 2/1	100					sandy	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR C)**
- 1 cm Muck (A9) **(LRR D)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR C)**
- 2 cm Muck (A10) **(LRR B)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

Restrictive cobbles at 14"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) **(Nonriverine)**
- Sediment Deposits (B2) **(Nonriverine)**
- Drift Deposits (B3) **(Nonriverine)**
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Marks (B1) **(Riverine)**
- Sediment Deposits (B2) **(Riverine)**
- Drift Deposits (B3) **(Riverine)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes _____ No Depth (inches): _____

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix B – Current Project Site Photographs



PHOTOGRAPH 3 - D1 flows along the western edge of the Project Site and represents a USACE, RWQCB, CDFW, and MSHCP riverine resource (0.096). The onsite arroyo willow tree (pictured) represents a CDFW and MSHCP riparian resource (0.007 ac).



PHOTOGRAPH 4 - Storm water (blue line) flows overland off the Project Site, directly onto Tarano Blvd and then into a storm drain.

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix C Current Project Site Photographs

Krameria Avenue Project Site, Moreno Valley, CA





PHOTOGRAPH 1 - The onsite, ephemeral drainage feature (D1) is fed from a storm drain outlet at the northwest corner of the Project Site and flows south.



PHOTOGRAPH 2 - Although a relatively mesic vegetation community is present at the storm drain outlet, this area does not represent a USACE jurisdictional wetland (see Appendix A, SP2).

Appendix C Current Project Site Photographs

Krameria Avenue Project Site, Moreno Valley, CA

Appendix C - USDA NRCS Soils Report



A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Western Riverside Area, California



Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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Soil Map

2.c



MAP LEGEND		MAP INFORMATION	
<p>Area of Interest (AOI)</p> <ul style="list-style-type: none"> Area of Interest (AOI) <p>Soils</p> <ul style="list-style-type: none"> Soil Map Unit Polygons Soil Map Unit Lines Soil Map Unit Points <p>Special Point Features</p> <ul style="list-style-type: none"> Blowout Borrow Pit Clay Spot Closed Depression Gravel Pit Gravelly Spot Landfill Lava Flow Marsh or swamp Mine or Quarry Miscellaneous Water Perennial Water Rock Outcrop Saline Spot Sandy Spot Severely Eroded Spot Sinkhole Slide or Slip Sodic Spot 	<ul style="list-style-type: none"> Spoil Area Stony Spot Very Stony Spot Wet Spot Other Special Line Features <p>Water Features</p> <ul style="list-style-type: none"> Streams and Canals <p>Transportation</p> <ul style="list-style-type: none"> Rails Interstate Highways US Routes Major Roads Local Roads <p>Background</p> <ul style="list-style-type: none"> Aerial Photography 	<p>The soil surveys that comprise your AOI were mapped at 1:15,800.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Warning: Soil Map may not be valid at this scale.</p> <p>Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.</p> </div> <p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</p> <p>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: Western Riverside Area, California Survey Area Data: Version 11, Sep 12, 2018</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Jan 14, 2015—Jan 21, 2015</p> <p>The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.</p>	

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EnA	Exeter sandy loam, 0 to 2 percent slopes	0.6	2.9%
EpA	Exeter sandy loam, deep, 0 to 2 percent slopes	4.0	21.1%
EwB	Exeter very fine sandy loam, 0 to 5 percent slopes	0.4	1.9%
GyA	Greenfield sandy loam, 0 to 2 percent slopes	14.2	74.1%
Totals for Area of Interest		19.2	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Western Riverside Area, California

EnA—Exeter sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hctg
Elevation: 20 to 700 feet
Mean annual precipitation: 7 to 20 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Exeter and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Exeter

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 16 inches: sandy loam
H2 - 16 to 37 inches: sandy clay loam
H3 - 37 to 50 inches: indurated
H4 - 50 to 60 inches: stratified sandy loam to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

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Minor Components**Greenfield**

Percent of map unit: 4 percent
Hydric soil rating: No

Ramona

Percent of map unit: 4 percent
Hydric soil rating: No

Monserate

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 3 percent
Hydric soil rating: No

EpA—Exeter sandy loam, deep, 0 to 2 percent slopes**Map Unit Setting**

National map unit symbol: hctk
Elevation: 300 to 700 feet
Mean annual precipitation: 7 to 15 inches
Mean annual air temperature: 64 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Exeter and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Exeter**Setting**

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 16 inches: sandy loam
H2 - 16 to 37 inches: sandy clay loam
H3 - 37 to 50 inches: indurated
H4 - 50 to 60 inches: stratified sandy loam to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 35 to 60 inches to duripan

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Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

Minor Components**Greenfield**

Percent of map unit: 5 percent
Hydric soil rating: No

Ramona

Percent of map unit: 5 percent
Hydric soil rating: No

Monserate

Percent of map unit: 5 percent
Hydric soil rating: No

EwB—Exeter very fine sandy loam, 0 to 5 percent slopes**Map Unit Setting**

National map unit symbol: hctm
Elevation: 20 to 700 feet
Mean annual precipitation: 7 to 20 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Exeter and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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Description of Exeter**Setting**

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 16 inches: very fine sandy loam
H2 - 16 to 37 inches: sandy clay loam
H3 - 37 to 50 inches: indurated
H4 - 50 to 60 inches: stratified sandy loam to silt loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

Minor Components**Greenfield**

Percent of map unit: 5 percent
Hydric soil rating: No

Ramona

Percent of map unit: 5 percent
Hydric soil rating: No

Monserate

Percent of map unit: 5 percent
Hydric soil rating: No

GyA—Greenfield sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hcvv
Elevation: 100 to 3,500 feet
Mean annual precipitation: 9 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Greenfield and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Greenfield

Setting

Landform: Terraces, alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 26 inches: sandy loam
H2 - 26 to 43 inches: fine sandy loam
H3 - 43 to 60 inches: loam
H4 - 60 to 72 inches: stratified loamy sand to sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: A
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

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Minor Components**Hanford**

Percent of map unit: 10 percent
Hydric soil rating: No

Pachappa

Percent of map unit: 2 percent
Hydric soil rating: No

Arlington

Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Soil Physical Properties

This folder contains a collection of tabular reports that present soil physical properties. The reports (tables) include all selected map units and components for each map unit. Soil physical properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is

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given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause

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damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (<http://soils.usda.gov>)

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Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Physical Soil Properties—Western Riverside Area, California														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/In</i>	<i>Pct</i>	<i>Pct</i>					
EnA—Exeter sandy loam, 0 to 2 percent slopes														
Exeter	0-16	-66-	-19-	10-15- 20	1.50-1.55-1.60	4.00-9.00-14.00	0.10-0.12-0.13	0.0- 1.5- 2.9	0.0- 0.5- 1.0	.17	.17	2	3	86
	16-37	-58-	-18-	18-24- 30	1.40-1.45-1.50	4.00-9.00-14.00	0.14-0.16-0.17	3.0- 4.5- 5.9	0.0- 0.3- 0.5	.24	.24			
	37-50	—	—	—	—	0.00-0.00-0.01	—	—	—					
	50-60	-33-	-57-	5-10- 15	1.60-1.65-1.70	1.40-2.70-4.00	0.09-0.12-0.15	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.64	.64			
EpA—Exeter sandy loam, deep, 0 to 2 percent slopes														
Exeter	0-16	-66-	-19-	10-15- 20	1.50-1.55-1.60	4.00-9.00-14.00	0.10-0.12-0.13	0.0- 1.5- 2.9	0.5- 0.8- 1.0	.20	.20	2	3	86
	16-37	-54-	-17-	22-29- 35	1.45-1.53-1.60	1.40-2.70-4.00	0.14-0.16-0.17	3.0- 4.5- 5.9	0.0- 0.0- 0.0	.24	.24			
	37-50	—	—	—	—	0.00-0.00-0.01	—	—	—					
	50-60	-33-	-57-	5-10- 15	1.50-1.58-1.65	1.40-2.70-4.00	0.09-0.12-0.15	0.0- 1.5- 2.9	0.0- 0.0- 0.0	.64	.64			

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Physical Soil Properties—Western Riverside Area, California														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/In</i>	<i>Pct</i>	<i>Pct</i>					
EwB—Exeter very fine sandy loam, 0 to 5 percent slopes														
Exeter	0-16	-62-	-23-	10-15- 20	1.45-1.50- 1.55	4.00-9.00-14.00	0.14-0.15-0.1 6	0.0- 1.5- 2.9	0.0- 0.5- 1.0	.37	.37	2	3	86
	16-37	-58-	-18-	18-24- 30	1.40-1.45- 1.50	4.00-9.00-14.00	0.14-0.16-0.1 7	3.0- 4.5- 5.9	0.0- 0.3- 0.5	.24	.24			
	37-50	—	—	—	—	0.00-0.00-0.01	—	—	—					
	50-60	-33-	-57-	5-10- 15	1.60-1.65- 1.70	1.40-2.70-4.00	0.09-0.12-0.1 5	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.64	.64			
GyA— Greenfield sandy loam, 0 to 2 percent slopes														
Greenfield	0-26	-66-	-23-	7-11- 15	1.45-1.50- 1.55	14.00-28.00-42. 00	0.10-0.13-0.1 5	0.0- 1.5- 2.9	0.5- 0.8- 1.0	.28	.28	5	3	86
	26-43	-70-	-16-	10-14- 18	1.50-1.55- 1.60	14.00-28.00-42. 00	0.11-0.14-0.1 6	0.0- 1.5- 2.9	0.0- 0.0- 0.0	.28	.28			
	43-60	-41-	-37-	18-22- 25	1.45-1.50- 1.55	4.00-9.00-14.00	0.14-0.15-0.1 6	0.0- 1.5- 2.9	0.0- 0.0- 0.0	.37	.37			
	60-72	-66-	-23-	7-11- 15	-1.50-	14.00-28.00-42. 00	0.07-0.10-0.1 2	0.0- 1.5- 2.9	0.0- 0.0- 0.0	.17	.28			

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Custom Soil Resource Report

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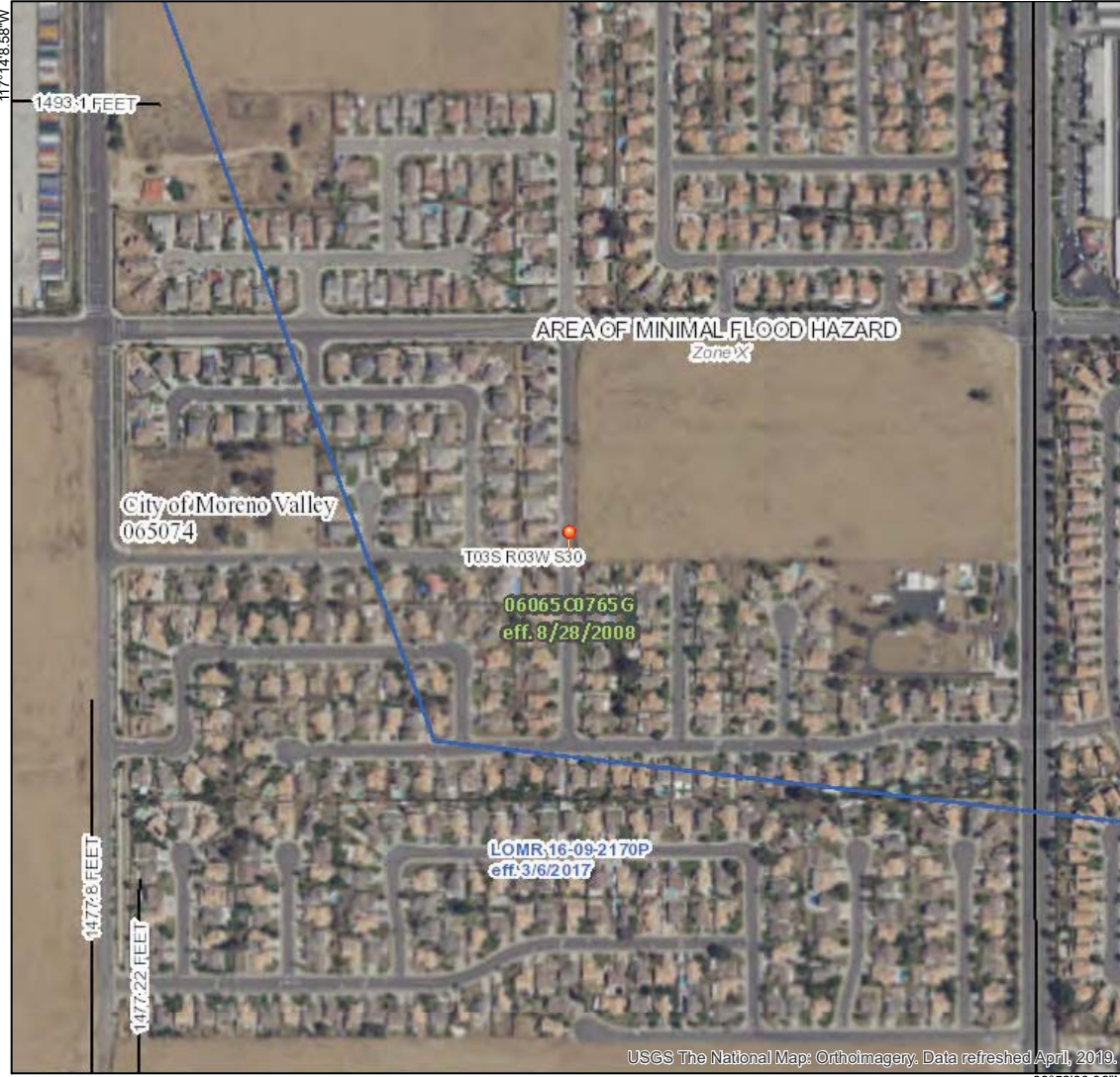
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Appendix D - FEMA National Flood Hazard Layer FIRMette

National Flood Hazard Layer FIRMette



33°53'0.83"N



Legend 2.c

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- | | |
|------------------------------------|---|
| SPECIAL FLOOD HAZARD AREAS | <ul style="list-style-type: none"> Without Base Flood Elevation (BFE) Zone A, V, A99 With BFE or Depth Zone AE, AO, A Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | <ul style="list-style-type: none"> 0.2% Annual Chance Flood Hazard of 1% annual chance flood with depth less than one foot or with areas of less than one square foot Future Conditions 1% Annual Chance Flood Hazard Zone X Area with Reduced Flood Risk Levee. See Notes. Zone X Area with Flood Risk due to Levee |
| OTHER AREAS | <ul style="list-style-type: none"> NO SCREEN Area of Minimal Flood Hazard Effective LOMRs Area of Undetermined Flood Hazard |
| GENERAL STRUCTURES | <ul style="list-style-type: none"> Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall |
| OTHER FEATURES | <ul style="list-style-type: none"> Cross Sections with 1% Annual Water Surface Elevation Coastal Transect Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Transect Baseline Profile Baseline Hydrographic Feature |
| MAP PANELS | <ul style="list-style-type: none"> Digital Data Available No Digital Data Available Unmapped |

The pin displayed on the map is an arbitrary point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This was exported on 6/11/2019 at 5:33:54 PM and does not reflect changes or amendments subsequent to this date. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following elements do not appear: basemap imagery, flood zone legend, scale bar, map creation date, community identifier, FIRM panel number, and FIRM effective date. Map images of unmapped and unmodernized areas cannot be used for regulatory purposes.

USGS The National Map: Orthoimagery. Data refreshed April, 2019.

0 250 500 1,000 1,500 2,000 Feet 1:6,000 33°52'30.96"N

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Appendix C Phase I Cultural Resources Technical Report

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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**Phase I Cultural Resources Assessment
of the Proposed 69-Lot Single-Family Residential Subdivision
City of Moreno Valley, County of Riverside, California**

Prepared for:

Positive Investments c/o Thatcher Engineering Associates, Inc.
Vicky Valenzuela, Project Manager
1461 Ford Street, Suite 105
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Prepared by:

MIG, Inc.
1500 Iowa Avenue, Suite 110
Riverside, California 92507

Author:

Christopher W. Purtell, M.A., RPA, Director of Cultural Resources



Sunnymead and Perris, CA United States Geological Survey 7.5" Quadrangle Maps, Section 30
Township 3 South, Range 3 West

Project Acreage: 19.08
Resources Identified: None

May 30, 2019

This document is designed for double-sided printing

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Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

1-EXECUTIVE SUMMARY

The proposed Project is a Tentative Tract Map for 69-Lot Single-Family Residential Subdivision situated on a 19.08-acres of vacant land in the City of Moreno Valley, County of Riverside, California (APN: 316-110-005, -006, -022, -023, and -029).

The proposed project includes the new construction of a residential subdivision consisting of 69 single family residences, which construction design elements and landscaping have yet to be finalized. The Project is located in an urbanized setting on the southwest corner of Perris Boulevard and Krameria Avenue in the City of Moreno Valley. The Project Site is located approximately 2.42 miles east of Interstate Freeway 215 and 1.2 miles southeast of March Air Force Base. For this report, all project components will collectively be referred to as the “Study Area,” unless otherwise noted. The proposed project will include excavations across the majority of the “Study Area”.

MIG conducted a Phase I Cultural Resources Assessment of the Study Area to determine the potential impacts to cultural resources (including archaeological, historical, and paleontological resources) for compliance with the California Environmental Quality Act (CEQA) and the local cultural resource regulations. This assessment’s scope of work includes a cultural resources records search through the California Historical Resources Information System-Eastern Information Center (CHRIS-EIC), a Sacred Lands File (SLF) search through the California Native American Heritage Commission (NAHC), a land use history research, a paleontological resources records search through the Vertebrate Paleontological Department of the Natural History Museum of Los Angeles County (NHMLAC), pedestrian field survey, eligibility evaluations for resources identified within the Study Area, impact analyses, and the recommendation of additional work and mitigation measures.

1.1 – ARCHAEOLOGICAL RESOURCES

The cultural resources records search results from the Eastern Information Center (CHRIS-EIC) indicated that there were no archaeological resources located within the Study Area. However, there are two historic archaeological trash refuse (P-33-028072 and P-33-028073) located within a one-mile radius of the Study Area. These two historic archaeological resources will not be impacted by the proposed Project. There were no archaeological resources identified during the pedestrian survey.

A review of the City of Moreno Valley’s General Plan indicate that the Study Area is located within a one and one-half-mile radius from the Wolfskill Ranch West Complex, is approximately four and one-half miles northeast from the Wolfskill Ranch North Complex and is approximately five miles southeast of the Moreno Hills Complex. These archaeological complexes are comprised of a series of hills and drainages that stretch into Moreno Valley and are characterized as prehistoric habitation areas consisting of bedrock milling stations, cupule rocks, petroglyphs, and pictographs. Additionally, the City’s General Plan has identified archaeological sites located at the Moreno School and at the intersection of Lassalle Street & Brodiaea Avenue. These archaeological sites are located approximately four and one-half miles northeast of the Study Area and have been classified as rocky outcrops containing bedrock milling stations (City of Moreno Valley General Plan 2006).¹ None of these archaeological resources will be impacted by the proposed Project.

¹ City of Moreno Valley. 2006. General Plan Final Program EIR; Chapter 5.10- Cultural Resources. Report on file at the City of Moreno Valley, City Hall.

Executive Summary

Therefore, the proposed project would result in no substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5. Despite the disturbances of the Study Area due to human activities and environmental factors that may have displaced archaeological resources on the surface, it is possible that intact archaeological resources exist at depth. As a result, recommended mitigation measures are provided in Section 6 to reduce potentially significant impacts to a less than significant level regarding previously undiscovered archaeological resources that may be accidentally encountered during project implementation.

1.2 – HISTORICAL RESOURCES

The cultural resources records search results from the (CHRIS-EIC) indicated that there are no historical resources located within the Study Area. However, there is a one (1) historic built environment (P-33-021503: a concrete foundation and floor from a demolished grain milling facility) located within a one-mile radius of the Study Area. The historic foundation and floor will be not impacted by the proposed Project. There were no historic resources identified during the pedestrian survey. Therefore, the proposed project would result in no adverse change in the significance of a historical resource as defined in §15064.5.

1.3 – PALEONTOLOGICAL RESOURCES

Results of the paleontological resources records search through NHMLAC indicate that no vertebrate fossil localities from the NHMLAC records have been previously recorded within the Study Area or within a one-mile radius. Moreover, no paleontological resources were identified by MIG during the pedestrian survey. Nevertheless, the results of the literature review and the search at the NHMLAC indicate that the Study Area is situated upon younger and older Quaternary alluvial fan deposits, derived from the more elevated terrain to the north. These sedimentary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but they may be underlain by older Quaternary deposits that do contain significant vertebrate fossils.

A review of the City of Moreno Valley's General Plan indicates that the Study Area is located within a vicinity of low paleontological potential, based on extensive field work (City of Moreno Valley General Plan 2006). As a result, recommended mitigation measures are provided in Chapter 9 to reduce potentially significant impacts to previously undiscovered paleontological resources or unique geological features that may be accidentally encountered during project implementation to a less than significant level.

1.4 – TRIBAL CULTURAL RESOURCES

CEQA defines Tribal Cultural Resources (TCR) as either a site, feature, place, or 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, that is listed or eligible for listing, on the CRHR or on a local register of historical resources as defined in Public Resources Code (PRC) Section 5020.1(k), or a resource determined by a lead agency, in its discretion and supported by substantial evidence, to be significant according to the historic register criteria in Public Resources Code Section 5024.1(c), and considering the significance of the resources to a California Native American Tribe.²

Results of the records research compiled from the CHRIS-EIC and a Sacred Lands File Search commissioned through the NAHC, and a pedestrian field survey failed to indicate known TCR

² California Public Resources Code Section 21074

within the Study Area as specified in PRC Section 210741, 5020.1(k), or 5024.1. Despite the heavy disturbances of the Study Area that may have displaced or submerged archaeological resources relating to TCRs on the surface, it is possible that intact tribal cultural resources exist at depth given the proven prehistoric occupation of the region and the favorable natural conditions that would have attracted prehistoric inhabitants to the area.

As a result, recommended mitigation measures are provided in Section 9 to reduce potentially significant impacts to previously undiscovered archaeological resources relating to TCRs that may be accidentally encountered during project implementation to a less than significant level.

AB 52 (Gatto, 2014) contains provisions requiring Cities, Counties and other government entities to engage in tribal consultations for projects that are not exempt from the California Environmental Quality Act (CEQA). Government to government consultation may provide "Tribal Knowledge" of the Study Area that can be used in determining tribal cultural resources that cannot be obtained through other investigative means. Additionally, it is anticipated that during the application process the City of Moreno Valley (Lead Agency) will notify the tribes of the proposed project and will commence AB 52 consultations as specified in the regulations.

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Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

2-INTRODUCTION AND BACKGROUND

2.1 – PROJECT LOCATION

The project site is located within an urbanized setting on a 19.08-acres of vacant land in the City of Moreno Valley, County of Riverside, California (APN: 316-110-005, -006, -022, -023, and -029). The Project proposes the new construction of a residential subdivision consisting of 69 single family residences which design elements and landscaping have yet to be finalized. The Project Site is located south of Krameria Avenue, east of Tarano Lane, and west of Perris Boulevard (Figure 1, Regional and Vicinity Map). The Study Area is depicted in United States Geological Survey (USGS) 7.5' topographic maps of Sunnymead and Perris, California, topographic quadrangle in portions of Section 30, Township 3 North, Range 3 West (see Figure 2, USGS Topographic Map). Residential tract housing borders the Project Site on all sides and is located approximately 2.42-miles east of Interstate Freeway 215 and 1.2-miles southeast of March Air Force Base. Excavations associated with implementation of the proposed project would occur across the majority of the Study Area.

2.2 – SCOPE OF STUDY AND PERSONNEL

MIG conducted a Phase I Cultural Resources Assessment of the Study Area from April 4 through May 30, 2019 to identify potential impacts to cultural resources (including archaeological, historical, and paleontological resources) and to develop mitigation measures to avoid, reduce, or mitigate potential impacts to resources for complying with CEQA and local cultural resource guidelines. The scope of work for this assessment included a cultural resources records search through the CHRIS-EIC, a Sacred Lands File (SLF) search through the Native American Heritage Commission (NAHC) and a paleontological resources records search through the NHMLAC, a pedestrian field survey, eligibility evaluations for the resources identified within the Study Area, impact analyses, and the recommendations of additional work and mitigation measures, if necessary. The assessment was managed, and this report compiled by Mr. Christopher Purtell, M.A., RPA. The record searches and site surveys were conducted by Mr. Purtell. Qualifications of key personnel are provided in Appendix A.

2.3 – ENVIRONMENTAL SETTING

The Study Area is a 19.08-acre parcel located within an urbanized area and bound in all directions by single-family residential track housing, Interstate 215, and March Air Force Base to the west. The Project Site is relatively flat, with elevations ranging between approximately 1,480-1,490 feet above mean sea level (AMSL). An unnamed, ephemeral drainage flows north to south along the western boundary of the Project Site.

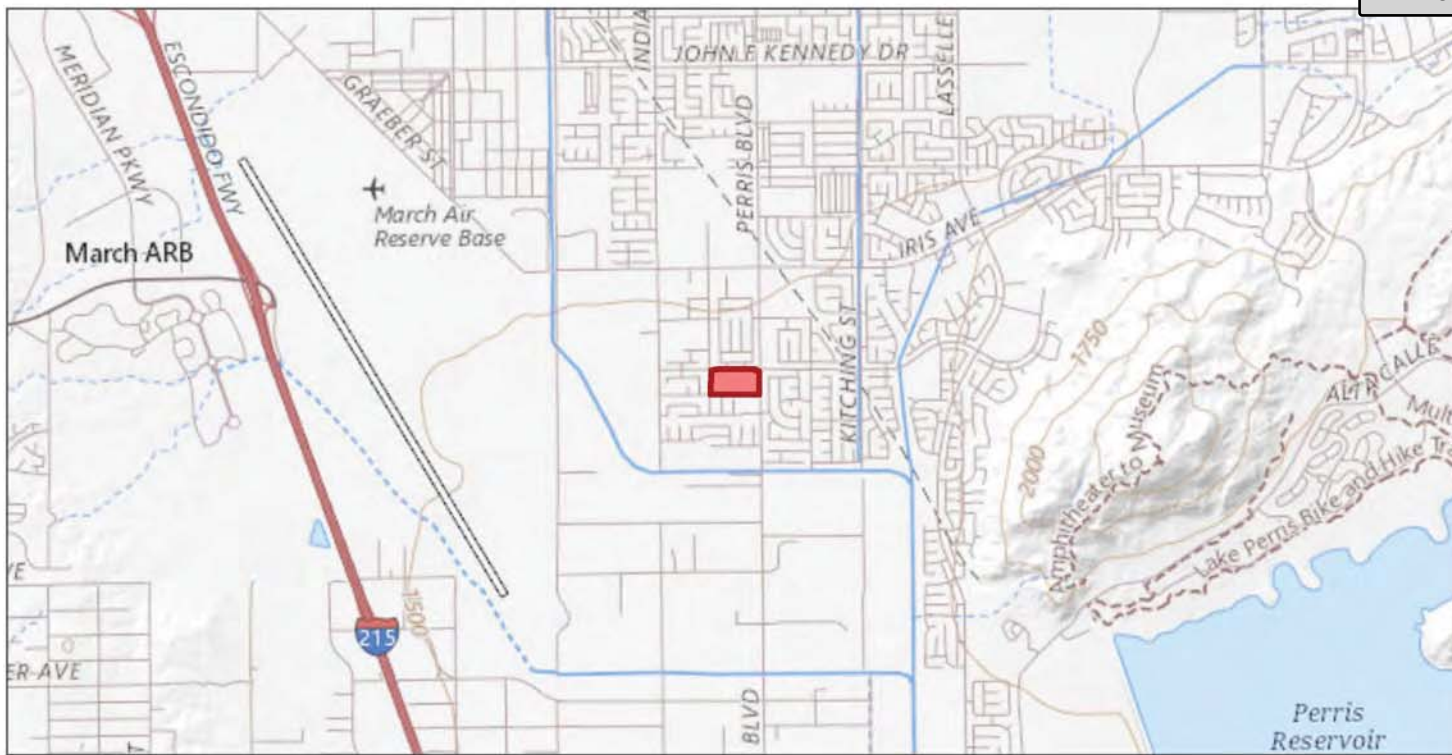
Historical aerial photographs (1966-2014) shows that the Project Area to be undeveloped land that received regular plowing/disking for possible weed abatement occurring from at least 1966 to 2014.³

Geologically, the Study Area is located in the northwest portion of the Peninsular Ranges geomorphic province. The Peninsular Ranges province is distinguished by northwest trending mountain ranges and valleys following faults branching from the San Andreas Fault. The Peninsular Ranges are bound to the east by the Colorado Desert and extend north to the San Bernardino – Riverside county line (Norris and Webb 1976), west into the submarine continental shelf, and south to the California state line. Previous geological mapping of the Study Area

³ Historic Aerials. 1966-2014. Nationwide Environmental Title Research LLC. Electronically available at: <https://www.historicaerials.com/viewer>

Introduction and Background

(McLeod 2019) indicates' younger Quaternary Alluvium sedimentary materials, derived as alluvial fan deposits from the more elevated terrain to the north. These younger Quaternary Alluvium materials are underlain by older Quaternary deposits that extend into the Study Area at unknown depths.



Regional



Source: ESRI 2018

Vicinity

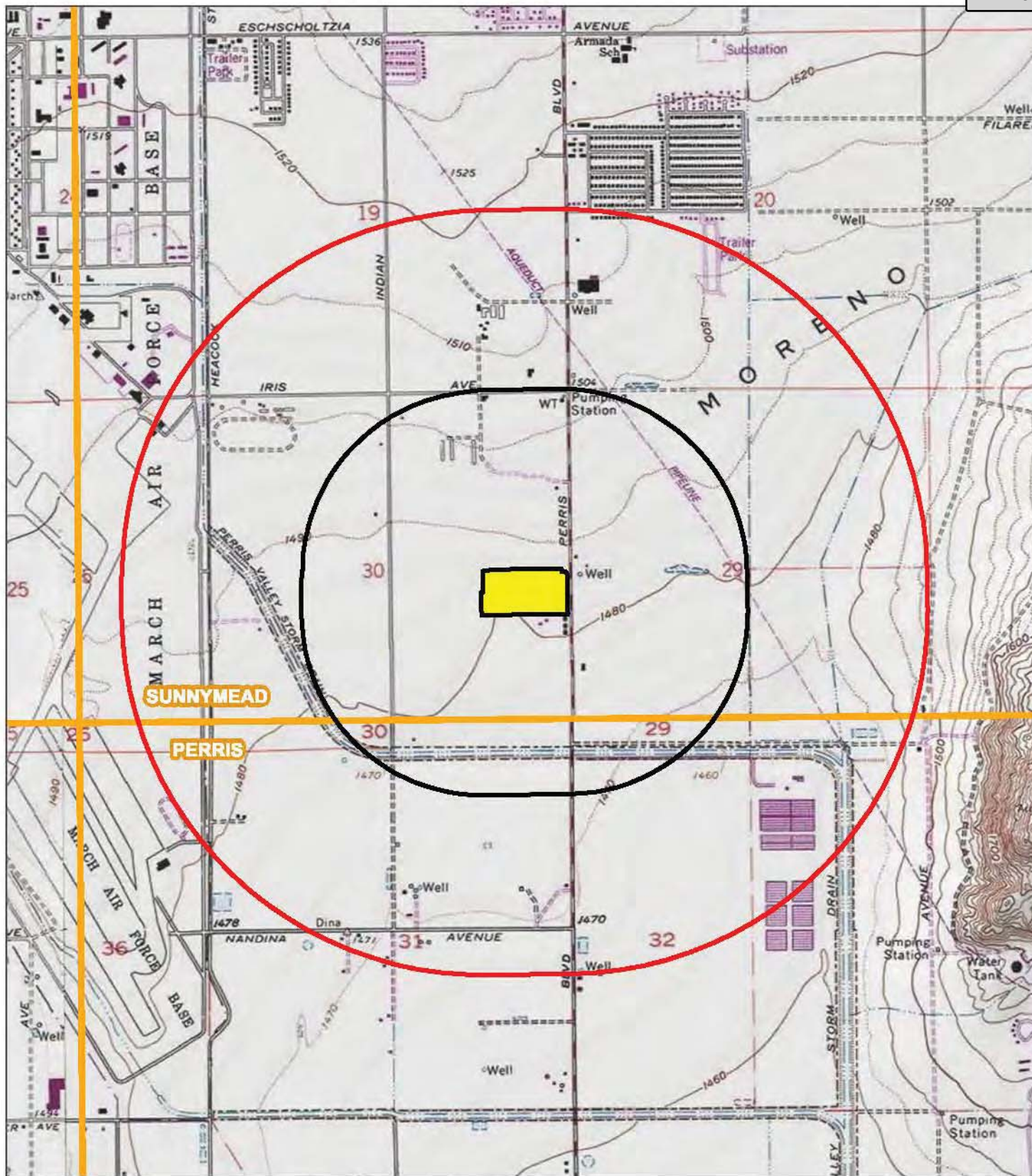
Project Location



Figure 1 Regional and Vicinity Map

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Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)



Sources: ESRI 2010, USGS 2010

- Project Site Boundary (19.08 ac)
- Project Site Buffer: 0.5 mile
- Project Site Buffer: 1.0 mile

Sunnymead and Perris USGS 7.5" Quadrangle
 Section: 30
 Township: 3 South
 Range: 3 West
 Scale: 1:24,000

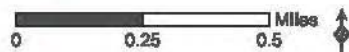


Figure 2 USGS Topographic Map

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Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

3-REGULATORY SETTING

REGULATORY FRAMEWORK

Cultural resources are indirectly protected under the provisions of the Federal Antiquities Act of 1906 (16 U.S.C §§ 431 et seq.) and subsequent related legislation, regulations, policies, and guidance documents. The following is a summary of the applicable (federal, state, and local) regulatory framework related to the protection of cultural resources in California.

Numerous laws and regulations require federal, state, and local agencies to consider the effects of a proposed project on cultural resources. These laws and regulations establish a process for compliance, define the responsibilities of the various agencies proposing the action, and prescribe the relationship among other involved agencies (e.g., State Historic Preservation Office and the Advisory Council on Historic Preservation). The National Historic Preservation Act (NHPA) of 1966, as amended, CEQA, and Public Resources Code (PRC) 5024, are the primary federal and state laws governing and affecting preservation of cultural resources of national, state, regional, and local significance. Other relevant regulations and guidelines at the local level include the City's General Plan and Municipal Code. A description of the applicable laws, regulations, and guidelines are provided in the following paragraphs

3.1 FEDERAL LEVEL

3.1.1 – NATIONAL HISTORIC PRESERVATION ACT OF 1966

Enacted in 1966, the National Historic Preservation Act (NHPA) (16 U.S.C §§ 470 et seq.) declared a national policy of historic preservation and instituted a multifaceted program, administered by the Secretary of the Interior, to encourage the achievement of preservation goals at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the National Register of Historic Places (NRHP), established the position of State Historic Preservation Officer (SHPO), provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHPA, assist Native American tribes in preserving their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP).

In summary, the NHPA establishes the nation's policy for historic preservation and sets in place a program for the preservation of historic properties by requiring federal agencies to consider effects to significant cultural resources (i.e. historic properties) prior to undertakings.

3.1.2 – SECTION 106 OF THE FEDERAL GUIDELINES

Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the NRHP and that the ACHP and SHPO must be afforded an opportunity to comment, through a process outlined in the ACHP regulations at 36 Code of Federal Regulations (CFR) Part 800, on such undertakings.

3.1.3 – NATIONAL REGISTER OF HISTORIC PLACES

The NRHP was established by the NHPA of 1966 as “an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment.” The NRHP recognizes properties that are significant at the national, state, and local

Regulatory Setting

levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, or association. A property is eligible for the NRHP if it is significant under one or more of the following criteria:

- Criterion A: It is associated with events that have made a significant contribution to the broad patterns of our history.
- Criterion B: It is associated with the lives of persons who are significant in our past.
- Criterion C: It embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.
- Criterion D: It has yielded, or may be likely to yield, information important in prehistory or history.

Cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative in nature are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be at least 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

3.1.4 – NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT OF 1990

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

3.2 – STATE

3.2.1 – CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to CEQA, a historical resource is a resource listed in, or eligible for listing in, the California Register of Historical Resources (CRHR). In addition, resources included in a local register of historic resources or identified as significant in a local survey conducted in accordance with state guidelines are also considered historic resources under CEQA, unless a preponderance of the facts demonstrates otherwise. According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude a Lead Agency, as defined by CEQA, from determining that the resource may be a historic resource as defined in California Public Resources Code (PRC) Section 5024.1.

CEQA applies to archaeological resources when (1) the archaeological resource satisfies the definition of a historical resource or (2) the archaeological resource satisfies the definition of a

“unique archaeological resource.” A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria:

1. The archaeological resource contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
2. The archaeological resource has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. The archaeological resource is directly associated with a scientifically recognized important prehistoric or historic event or person.

Appendix G of the State CEQA Guidelines provides a set of sample questions that guide the evaluation of potential impacts with regard to cultural resources:

Would the project:

- a) Cause a substantial adverse change in the significance of an historical resource as defined in §15064.5?
- b) Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?
- c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
- d) Disturb any human remains, including those interred outside of formal cemeteries?

3.2.2 – CALIFORNIA REGISTER OF HISTORICAL RESOURCES

Created in 1992 and implemented in 1998, the California Register of Historical Resources (CRHR) is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate properties that are to be protected, to the extent prudent and feasible, from substantial adverse change.”⁴ Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks (CHLs) numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys, or designated by local landmarks programs may be nominated for inclusion in the CRHR. A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria⁵:

- Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.
- Criterion 2: It is associated with the lives of persons important in our past.
- Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.

⁴ California Public Resources Code § 5024.1(a).

⁵ California Public Resources Code § 5024.1(b).

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- Criterion 4: It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to be recognizable as historic resources and to convey the reasons for their significance. It is possible that a resource whose integrity does not satisfy NRHP criteria may still be eligible for listing in the CRHR. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data. Resources that have achieved significance within the past 50 years also may be eligible for inclusion in the CRHR, provided that enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource.

3.3 – OTHER STATE STATUTES AND REGULATIONS

3.3.1 – CALIFORNIA HISTORICAL LANDMARKS

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource must also be approved for designation by the County Board of Supervisors or the City or Town Council in whose jurisdiction it is located, be recommended by the State Historical Resources Commission, or be officially designated by the Director of California State Parks. The specific standards in use now were first applied in the designation of CHL No. 770. CHLs No. 770 and above are automatically listed in the CRHR.

To be eligible for designation as a Landmark, a resource must meet at least one of the following criteria:

1. The first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California)
2. Associated with an individual or group having a profound influence on the history of California
3. A prototype of, or an outstanding example of, a period, style, architectural movement or construction or one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder

3.3.2 – CALIFORNIA POINTS OF HISTORICAL INTEREST

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of Historical Interest (Points) designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. No historic resource may be designated as both a Landmark and a Point. If a Point is later granted status as a Landmark, the Point designation will be retired. In practice, the Point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

To be eligible for designation as a Point, a resource must meet at least one of the following criteria:

1. The first, last, only, or most significant of its type within the local geographic region (city or county)
2. Associated with an individual or group having a profound influence on the history of the local area
3. A prototype of, or an outstanding example of, a period, style, architectural movement or construction of one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder

3.3.3 – NATIVE AMERICAN HERITAGE COMMISSION, PUBLIC RESOURCES CODE SECTIONS 5097.9–5097.991

Section 5097.91 of the Public Resources Code (PRC) established the Native American Heritage Commission (NAHC), whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Under Section 5097.9 of the PRC, a state policy of noninterference with the free expression or exercise of Native American religion was articulated along with a prohibition of severe or irreparable damage to Native American sanctified cemeteries, places of worship, religious or ceremonial sites or sacred shrines located on public property. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner. Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

3.3.4 – CALIFORNIA NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT OF 2001

Codified in the California Health and Safety Code Sections 8010–8030, the California Native American Graves Protection Act (NAGPRA) is consistent with the federal NAGPRA. Intended to “provide a seamless and consistent state policy to ensure that all California Indian human remains, and cultural items be treated with dignity and respect,” the California NAGPRA also encourages and provides a mechanism for the return of remains and cultural items to lineal descendants. Section 8025 established a Repatriation Oversight Commission to oversee this process. The act also provides a process for non–federally recognized tribes to file claims with agencies and museums for repatriation of human remains and cultural items.

3.3.5 – SENATE BILL 18

Senate Bill (SB) 18 (California Government Code, Section 65352.3) incorporates the protection of California traditional tribal cultural places into land use planning for cities, counties, and agencies by establishing responsibilities for local governments to contact, refer plans to, and consult with California Native American tribes as part of the adoption or amendment of any general or specific plan proposed on or after March 1, 2005. SB18 requires public notice to be sent to tribes listed on the Native American Heritage Commission’s SB18 Tribal Consultation list within the geographical areas affected by the proposed changes. Tribes must respond to a local government notice within 90 days (unless a shorter time frame has been agreed upon by the tribe), indicating whether or not they want to consult with the local government. Consultations are for the purpose of preserving or mitigating impacts to places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code that may be affected by the proposed adoption or amendment to a general or specific plan.

3.3.6 – ASSEMBLY BILL 52

Assembly Bill (AB) 52 specifies that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource, as defined, is a project that may have a significant effect on the environment. AB 52 requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation, prior to determining whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project. AB 52 specifies examples of mitigation measures that may be considered to avoid or minimize impacts on tribal cultural resources. The bill makes the above provisions applicable to projects that have a notice of preparation or a notice of negative declaration filed or mitigated negative declaration on or after July 1, 2015. AB 52 amends Sections 5097.94 and adds Sections 21073, 21074, 2108.3.1., 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 to the California Public Resources Code (PRC), relating to Native Americans.

3.3.7 – HEALTH AND SAFETY CODE, SECTIONS 7050 AND 7052

Health and Safety Code Section 7050.5 declares that, in the event of the discovery of human remains outside a dedicated cemetery, all ground disturbances must cease, and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

3.3.8 – PENAL CODE, SECTION 622.5

Penal Code Section 622.5 provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands but specifically excludes the landowner.

3.5 – LOCAL LEVEL

3.5.1 – CITY OF MORENO VALLEY ELEMENT

The City of Moreno Valley has put forth numerous policies within the Conservation Element Objective section of the General Plan. These policies were created to identify and preserve the City's unique historical, archaeological, and paleontological resources for future generations (City of Moreno Valley General Plan 2006).

Policies:

- 7.6.1 Historical, cultural and archaeological resources shall be located and preserved, or mitigated consistent with their intrinsic value.
- 7.6.2 Implement appropriate mitigation measures to conserve cultural resources that are uncovered during excavation and construction activities.
- 7.6.3 Minimize damage to the integrity of historic structures when they are altered. 7.6.4 Encourage restoration and adaptive reuse of historical buildings worthy of preservation.
- 7.6.5 Encourage documentation of historic buildings when such buildings must be demolished.

4-CULTURAL SETTING

4.1 – PREHISTORIC CONTEXT

Prehistory is most easily discussed chronologically, in terms of environmental change and recognized cultural developments. Several chronologies have been proposed for inland Southern California, the most widely accepted of which is Wallace's four-part Horizon format (1955), which was later updated and revised by Claude Warren (1968). The advantages and weaknesses of Southern California chronological sequences are reviewed by Warren (in Moratto 1984), Chartkoff and Chartkoff (1984), and Heizer (1978). The following discussion is based on Warren's (1968) sequence, but the time frames have been adjusted to reflect more recent archaeological findings, interpretations, and advances in radiocarbon dating.

4.1.1 – PALEO-INDIAN PERIOD (CA. 13,000-11,000 YEARS BEFORE PRESENT [YBP])

Little is known of Paleo-Indian peoples in inland southern California, and the cultural history of this period follows that of North America in general. Recent discoveries in the Americas have challenged the theory that the first Americans migrated from Siberia, following a route from the Bering Strait into Canada and the Northwest Coast sometime after the Wisconsin Ice Sheet receded (ca. 14,000 YBP), and before the Bering Land Bridge was submerged (ca. 12,000 YBP). Based on new research from the Pacific Rim, it has been proposed that modern humans settled islands of the eastern Pacific between 40,000 and 15,000 years ago. Evidence of coastal migration has also come from sites on islands off Alta and Baja California. As a result, these sites are contemporary with Clovis and Folsom points found in North America's interior regions. All of these new findings have made the coastal migration theory gain credibility in recent times (Erlandson et al. 2007).

The timing, manner, and location of the Bering Strait crossing are a matter of debate among archaeologists, but the initial migration probably occurred as the Laurentide Ice Sheet melted along the Alaskan Coast and interior Yukon. The earliest radiocarbon dates from the Paleo-Indian Period in North America come from the Arlington Springs Woman site on Santa Rosa Island, which is located approximately 36 miles off the coast of California and is approximately 150 miles west-northwest of the Study Area. These human remains date to approximately 13,000 YBP (Johnson, et al. 2002). Other early Paleo-Indian sites include the Monte Verde Creek site in Chile (Meltzer, et al. 1997) and the controversial Meadowcroft Rockshelter in Pennsylvania. Both sites have early levels dated roughly at 12,000 YBP. Lifeways during the Paleo-Indian Period were characterized by highly mobile hunting and gathering. Prey included megafauna such as mammoth and technology included a distinctive flaked stone toolkit that has been identified across much of North America and into Central America. They likely used some plant foods, but the Paleo-Indian toolkit recovered archaeologically does not include many tools that can be identified as designed specifically for plant processing.

The megafauna that appear to have been the focus of Paleo-Indian life went extinct during a warming trend that began approximately 10,000 years ago, and both the extinction and climatic change (which included warmer temperatures in desert valleys and reduced precipitation in mountain areas) were factors in widespread cultural change. Subsistence and social practices continued to be organized around hunting and gathering, but the resource base was expanded to include a wider range of plant and game resources. Technological traditions also became more localized and included tools specifically for the processing of plants and other materials. This constellation of characteristics has been given the name "Archaic" and it was the most enduring of cultural adaptations to the North American environment throughout this time period.

4.1.2 – ARCHAIC PERIOD (CA. 11,000-3,500 YBP)

The earliest Archaic Period life in inland southern California has been given the name San Dieguito tradition, after the San Diego area where it was first identified and studied (Warren 1968). Characteristic artifacts include stemmed projectile points, crescents and leaf-shaped knives, which suggest a continued, focus on large game, although not megafauna of the earlier Paleo-Indian period. Milling equipment appears in the archaeological record at approximately 7,500 years ago (Moratto 1984:158). Artifact assemblages with this equipment include basin milling stones and unshaped manos, projectile points, flexed burials under cairns, and cogged stones, and have been given the name La Jolla Complex (7,500–3,000 YBP). The transition from San Dieguito life to La Jolla life appears to have been an adaptation to drying of the climate after 8,000 YBP, which may have stimulated movements of desert peoples to the coastal regions, bringing milling stone technology with them. Groups in the coastal regions focused on mollusks, while inland groups relied on wild-seed gathering and acorn collecting.

4.1.3 – LATE PREHISTORIC PERIOD (CA. 3,500 YBP-A.D. 1769)

Cultural responses to environmental changes around 4,000–3,000 YBP included a shift to more land-based gathering practices. This period was characterized by the increasing importance of acorn processing, which supplemented the resources from hunting and gathering. Meighan (1954) identified the period after A.D. 1400 as the San Luis Rey complex. San Luis Rey I (A.D. 1400–1750) is associated with bedrock mortars and milling stones, cremations, small triangular projectile points with concave bases and Olivella beads. The San Luis Rey II (A.D. 1750–1850) period is marked by the addition of pottery, red and black pictographs, cremation urns, steatite arrow straighteners, and non-aboriginal materials (Meighan 1954:223, Keller and McCarthy 1989:6). Work at Cole Canyon and other sites in southern California suggest that this complex, and the ethnographically described life of the native people of the region, were well established by at least 1,000 YBP (Keller and McCarthy 1989:80).

4.1.4 – ETHNOGRAPHIC CONTEXT

Information presented in the California volume of the Handbook of North American Indians (Heizer 1978:575) shows the Study Area is located near the traditional territory of the Serrano, Luiseño and Cahuilla. These ethnographic groups are described below.

4.1.5 – SERRANO

The Serrano people speak the Takic language, which is a similar to dialect spoken by the Luiseno, Cahuilla, and Garbrielino's (Bean and Smith 1978). The name Serrano comes from the Spanish word: "mountaineer or highlander" and refers to the indigenous people inhabiting the San Bernardino Mountains east of the Cajon Pass and may have settled along the Santa Ana River as early as 8,000 B.C. Their territory has been difficult to define, but it can be reliably characterized as from the San Bernardino Mountains extending northeast to the Mojave River region and southeast to the Tejon Creek area. The Serrano people were hunters-gathers and their diet consisted of small game such as rabbits, ground squirrels, and birds that was supplemented by pinion nuts, acorns, agave, tuber-vegetables, and prickly pears. Villages were based on exogamous moieties (marriage outside of one's clan) and their size ranged between 25 to hundred people (Bean and Shipek 1978). The Yuhaviatam clan is known as the San Manuel Band of Mission Indians and the Maarenga' yam clan is known as the Morongo Band of Mission Indians, with a further, clan division for the Sobba Band of Luiseno Indians. The villagers lived in large communal dwellings made from tree branches that were covered with woven mats. Each family group had its own individual fireplace inside the dwelling, where they crafted mother-of-pearl inlay baskets and vessels that they trade with the Chumash and Tongvas. In 1771, the Serrano's were subjugated and absorbed into the San Gabriel Mission system that resulted in

the loss of their freedom, cultural and customs. In 1891, the United States created the “San Manuel” Indian Reservation after Chief Santos Manuel. From this date forward the Serrano Indians have been known as the San Manuel Band of Mission Indians (Boyd and Brown 1922 and San Manuel Band of Mission Indians 2010).

4.1.6 – LUISEÑO

The Luiseño are a Takic speaking people that are usually associated with coastal and inland areas of present day Orange and southern Riverside counties, with cultural and social behavioral characteristics similar to those of the Cahuilla, a tribal group generally linked with areas northeast of the San Jacinto Mountains. In fact, exchanges between the Luiseno and Cahuilla have been well documented. In context, the Study Area is considered a Luiseño area, though evidence of a Cahuilla presence may be identified (Robinson and Risher 1996:102-103). The term Luiseño derives from the mission named San Luis Rey and has been used in the region to refer to those Takic-speaking people associated with Mission San Luis Rey (Bean and Shipek 1978:550). The Luiseño shared boundaries with the Cahuilla, Cupeño, Gabrielino, and Kumeyaay groups on the east, north, and south, respectively. These different bands shared cultural and language traditions with the Luiseño. The Luiseño territory comprised from the coast to Agua Hedionda Creek on the south to near Aliso Creek on the northwest. The boundary extended inland to Santiago Peak, then across to the eastern side of Elsinore Fault Valley, then southward to the east of Palomar Mountain, then around the southern slope above the valley of San Jose (ibid.:550). Their habitat covered every ecological zone from the ocean, sandy beaches, shallow inlets, coastal chaparral, grassy valleys oak groves, among various other niches. The primary food source consisted of game animals such as deer, rabbit, jackrabbit, woodrat, mice, ground squirrels, antelope, and various species of birds. Next to game animals, acorns were the most single important staple, and six different species were utilized (ibid.:552). The Luiseño social structure is unclear; however, each village has a clan-tribelet-a group of people patrilineally related who owned an area in common and who were politically and economically autonomous from neighboring groups. The Luiseño were not organized into exogamous moieties such as were their neighbors, Cahuilla, Cupeño, and Serrano (Strong 1929:291). The hereditary village chief held an administrative position that combined and controlled religious, economic, and warfare powers (Boscana 1846:43). Marriage was arranged by the parents of children and important lineages were allied through marriage. Reciprocally useful alliances were arranged between groups in different ecological niches, and became springboards of territorial expansion, especially following warfare and truces (White 1963:130). The Luiseño material culture included an array of tools that were made from stone, wood, bone, and shell, and which served to procure and process the region’s resources. Needs for shelter and clothing were minimal in the region’s forgiving climate, but considerable attention was devoted to personal decoration in ornaments, painting, and tattooing. The local pottery was well made, although it was not elaborately decorated (Laylander and Pham 2012).

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4.1.7 – CAHUILLA

The Cahuilla occupied a large area in the geographic center of southern California that was bisected by the Cocopa-Maricopa Trail in addition to Santa Fe and Yuman Trails. They occupied an area from the summit of the San Bernardino Mountains in the north to Borrego Springs and

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the Chocolate Mountains in the south, portions of the Colorado Desert west of Orocopia Mountain to the east, and the San Jacinto Plain near Riverside and the eastern slopes of Palomar Mountain to the west (Bean 1978). The Cahuilla hunted with throwing sticks, clubs, nets, traps, dead falls with seed triggers, spring-poled snares, arrows (often poison-tipped) and self-backed and sinew-backed bows. They sometimes fired bush clumps to drive game out in the open, and flares to attract birds at night. Baskets of various kinds were used for winnowing, leaching, grinding, transporting, parching, storing, and cooking. Pottery vessels were used for carrying water, for storage, cooking, serving food and drink. Cahuilla tools included mortars and pestles, manos and metates, fire drills, awls, arrow-straighteners, flint knives, wood, horn, and bone spoons and stirrers, scrapers, and hammerstones. Woven rabbit skin blankets served to keep people warm in cold weather. Feathered costumes were worn for ceremonial events, and at these events the Cahuilla made music using rattles derived from insect cocoon, turtle and tortoise shell, and deer-hoofs, along with wood rasps, bone whistles, bull-roarers, and flutes, to make music. They wove bags, storage pouches, cords, and nets from the fibers of yucca.

4.1.8 – MORENO HILLS COMPLEX

The “Moreno Hills” is a small cluster of hills located just northwest of the Moreno town site. The hills extend northwest to an unnamed drainage which separates them from the southern end of the Reche Hills. Although the Moreno Hills are situated more or less in the middle of Moreno Valley, their prehistoric use appears to have been restricted to milling stations. Doubtless this is attributable to the absence of water. The nineteen recorded stations in the Moreno Hills were probably used at one time or another by individuals from various camps in the valley (City of Moreno Valley 2006).⁴

4.1.9 – WOLFSKILL RANCH NORTH COMPLEX

“Wolfskill Ranch North” comprises Mt. Russell and the surrounding hills as far west as the campground pass road (Via Del Lago). There are four habitation areas around Mt. Russell. The first site appears to be a major camp with milling features, midden, and pictographs located south of the peak in the reservoir valley. A midden deposit is an accumulation of refuse from a prehistoric settlement. The second, also an important camp, has both cupules and rock paintings accompanying its midden deposit. The site is located on the eastern flank of the hills south of Mt. Russell. Most of the milling stations within Moreno Valley jurisdiction would have been more accessible from this location. The third site is a rock shelter with accompanying milling station located at the foot of Mt. Russell east of the peak. Finally, the fourth habitation complex has midden deposits, milling features, cupules, and pictographs. It is the most centrally located habitation site relative to the bulk of milling stations on the north side of Mt. Russell. In addition to these habitation locations, there are seven lithic scatters (stone tools or projectiles) and thirty-six recorded milling stations in the Wolfskill Ranch North area (City of Moreno Valley General Plan 2006).

4.1.10 – WOLFSKILL RANCH WEST COMPLEX

Wolfskill Ranch West comprises the area west of the campground pass road (Via Del Lago). The habitation area appears to have been located at the southwestern end of the complex. Nineteen additional milling stations lie in the Wolfskill Ranch West area (City of Moreno Valley General Plan 2006).

4.1.11 – MORENO SCHOOL

This archaeological site comprises a rocky hill northwest of the Moreno School on Cottonwood Avenue. It consists of five milling stations (City of Moreno Valley General Plan 2006).

4.1.12 – LASSELLE & BRODIAEA

This archaeological site located near the intersection of Lasselle St. and Brodiaea Avenue is in an isolated rocky outcrop, consisting of five milling stations (City of Moreno Valley General Plan 2006).

4.1.13 – EUROPEAN CONTACT

European contact with the Native American groups that likely inhabited the Study Area and surrounding region began in 1542 when Spanish explorer, Juan Rodriguez Cabrillo, arrived by sea during his navigation of the California coast. Sebastian Vizcaino arrived in 1602 during his expedition to explore and map the western coast that Cabrillo visited 60 years earlier. In 1769, another Spanish explorer, Gaspar de Portola, passed through Luiseño/Kumeyaay territory and interacted with the local indigenous groups. In 1798, Mission San Luis Rey was established by the Spanish and it likely integrated the Native Americans from the surrounding region. Multiple epidemics took a great toll on Native American populations between approximately 1800 and the early 1860s (Porretta 1983), along with the cultural and political upheavals that came with European, Mexican, and American settlement (Goldberg 2001:50-52). In the beginning of the nineteenth century, some Spaniards who had worked at the missions began to set up what would later be known as the “Ranchos.” The Rancho era in California history was a period when the entire state was divided into large parcels of land equaling thousands of acres apiece. These large estates were ruled over in a semi-feudal manner by men who had been deeded the land by first the Spanish crown, and later the Mexican government. In 1821 Mexico won independence from Spain and began to dismantle the mission system in California. As the missions began to secularize, they were transformed into small towns and most Native Americans would later be marginalized into reservations or into American society. It was during this time that “Americans” began to enter California. Many of the American Californians married into the Rancho families, a development that would transform land ownership in Mexican California. By the time the United States annexed California after the Mexican-American War in 1850, much of the Rancho lands were already in the hands of Americans.

4.2– HISTORIC CONTEXT

4.2.1 – CITY OF MORENO VALLEY

By the mid-19th century, the area that comprises present-day Moreno Valley remained essentially uninhabited, despite its location on a grassy upland surrounded by several large Mexican Ranchos. When the U.S. government initiated its first official land survey in southern California in 1853-1855, the only manmade features in the Moreno Valley were a few roads including a wagon road from San Bernardino to Temecula, a second one leading to San Jacinto, and several unidentified roads and/or trails.

The area surrounding Moreno Valley remained unclaimed public land until 1870, when a large tract of 13,471 acres were purchased from the U.S. Government and with the expansion of the railroad in 1880's a land boom soon brought settlers into the area, only to see the boom turn to bust for lack of a reliable water supply. In 1891, private developers brought water into new Haven, which was subsequently changed to Moreno and Midland also, known as Armada from the newly constructed Bear Valley reservoir, which got the economy moving again until a drought the following year stopped the water flow from the Bear Valley reservoir. As a result, the town of Moreno died again and many of its budding were either abandoned or were sold and moved to Riverside (Gunther 1984).

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Moreno Valley's economic fortunes were severely hampered by the lack of water. Finally, in 1973, after the completion of the California Aqueduct and the construction of Lake Perris, Moreno Valley's economic fortunes began to change. A reliable water supply, coupled with the Interstate Freeway System and the construction of affordable housing brought an influx of commuters to the Moreno Valley area, setting off a period of rapid expansion and urbanization. By 1984, when residents in the communities of Moreno, Sunnymead, and Edgemont voted to incorporate as the City of Moreno Valley, the new city had already become the second most populous in Riverside County (Ibid.).

5-METHODS

5.1 – CULTURAL RESOURCES RECORDS SEARCH

On April 5, 2019, Mr. Purtell conducted a records search of the Study Area at the CHRIS-EIC. The records search included a review of all recorded archaeological and historical resources within a one-mile radius of the Study Area, as well as a review of cultural resource reports and historic topographic maps on file. In addition, MIG reviewed the California Points of Historical Interest (CPHI), the California Historical Landmarks (CHL), the California Register, the National Register, and the California State Historic Resources Inventory (HRI) listings. The purpose of the records search is to determine whether previously recorded archaeological or historical resources exist within the Study Area that require evaluation and treatment. The results also provide a basis for assessing the sensitivity of the Study Area for additional and buried cultural resources.

5.2 – SACRED LANDS FILE SEARCH AND NATIVE AMERICAN CONSULTATION

On April 4, 2019, Mr. Purtell commissioned a Sacred Lands File (SLF) records search of the Study Area through the NAHC. Results of the SLF records search provided information as to the nature and location of additional prehistoric or Native American resources to be incorporated in the assessment whose records may not be available at the CHRIS-EIC.

5.3 – PALEONTOLOGICAL RESOURCES RECORDS SEARCH

On April 4, 2019, Mr. Purtell commissioned a paleontological resources records search through the Vertebrate Paleontological Department of the Natural History Museum of Los Angeles County in Los Angeles, California. This institution maintains files of regional paleontological site records as well as supporting maps and documents. This records search entailed an examination of current geologic maps and known fossil localities inside and within the general vicinity of the Study Area. The objective of the records search was to determine the geological formations underlying the Study Area, whether any paleontological localities have previously been identified within the Study Area or in the same or similar formations near the Study Area, and the potential for excavations associated with the Study Area to encounter paleontological resources. The results also provide a basis for assessing the sensitivity of the Study Area for additional and buried paleontological resources.

5.4 – PEDESTRIAN SURVEY

On April 11, 2019, MIG (Mr. Purtell) conducted a pedestrian field survey of the Study Area to identify the presence or absence of archaeological, historical, or paleontological resources. Mr. Purtell surveyed 100-percent of the Study Area and detailed notes and digital photographs were also taken of the Study Area and surrounding vicinity.

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Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

6-RESULTS

6.1 – CULTURAL RESOURCES RECORDS

Results of the records research conducted at the CHRIS-EIC indicate that no archaeological resources (prehistoric and historic) exist within the project boundaries. However, there are two historic trash refuse (P-33-028072 and P-33-028073) and one (1) historic structure: a concrete foundation and floor from a demolished grain milling facility (P-33-021503) located within a one-mile radius of the Study Area (see Table 1). None of these historic resources will be impacted by the proposed project.

Table 1
Previously Recorded Cultural Resources within the Study Area

Resource No.	Resource Type	Description	NRHP Eligibility	CRHR Eligibility	Distance from the Project Site
P-33-021503 CA-RIV-011291	Historic Building Foundation Site	This historic site consists of the remnants of an apparent former grain mill facility. The remains consist of three separate concrete constructed building foundations, a grain/seed dump, and separation basin. The facility is dated between 1914-1945. No date was given on when the facility was closed and demolished.	Not Evaluated. Appears to be Not Eligible.	Not Evaluated. Appears Not to be Eligible.	7/8 miles to the south
P-33-028072 CA-RIV-012673	Historic Site	This historic site consists of a historic-period refuse deposit discovered during archaeological construction monitoring. The site contains mainly food preparation and consumption containers and building materials. The artifacts date from the 1960's to the 1970's. The site measures approximately 70-feet n/s by 32-feet e/w and was discovered at a depth between 4 to 6 feet below construction grade.	Not Evaluated. Appears Not to be Eligible	Not Evaluated. Appears Not to be Eligible	¾ miles to the northwest
P-33-028073 CA-RIV-012674	Historic Site	This historic site consists of a historic-period refuse deposit discovered during archaeological construction monitoring. The site consists of two historic-period refuse deposits containing more than 1,800 artifacts that includes military and personal items. The artifacts date from the 1920's to 1950'S. However, there are several artifacts that date from the late 1800's to the early 1900's. The site measures approximately 950-feet n/s by 560-feet e/w and was discovered at a depth between 4 to 25 feet below construction grade.	Not Evaluated. Appears Not to be Eligible	Not Evaluated. Appears Not to be Eligible	¾ miles to the northwest

The results of the record search indicate that there are no cultural resource study/report previously conducted within proposed Study Area and there are twelve (12) cultural studies/reports that have been previously conducted within a one-mile radius of the Study Area (see Table 2, Previous Surveys within the Study Area). These studies were performed for four (4) cultural resource assessments, two (2) cell tower assessments, one (1) pipeline route evaluation, and one (1) school construction project, one (1) warehouse construction, one (1) commercial building project, one (1) historic site evaluation, and one (1) archaeological construction monitoring project. These studies were conducted between 1983 and 2017.

Table 2
Previous Surveys within the Study Area

Report Number	Year	Report Title	Study	Authors
RI-01665	1983	Devers-Serrano-Villa Park Transmission System Supplement to the Cultural Resources Technical Report-Public Review Document and Confidential Appendices.	Cultural resources assessment	Wirth Associates
RI-01843	1984	Cultural Resources Survey Report on Wolfskill Ranch.	Cultural resources assessment	Scientific Resource Surveys, Inc.
RI-02171	1987	Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California.	Cultural resources assessment	McCarthy, Daniel, F.
RI-03510	1996	An Intensive Survey of Approximately 2,500 Acres of March Air Force Base, Riverside County, California.	Cultural resources assessment	McDonald, Meg and Barb Giacomini
RI-03693	1991	Cultural Resources Investigation: Inland Feeder Project, Metropolitan Water District of Southern California.	Evaluating pipeline route alternatives	Foster, John M., James J. Schmidt, Carmen A. Weber, Gwendolyn, R., Romani and Roberta S. Greenwood
RI-05035	2005	Letter Report: Monitoring at the Site of the Proposed Indian Middle School in the City of Perris, Riverside County, California	New school construction	McKenna et. al
RI-06660	2006	Historical /Archaeological Resources Survey Report, Nandina Distribution 1 and 2, City of Moreno Valley, Riverside County, California	Warehouse construction	Tang, Bai, "Tom," Michael Hogan, Clarence Bodmer, Thomas Meltzer, and Laura H. Shaker
RI-08124	2008	Letter Report: Cultural Resources Records Search and Site Visit Results for Royal Street Communications Candidate IE24896A (Extra Space Storage), 16340 Perris Boulevard, Moreno Valley, Riverside County, California.	Construction of a new cell tower and facilities	Bonner, Wayne and Marine Aislin-Kay
RI-08272	1995	Historic Building Inventory and Evaluation, March Air Force Base, Riverside County, California.	Historic site evaluation	Manely, William, Consulting and Earth Tech
RI-09311	2014	Cultural Resources Record Search and Site Visit Results for Verizon Wireless Candidate 'Gentian' 16015 North Perris Boulevard, Moreno Valley, Riverside County, California.	Construction of a new cell tower and facilities	Willis, Carrie, D.
RI-09528	2015	Phase I Cultural Resources Survey for the Moreno Valley Logistics Center Project City of Moreno Valley, County of Riverside.	New commercial building construction	Lenich, Mary, M. and Brain F. Smith
RI-10277	2017	Cultural Resources Monitoring Report for the First Nandina Logistics Center Project, City of Moreno Valley, Riverside County, California.	Archaeological construction monitoring	Smith, Brian, F.

6.2 – SACRED LANDS FILE SEARCH AND NATIVE AMERICAN CONSULTATION

The NAHC SLF records search results (received April 15, 2019) revealed that no known "Native American cultural resources" in the SLF database are within the project site or within a one-mile radius of the Study Area. The NAHC records search results are provided in Appendix B of this report.

As per NAHC suggested procedure, follow-up letters were sent via first class mail on April 16, 2019 to the 10 Native American individuals and organizations identified by the NAHC as being affiliated with the vicinity of the Study Area. The letters requested any additional information they may have about Native American cultural resources that may be affected by the proposed project.

As of May 21, 2019, MIG has received three (3) tribal responses from the Agua Caliente Band of Cahuilla Indians on April 24, 2019, from the Morongo Band of Indians on May 3, 2019, and from the Augustine Band of Cahuilla Indians. The Agua Caliente Band of Cahuilla Indians deferred their comments to the Morongo Band of Indians and to the Pechanga Band of Luiseno Indians. The Morongo Band of Indians stated that the Tribe had no additional information to offer at this time and may provide other information to the lead agency during AB 52 Consultations. The Augustine Band of Cahuilla Indians stated that the Tribe is unaware of specific cultural resources that may be affected by the proposed project.

As of May 30, 2019, MIG has received no other responses from the Native American community concerning the proposed project. MIG will keep the Applicant apprised with the progress of this on-going Native American consultation. The NAHC SLF records search results, the Native American contact list, and the Native American Consultation Matrix are provided in Appendix B of this report.

6.3 – PALEONTOLOGICAL RESOURCES RECORDS SEARCH

Results of the paleontological resources records search through NHMLAC indicate that no vertebrate fossil localities from the NHMLAC records have been previously recorded within the Study Area or within a one-mile radius.⁶ Moreover, no paleontological resources were identified by MIG during the pedestrian survey. Additionally, a review of the City of Moreno Valley's General Plan indicate that the Study Area is located within a vicinity of low paleontological potential, based on extensive field work (City of Moreno Valley 2006).⁷

6.4 – PEDESTRIAN SURVEY

On April 11, 2019, MIG Senior Archaeologist Christopher Purtell, M.A., RPA conducted a cultural resources field survey of 100-percent of the proposed project site. The results of the field survey indicated that there were no artifacts or cultural (prehistoric, historic, historic built environments or paleontological) resources discovered or recorded during the course of the field survey (see Photographs 1-4).

⁶ McLeod, Samuel, Natural History Museum of Los Angeles County, Vertebrate Paleontology Section. 10, April ,2019. Letter Report in support of the 69-Lot Single-Family Residential Subdivision Project to Chris Purtell, MIG, Inc. Riverside, CA.

⁷ City of Moreno Valley. 2006. General Plan Final Program EIR; Chapter 5.10- Cultural Resources. Report on file at the City of Moreno Valley, City Hall.



Photograph 1: Project Site, view towards the north



Photograph 2: Project Site, view towards the south

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)



Photograph 3: Project Site, View towards the east



Photograph 4: Project Site, view towards the west

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Results

6.4.1 – OTHER STUDY AREA CONDITIONS

The Project Site can be characterized as exhibiting dense vegetation, except in the northeast corner, which consists of a flat, hard pack sediment, void of all vegetation except for a single Pepper Tree and measures approximately 213 feet north/south by 122 feet east-west (see Photograph 5). The Project Site's western boundary exhibits an ephemeral drainage ditch, whose width and depths varies from approximately 1-4 feet wide by 1-8 feet in depth. The drainage runs the entire length of the site in a north-south direction (see Photograph 6).

Approximately 95 percent of the Project Site consisted of tall ruderal plant species and wild grasses that are approximately 3 to 8–feet in height, in which shallow plowing/disking for possible weed abatement was only evident during pedestrian survey transects, due to dense ground cover (see Photograph 7). Ground surface visibility was zero to five percent and when visible, the soil exhibited a light tan to medium brown color sediment with a loamy-silty texture. Scant bioturbation was observed throughout the site, possible due to the dense ground cover. Sparse to moderate levels of modern-man-made trash consisting of, but not limited to, a discarded bed mattress and construction materials were observed along the Project's southern boundary at Kettenburg Lane (see Photograph 8). Plastic bottles, paper and plastic wrappers, glass bottles, and crushed aluminum cans were found adjacent to Perris Boulevard (north and south) and along Krameria Avenue (east and west).



Photograph 5: Project Site's northeast corner, view towards the south



Photograph 6: Project Site's ephemeral drainage ditch, view towards the south



Photograph 7: Project Site, dense vegetation, view towards the northeast

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Results



Photograph 8: Project Site, discarded mattress, closeup

7-EVALUATION

Evaluation of cultural resources is determined by conducting an “evaluation” of a resource’s eligibility for listing in the California Register; determining whether it qualifies as a “unique archaeological resource” and determining whether the resource retains integrity. This is achieved by applying the California Register criteria (including criteria for a “unique archaeological resource”) as defined in Chapter 2 of this report. If a resource is determined eligible for listing in the California Register or qualifies as a “unique archaeological resource” and retains integrity, then the resource is considered an archaeological resource or a historical resource pursuant to CEQA §15064.5 and any substantial adverse change to the resource is considered a significant impact on the environment. The CEQA guidelines do not provide criteria to evaluate paleontological resources.

7.1– ARCHAEOLOGICAL RESOURCES

As discussed previously in Section 6, no known archaeological resources from the EIC records were recorded within the project site or within a one-mile radius of the Study Area and there are two historic archaeological trash refuses (P-33-028072 and P-33-028073) located within a one-mile radius of the Study Area. These two historic archaeological resources will not be impacted by the proposed Project. There were no archaeological resources identified during the pedestrian survey; therefore, no evaluation of archaeological resources is necessary.

Nevertheless, a review of the City of Moreno Valley’s General Plan indicates that the Study Area is located within a one and one-half-mile radius from the Wolfskill Ranch West Complex, approximately four and one-half miles northeast from the Wolfskill Ranch North Complex and is approximately five miles southeast of the Moreno Hills Complex. These archaeological complexes are comprised of a series of hills and drainages that stretch into Moreno Valley and are characterized as prehistoric habitation areas consisting of bedrock milling stations, cupule rocks, petroglyphs, and pictographs. Additionally, the City’s General Plan has identified archaeological sites located at the Moreno School and at the intersection of Lassalle Street & Brodiaea Avenue (see Figure 3, City of Moreno Valley, Locations of Prehistoric Sites).⁸ These archaeological sites are located approximately four and one-half miles northeast of the Study Area and have been classified as rocky outcrops containing bedrock milling stations (City of Moreno Valley General Plan 2006).⁹ None of these archaeological resources will be impacted by the proposed Project.

Consequently, the Project Area has a moderately high sensitivity level to encounter subsurface archaeological resources during project implementation given the proven prehistoric occupation of the region, the identification of multiple surface archaeological resources within the vicinity of the Study Area and the favorable natural conditions (e.g., ephemeral drainages, natural spring, and vegetation communities) that would have attracted prehistoric inhabitants to the area. Therefore, despite the disturbances of the Study Area caused by plowing/dishing that may have displaced archaeological resources on the surface, it is possible that intact archaeological resources exist at depth. As a result, recommended mitigation measures are provided in Chapter 8 to reduce potentially significant impacts to previously undiscovered archaeological resources that may be accidentally encountered during project implementation to a less than significant level.

⁸ City of Moreno Valley. 2006. General Plan Final Program EIR; Chapter 5.10- Cultural Resources. Report on file at the City of Moreno Valley, City Hall.

⁹ City of Moreno Valley. 2006. General Plan Final Program EIR; Chapter 5.10- Cultural Resources. Report on file at the City of Moreno Valley, City Hall.

7.2 – HISTORICAL RESOURCES

As discussed previously in Section 6, the results from the CHRIS-EIC indicated that there were no previously recorded historical resources within the Study Area and no historical resources were identified during the pedestrian survey. However, there is one (1) historic structure: a concrete foundation and floor from a demolished grain milling facility (P-33-021503) that is located within a one-mile radius of the Study Area. This historic resource will not be impacted by the proposed Project; therefore, no impact analysis of historical resources is necessary.

7.3 – PALEONTOLOGICAL RESOURCES

As discussed previously in Chapter 6, the results of the paleontological resources records search through NHMLAC indicate that no vertebrate fossil localities from the NHMLAC records have been previously recorded within the Study Area or within a one-mile radius.¹⁰ Moreover, no paleontological resources were identified by MIG during the pedestrian survey. The literature review and the search at the NHMLAC indicate that the Study Area is situated upon younger and older Quaternary alluvial fan deposits, derived from the more elevated terrain to the north. These sedimentary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but they may be underlain by older Quaternary deposits that do contain significant vertebrate fossils at unknown depths (McLeod 2019).¹¹ A review of the City of Moreno Valley's General Plan (see Figure 4. City of Moreno Valley, Locations Paleontologic Resources Sensitive Areas)¹² indicates that the Study Area is located within a vicinity of low paleontological potential, based on extensive field work (City of Moreno Valley 2006).

Consequently, the Project Site has moderately low sensitivity level to encounter subsurface paleontological fossils or unique geological features during project implementation. As a result, recommended mitigation measures are provided in Chapter 8 to reduce potentially significant impacts to previously undiscovered paleontological resources or unique geological features that may be accidentally encountered during project implementation to a less than significant level.

7.4 – HUMAN REMAINS

No known human remains have been identified from the database within a one-mile radius of the Study Area. No human remains were identified during the pedestrian survey of the Study Area. However, these findings do not preclude the existence of previously unknown human remains located below the ground surface, which may be encountered during construction excavations associated with the proposed project. Similar to the discussion regarding archaeological resources above, it is also possible to encounter buried human remains during construction given the proven prehistoric occupation of the region, the identification of multiple surface archaeological resources within two-miles of the Study Area, and the favorable natural conditions that would have attracted prehistoric inhabitants to the area. As a result, mitigation measures are recommended in the following chapter that would reduce potentially significant impacts to previously unknown human remains that may be unexpectedly discovered during project implementation to a less than significant level.

¹⁰ McLeod, Samuel, Natural History Museum of Los Angeles County, Vertebrate Paleontology Section. 10, April ,2019. Letter Report in support of the 69-Lot Single-Family Residential Subdivision Project to Chris Purtell, MIG, Inc. Riverside, CA.

¹¹ McLeod, Samuel, Natural History Museum of Los Angeles County, Vertebrate Paleontology Section. 10, April ,2019. Letter Report in support of the 69-Lot Single-Family Residential Subdivision Project to Chris Purtell, MIG, Inc. Riverside, CA.

¹² City of Moreno Valley. 2006. General Plan Final Program EIR; Chapter 5.10- Cultural Resources. Report on file at the City of Moreno Valley, City Hall.

7.5 – TRIBAL CULTURAL RESOURCES

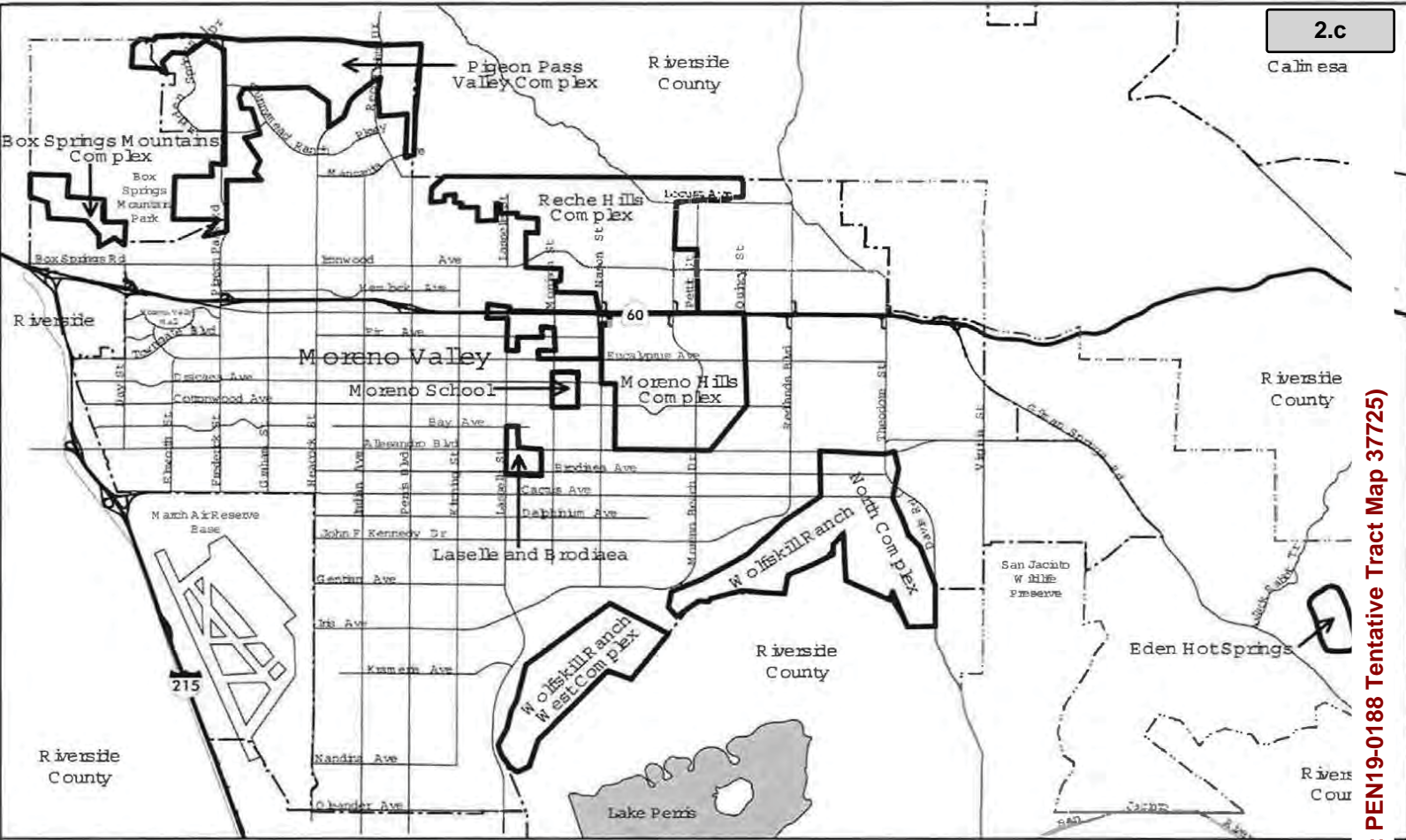
As discussed in Section 6, the results of the records research compiled from the CHRIS-EIC, a Sacred Lands File Search commissioned through the NAHC, and a pedestrian field survey failed to indicate known TCR within the Study Area as specified in PRC Section 210741, 5020.1(k), or 5024.1. Despite the disturbances of the Study Area that may have displaced or submerged archaeological resources relating to TCRs on the surface, it is possible that intact tribal cultural resources exist at depth given the proven prehistoric occupation of the region and the favorable natural conditions that would have attracted prehistoric inhabitants to the area. As a result, recommended mitigation measures are provided in Section 8 to reduce potentially significant impacts to previously undiscovered archaeological resources relating to TCRs that may be accidentally encountered during project implementation to a less than significant level.

At the time that this report was prepared, no additional information had yet been provided by affected tribes on potential TRC's within the Study Area. It is anticipated that during the application process the Lead Agency will notify the tribes of the 69-Lot Single-Family Residential Subdivision Project (proposed) and will commence AB 52 Consultations as specified in the regulations.

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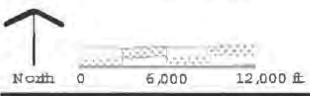
Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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Source: CBA, Inc., August 2000

City Boundary Sphere of Influence Significant Prehistoric Sites



City of Moreno Valley, Locations of Prehistoric Sites

Moreno Valley General Plan
Final Program EIR

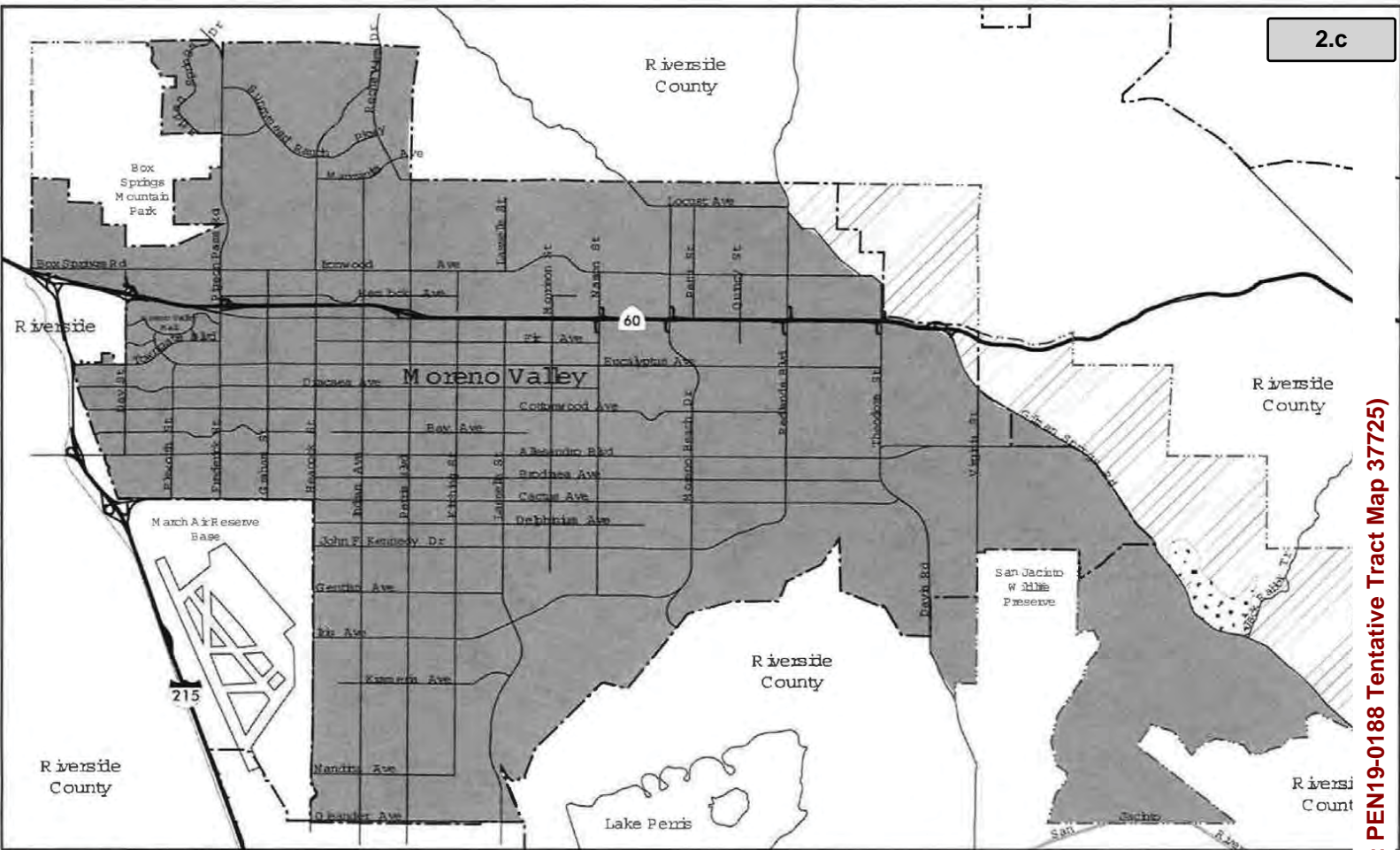
Figure 3
City of Moreno
July '06

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Evaluation

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Source: CBA, Inc., August 2000

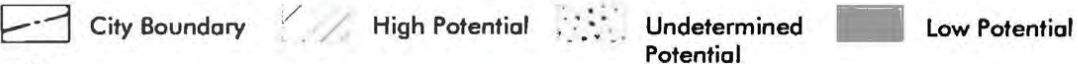


Figure
City of Moreno Valley, Paleontologic Resources Sensitive Areas

Moreno Valley General Plan
 Final Program EIR

City of Moreno Valley
 July

Evaluation

2.c

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8-RECOMMENDED MITIGATION MEASURES

8.1- ARCHAEOLOGICAL RESOURCES

In the event of the unanticipated discovery of archaeological or cultural resources relating to TCRs during earthmoving operations, the following mitigation measures are recommended to reduce potentially significant impacts to archaeological resources that are accidentally discovered during implementation of the proposed project to a less than significant level.

Mitigation Measure CULT-1: Conduct Archaeological Sensitivity Training for Construction Personnel. The Applicant shall retain a qualified professional archaeologist who meets U.S. Secretary of the Interior's Professional Qualifications and Standards, to conduct an Archaeological Sensitivity Training for construction personnel prior to commencement of excavation activities. The training session shall be carried out by a cultural resource professional with expertise in archaeology, who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards. The training session will include a handout and will focus on how to identify archaeological resources that may be encountered during earthmoving activities and the procedures to be followed in such an event, the duties of archaeological monitors, and the general steps a qualified professional archaeologist would follow in conducting a salvage investigation if one is necessary.

Mitigation Measure CULT-2: Cease Ground-Disturbing Activities and Implement Treatment Plan if Archaeological Resources Are Encountered. In the event that archaeological resources are unearthed during ground-disturbing activities, ground-disturbing activities shall be halted or diverted away from the vicinity of the find so that the find can be evaluated. A buffer area of at least 50 feet shall be established around the find where construction activities shall not be allowed to continue until a qualified archaeologist has examined the newly discovered artifact(s) and has evaluated the area of the find. Work shall be allowed to continue outside of the buffer area. All archaeological resources unearthed by project construction activities shall be evaluated by a qualified professional archaeologist, who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards. Should the newly discovered artifacts be determined to be prehistoric, Native American Tribes/Individuals should be contacted and consulted, and Native American construction monitoring should be initiated. The Applicant and City shall coordinate with the archaeologist to develop an appropriate treatment plan for the resources. The plan may include implementation of archaeological data recovery excavations to address treatment of the resource along with subsequent laboratory processing and analysis.

Mitigation Measure CULT-3: Monitor Construction Excavations for Archeological Resources is required at all depths and strata. The Applicant shall retain a qualified archaeological monitor, who will work under the direction and guidance of a qualified professional archaeologist, who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards. The archaeological monitor shall be present during all construction excavations (e.g., grading, trenching, or clearing/grubbing) into non-fill younger Quaternary alluvial sediments. The archaeological monitor will be required to complete a daily archaeological construction monitoring log that documents construction activities and observations that will be included as an appendix to the Final Archaeological Construction Monitoring Report as specified in Mitigation Measure CULT-4. Multiple earth-moving construction activities may require multiple archaeological monitors. The frequency of monitoring shall be based on the rate of excavation and grading activities, proximity to known archaeological resources, the materials being excavated (native versus artificial fill soils), and the depth of excavation, and if found, the abundance and type of

Recommended Mitigation Measures

archaeological resources encountered. Full-time monitoring can be reduced to part-time inspections if determined adequate by the project archaeologist.

Mitigation Measure CULT-4: Prepare Report Upon Completion of Monitoring Services. The project archaeologist who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards, shall prepare a final report at the conclusion of archaeological monitoring. The report shall be submitted to the Applicant, the Eastern Information Center, the City, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the project and required mitigation measures. The report shall include a description of resources unearthed, if any, evaluation of the resources with respect to the California Register and CEQA, and treatment of the resources.

8.2 – HISTORICAL RESOURCES

The proposed project would not impact historical resources therefore no mitigation measures are recommended.

8.3 – PALEONTOLOGICAL RESOURCES

The following mitigation measures have been recommended to reduce potentially significant impacts to paleontological resources as recommended by the NHMLAC to a less than significant level.

Mitigation Measure CULT-5: Conduct Paleontological Sensitivity Training for Construction Personnel. The applicant shall retain a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology and shall conduct a paleontological sensitivity training for construction personnel prior to commencement of excavation activities. The training will include a handout and will focus on how to identify paleontological resources that may be encountered during earthmoving activities and the procedures to be followed in such an event, the duties of paleontological monitors, notification and other procedures to follow upon discovery of resources, and the general steps a qualified professional paleontologist would follow in conducting a salvage investigation if one is necessary.

Mitigation Measure CULT-6: Conduct Periodic Paleontological Spot Checks during Grading and Earth-moving Activities. The applicant shall retain a professional paleontologist who meets the qualifications set forth by the Society of Vertebrate Paleontology and shall conduct periodic Paleontological Spot Checks beginning at depths below five feet to determine if construction excavations have extended into older Quaternary deposits. After the initial paleontological spot check, further periodic checks will be conducted at the discretion of the qualified paleontologist. If the qualified paleontologist determines that construction excavations have extended into the older Quaternary deposits, construction monitoring for paleontological resources will be required. The applicant shall retain a qualified paleontological monitor, who will work under the guidance and direction of a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology. The paleontological monitor shall be present during all construction excavations (e.g., grading, trenching, or clearing/grubbing) into the older Pleistocene alluvial deposits. Multiple earth-moving construction activities may require multiple paleontological monitors. The frequency of monitoring shall be based on the rate of excavation and grading activities, proximity to known paleontological resources and/or unique geological features, the materials being excavated (native versus artificial fill soils), and the depth of excavation, and if found, the abundance and type of paleontological resources and/or unique geological features encountered. Full-time monitoring can be reduced to part-time inspections if determined adequate by the qualified professional paleontologist.

Mitigation Measure CULT-7: Cease Ground-Disturbing Activities and Implement Treatment Plan if Paleontological Resources Are Encountered. If paleontological resources and or unique geological features are unearthed during ground-disturbing activities, ground-disturbing activities shall be halted or diverted away from the vicinity of the find so that the find can be evaluated. A buffer area of at least 50 feet shall be established around the find where construction activities shall not be allowed to continue until appropriate paleontological treatment plan has been approved by the applicant and the City. Work shall be allowed to continue outside of the buffer area. The applicant and City shall coordinate with a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology, to develop an appropriate treatment plan for the resources. Treatment may include implementation of paleontological salvage excavations to remove the resource along with subsequent laboratory processing and analysis or preservation in place. At the paleontologist's discretion and to reduce construction delay, the grading and excavation contractor shall assist in removing rock samples for initial processing.

Mitigation Measure CULT-8: Prepare Report Upon Completion of Paleontological Monitoring or Salvage Services. Upon completion of monitoring and/or salvage activities (if required by Mitigation Measures CULT 6 or CULT 7), the professional paleontologist shall prepare a report summarizing the results of the monitoring and salvaging efforts, the methodology used in these efforts, as well as a description of the fossils collected and their significance. The report shall be submitted to the applicant, the City, the Natural History Museum of Los Angeles County, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the project and required mitigation measures.

8.4 – HUMAN REMAINS

For components of the proposed project that require excavation activities, the following mitigation measure is recommended to reduce potentially significant impacts to human remains to a less than significant level:

Mitigation Measure CULT-9: Cease Ground-Disturbing Activities and Notify County Coroner If Human Remains Are Encountered. If human remains are unearthed during implementation of the proposed project, the City of Moreno Valley and the applicant shall comply with State Health and Safety Code Section 6050.5. The City of Moreno Valley and the applicant shall immediately notify the County Coroner and no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC shall then identify the person(s) thought to be the Most Likely Descendent (MLD). After the MLD has inspected the remains and the site, they have 48 hours to recommend to the landowner the treatment and/or disposal, with appropriate dignity, the human remains and any associated funerary objects. Upon the reburial of the human remains, the MLD shall file a record of the reburial with the NAHC and the project archaeologist shall file a record of the reburial with the CHRIS-EIC. If the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the landowner rejects the recommendation of the MLD and the mediation provided for in Subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall inter the human remains and items associated with Native American human remains with appropriate dignity on the property in a location not subject to further and future subsurface disturbance.

Recommended Mitigation Measures

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Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

10-APPENDIX MATERIALS

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

APPENDIX A - RESUME

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Christopher W. Purtell, M.A., RPA

AREAS OF EXPERTISE

Cultural Resource Management /
Archaeological Investigations / Project Management

QUALIFICATIONS

As Director of MIG's Cultural Resources Group, Mr. Purtell has more than 13 years of professional experience in cultural resources project management, environmental compliance, subcontracting, archaeological survey, excavation, monitoring, data recovery, laboratory analysis, and in the development of mitigation and treatment plans; as well as over 10 years of experience in a decision-making capacity on cultural resources projects in California, Washington, and Oregon. He has undertaken and contributed to work efforts for prehistoric and historic archaeological, historic built environments, and paleontological investigations in the Great Basin, Mojave Desert, Southern and Northern California pursuant to the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), and Sections 106 and 110 of the National Historic Preservation Act (NHPA).

Mr. Purtell has successfully directed and coordinated cultural resource mitigation recommendations with a variety of lead and regulatory agencies, including Los Angeles County, Riverside County, San Bernardino County, Ventura County, Orange County, Kern County, Inyo County, and he has obtained Field Permits under the Archaeological Resources Protection Act (ARPA) from the U.S. Department of Interior, Bureau of Indian Affairs (BIA), Cultural Field Permits and Field Authorizations, with the Bureau of Land Management (BLM), among others. Mr. Purtell is a Registered Professional Archaeologist (RPA) and his training and background meet the U.S. Secretary of the Interior's Professional Qualifications Standards as a Principle Investigator and Field Director for prehistoric and historic archaeology.

Currently, Mr. Purtell directs the Cultural Resources Group and his duties includes: profit and loss responsibilities, budget management, scope preparation, project task administration, AB 52 administrative support, Native American scoping/consultation, subcontractor evaluation and procurement, coordination with lead agencies, clients, and project result meetings with the public and stakeholders both in public and in private forms. His duties also include cultural resources staff management, review and oversight of cultural surveys results and site recordation to include GIS management and databases, preparation of technical reports and overseeing the quality control assurance of all deliverables.

EDUCATION

- Master of Arts, Anthropology (Emphasis in Archaeology), California State University Fullerton, Fullerton, CA
- Bachelor of Arts, Anthropology/Archaeology (Honors in the Major), Minor in Geography, California State University Dominguez Hills, Carson, CA

AWARDS

- 2007–2008 Professional Distinction Award for Field and Laboratory Analysis, California State University, Fullerton, Graduate School of Anthropology

TRAINING

- OSHA 8-hr Annual HazWaste Operations Refresher Certification, March 2017
- OSHA 40-hr HazWaste Operations Certification (Certification No. 10052), January 2014
- 5-Phase Project Management by the UCLA Extension, Department of Engineering, Information Systems, and Technical Management, 1 April 2008.
- World Class TQM 40-Hour Boot Camp Workshop, Toyota Motor Corporation and Taught by Technical Change Associates, Inc. (R.L. Smith, and G. L. Jensen, Training Coordinators), 1 August 2001.

AFFILIATIONS

- Register of Professional Archaeologist (ID No. 990027)
- Society for American Archaeology (SAA)
- Society for California Archaeology (SCA)

RELEVANT EXPERIENCE

Phase I Cultural Assessment of the Proposed Agua Mansa Commerce Park. City of Jurupa Valley, County of Riverside, California (2016-2017).

Role: Cultural Resources Director / Senior Archaeologist
Client: Viridian Partners

Project Description: Viridian Partners, proposes the Agua Mansa Commerce Park Project to clean up and redevelop the existing 297.3-acre Riverside Cement Plant site.

Responsible for a Phase I Cultural Resources Assessment and Technical Report of the Project Area to determine the potential impacts to cultural resources for the purpose of complying with the California Environmental Quality Act.

Phase 1 Cultural Resources Assessment of the Proposed Groundwater Production Well No. 204 Project. City of Perris, County of Riverside, California (2016).

Role: Cultural Resources Director / Senior Archaeologist

Client: Eastern Municipal Water District

Project Description: The new construction and operation of a new portable groundwater production facility identified as Well No. 204, on 2.3-acres of land that includes: well head facilities and appurtenances, a new field office, water supply line, water discharge pump, settling tanks, drill rig, dog house, mud tank, blow off pond, pipe trailer, material and cutting storage area, and laydown yards. Responsible for a Phase I Cultural Resources Assessment and Technical Report of the Project Area to determine the potential impacts to cultural resources for the purpose of complying with the California Environmental Quality Act.

Pipeline Safety Enhancement Plan (PSEP) SL32-21 Pasadena Hydro-test Project. City of Pasadena, County of Los Angeles, California (2015)

Role: Archaeological Specialist

Client: Southern California Gas Company

Project Description: To pressure test natural gas transmission pipelines that have not been tested to modern standards. Responsible for a Phase I Cultural Resources Assessment, Technical Report, and Archaeological Construction Monitoring of the Project Area to reduce potential impacts to unknown cultural resources for the purpose of complying with the California Environmental Quality Act.

Cultural Resources Assessment for the Proposed North San Diego County Recycled Water Project. San Diego County, California (2015).

Role: Senior Archaeologist / Project Manager for PCR Service, Inc.

Client: RMC Water and Environment, Inc.

Project Description: The Project consists of the development of a regional recycled water, infrastructure that includes interagency connections to increase the capacity and connectivity of the recycled water storage and distribution systems of the Coalition. Responsible for a comprehensive Phase I Cultural Assessment and Technical Report to reduce potential impacts to unknown cultural resources for the purpose of complying with the California Environmental Quality Act.

Grounding Rods and Laterals Installation at San Fernando Substation. City of Los Angeles, California (2014).

Role: Archaeological Specialist for SWCA Environmental Consultants.

Client: Southern California Edison Company

Project Description: Grounding rods and laterals were installed to limit the voltage imposed by lightning, line surges, or unintentional contact with higher-voltage lines and to stabilize the voltage to earth during normal operations. Responsible for a Phase I Cultural Resources Assessment, Technical Report, and Archaeological Construction Monitoring in-order to reduce potential impacts to unknown cultural resources for the purpose of complying with the California Environmental Quality Act.

Archaeological Survey Report California Street Off-Ramp Project. City of Ventura, Ventura County, California (2014).

Role: Senior Archaeologist / Project Manager for Duke Cultural Resources Management, LLC.

Client: California Department of Transportation District 7 (Caltrans).

Project Description: The California Department of Transportation (Caltrans) propose to relocate the existing U.S. Route 101 (US-101) northbound off-ramp at California Street to Oak Street, and to replace the California Street Overcrossing in Ventura County, California. Responsible for a comprehensive Phase I Cultural Assessment and Archaeological Survey Report to reduce potential impacts to unknown cultural resources for the purpose of complying with the National Historic Preservation Act (Section 106) and the California Environmental Quality Act.

Catalina Renewable Energy Project. Kern County, California (2010-2012).

Role: Senior Archaeological Resource Coordinator for Sapphos Environmental, Inc.

Client: EDF Renewables (formerly enXco).

Project Description: The project is a renewable energy development that would generate up to 350 Megawatts (MW) of electricity from wind turbines generators (WTGs) and photovoltaic (PV) solar system blocks on a 6,739-acre site.

Responsible for a comprehensive Phase I Cultural Assessment, Technical Report, and Archaeological Construction Monitoring to reduce potential impacts to unknown cultural resources for the purpose of complying with the National Historic Preservation Act (Section 106) and the California Environmental Quality Act.

Avalon Wind Energy Project. Kern County, California (2010-2012).

Role: Senior Archaeological Resources Coordinator for Sapphos Environmental, Inc.

Client: EDF Renewables (formerly enXco).

Project Description: The project is a renewable energy development that would generate up to 300 megawatts (MW) of electricity through use of wind power and would include up to 127 wind turbine generators (WTGs), supported by service roads, a power collection system, communication cables, overhead transmission lines, electrical switchyards, project substations, meteorological towers, and operations and maintenance facilities.

Responsible for a comprehensive Phase I Cultural Assessment, Technical Report, and Archaeological Construction Monitoring to reduce potential impacts to unknown cultural resources for the purpose of complying with the National Historic Preservation Act (Section 106) and the California Environmental Quality Act.

APPENDIX . - NAHC SACRED LANDS FILE LETTER

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: <http://www.nahc.ca.gov>
Twitter: @CA_NAHC



April 15, 2019

Christopher Purtell
MIG

VIA Email to: cpurtell@migcom.com

RE: Krameria Avenue Project, Riverside County

Dear Mr. Purtell:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,

A handwritten signature in blue ink that reads "Steven Quinn".

Steven Quinn
Associate Governmental Program Analyst

Attachment

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Native American Consultation Record

Project Name: Krameria Avenue Project
 Project Number: 13623
 NAHC Contact Initiated: 3/27/2019
 NAHC Letter Received: 4/15/2019

Results: The NAHC did not identify any Native American cultural resources in the Sacred Lands File (SLF). The NAHC recommended that we contact ten (10) Native American groups/individuals.

Matrix prepared by Chris Purtell

Group/Name	Date contact was initiated	Method of contact	Response
Agua Caliente Band of Cahuilla Indians Patricia Garica-Plotkin, Director 760-699-6907	4/16/2019	U.S. First Class Mail	Letter Response Received on April 24, 2019. The Tribe stated that they defer to the Soboba, Morongo Band of Mission Indians, and to the Pechanga Band of Luiseno Indians. This letter shall conclude our consultation efforts.
Augustine Band of Cahuilla Mission Indians Amanda Vance, Chairperson 760-398-4722	4/16/2019	U.S. First Class Mail	Letter Response Received on May 9, 2019. The Tribe stated at this time that they are unaware of specific cultural resources that may be affected by the proposed project. The Tribe encouraged Native American monitoring during project development and requested to be notified immediately should cultural resources be discovered during project implementation.
Cabzon Band of Mission Indians Doug Welmas, Chairpeson 760-342-2593	4/16/2019	U.S. First Class Mail	No Response as of May 30, 2019
Cahuilla Band of Indians Daniel Salgado, Chairperson 951-763-5549	4/16/2019	U.S. First Class Mail	No Response as of May 30, 2019
Los Coyotes Band of Cahuilla and Cupeno Indians Shane Chapparosa, Chairperson 760-782-0711	4/16/2019	U.S. First Class Mail	No Response as of May 30, 2019

Group/Name	Date contact was initiated	Method of contact	Response
Morongo Band of Mission Indians Denisa Torres, Cultural Resources Mgr. 951-849-8807	4/16/2019	U.S. First Class Mail	Email Response Received on April 25, 2019. The Tribe stated that they had no additional information to provide at this time, but may provide other information to the lead agency during AB 52 consultation process.
Ramona Band of Cahuilla John Gomez, Environmental Coordinator 951-763-4105	4/16/2019	U.S. First Class Mail	No Response as of May 30, 2019
Santa Rosa Band of Cahuilla Indians Steven Estrada, Chairperson 951-659-2700	4/16/2019	U.S. First Class Mail	No Response as of May 30, 2019
Soboba Band of Luiseno Indians Joseph Ontiveros, Cultural Resources Director 951-663-5279	4/16/2019	U.S. First Class Mail	No Response as of May 30, 2019
Michael Mirelez, Cultural Resources Director 760-397-8146	4/16/2019	U.S. First Class Mail	No Response as of May 30, 2019

APPENDIX C - PALEONTOLOGY LETTER

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org



Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

10 April 2019

MIG / Hogle-Ireland
1500 Iowa Avenue, Suite 110
Riverside, CA 92507

Attn: Christopher W. Purcell, Director of Cultural Resources

re: Vertebrate Paleontology Records Check for paleontological resources for the proposed
Krameria Avenue Project, in the City of Moreno Valley, Riverside County,
project area

Dear Christopher:


I have conducted a thorough search of our paleontology collection records for the locality and specimen data for the proposed Krameria Avenue Project, in the City of Moreno Valley, Riverside County, project area as outlined on the portion of the Sunnymead USGS topographic quadrangle map that you sent to me via e-mail on 27 March 2018. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have localities somewhat nearby from sedimentary deposits similar to those that probably occur at depth in the proposed project area.

Surface deposits in the entire proposed project area consist of younger Quaternary Alluvium, derived as alluvial fan deposits from the more elevated terrain to the north. These sedimentary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but they may be underlain by older Quaternary deposits that do contain significant vertebrate fossils. Our closest vertebrate fossil locality from somewhat similar deposits is LACM 4540, from the gravel pits just west of Jack Rabbit Trail east-southeast of the proposed project area on the eastern side of the San Jacinto Valley, that produced a specimen of fossil horse, *Equus*.

Shallow excavations in younger Quaternary Alluvium in the proposed project area are unlikely to uncover significant vertebrate fossil remains. Deeper excavations in the proposed project area that extend down into older Quaternary deposits, however, may well encounter significant vertebrate fossils. Any substantial excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,



Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

Appendix D Preliminary Water Quality Management Plan

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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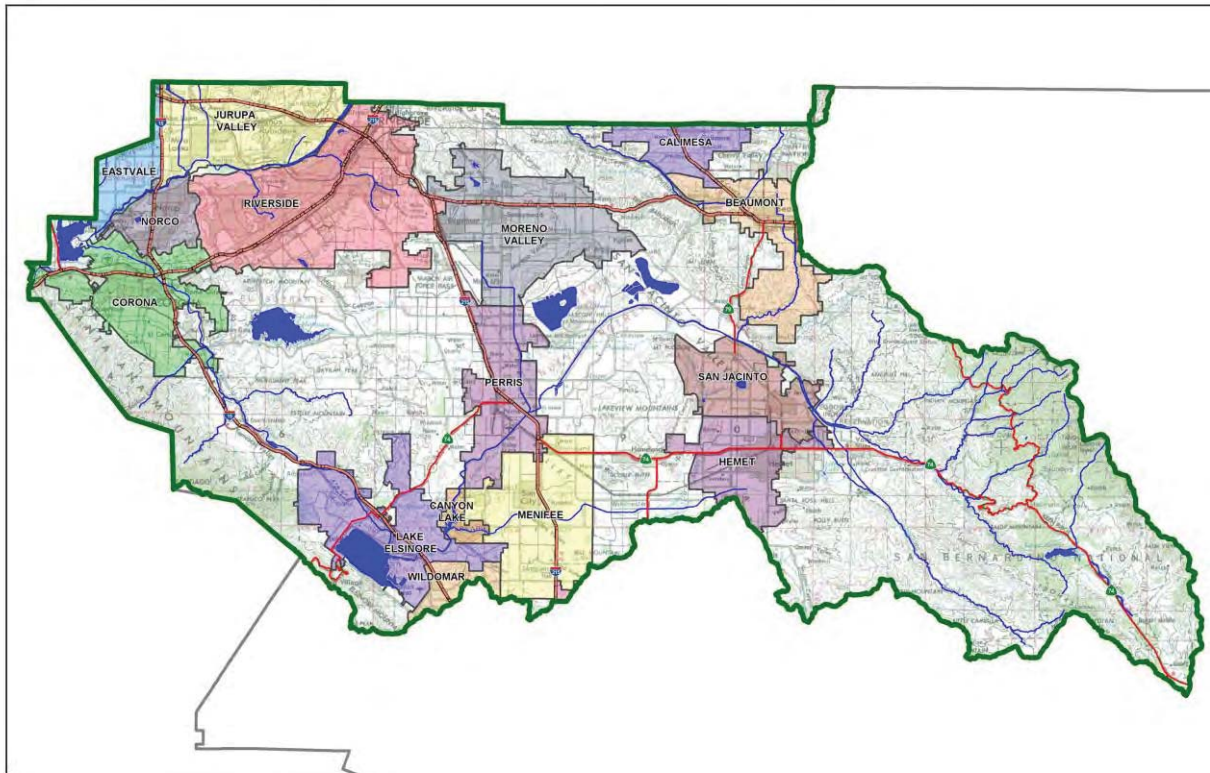
Project Specific Water Quality Management Plan

A Template for Projects located within the **Santa Ana Watershed** Region of Riverside County

Project Title: Tentative Tract No. 37725

Development No: APN 316-110-005, 006, 022, 023 and 024

Design Review/Case No: PEN 19-0188 / LWQ19-0033



Contact Information:

Prepared for:
 PI Properties No. 67 LLC
 c/o Positive Investments
 Attn: Mr. Mohan Kondragunta
 610 North Santa Anita Ave.
 Arcadia, CA 91006
 (626) 321-4845

Prepared by:
 Thatcher Engineering and Associates, Inc.
 1461 Ford Street Suite 105
 Redlands, CA 92373
 (909) 748-7777

- Preliminary
- Final

Original Date Prepared: 1/27/19

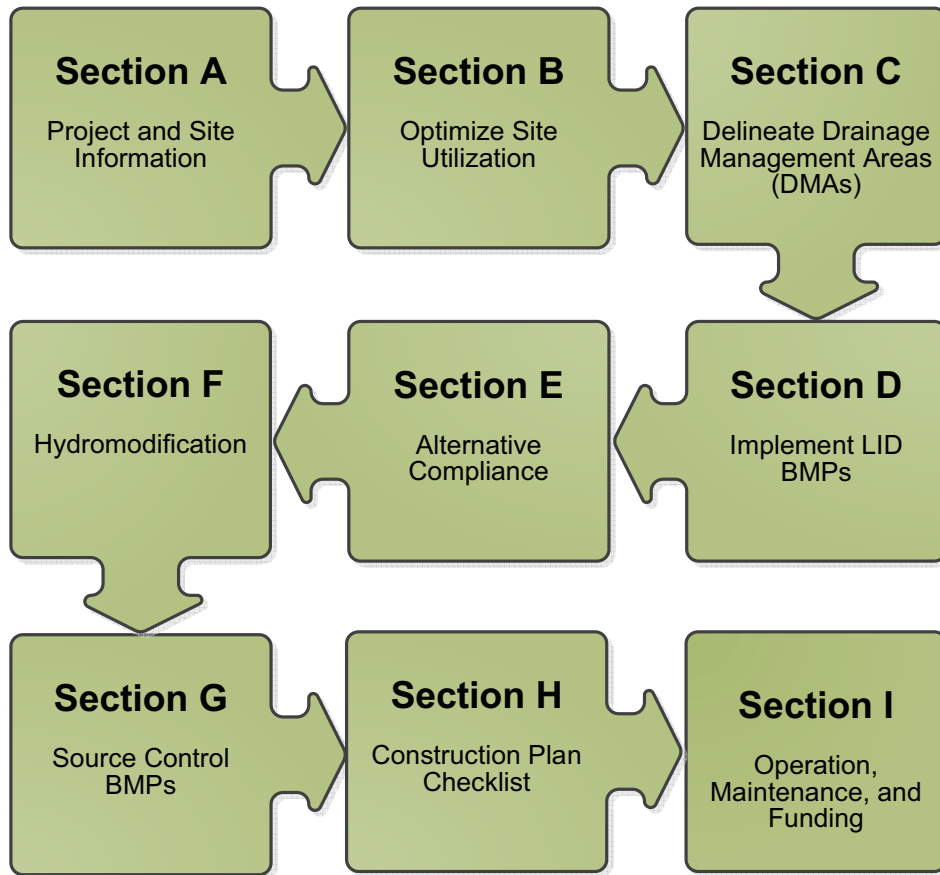
Revision Date(s):

*Prepared for Compliance with
 Regional Board Order No. **R8-2010-0033***

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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.



OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for PI Properties No. 67 LLC by Thatcher Engineering and Associates, Inc. for the Tentative Tract No. 37725 project.

This WQMP is intended to comply with the requirements of City of Moreno Valley for Water Quality Ordinance (Municipal code Section 9.10.080) 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 9.10.080).

"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."

RAO R. YALAMANCHILI
Owner's Signature

RAO R. YALAMANCHILI
Owner's Printed Name

02/27/2020
Date

Mgr
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."

Patrick C. Flanagan Jr.
Preparer's Signature

Patrick C. Flanagan Jr.
Preparer's Printed Name

03/02/2020
Date

Professional Engineer
Preparer's Title/Position

Preparer's Licensure:



ALL CAPACITY ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF California

COUNTY OF Los Angeles

On February 27, 2020 before me, KARLA I. FRESNEDO, Notary Public
(Date) (Name and title of the officer)

personally appeared RAB R. YALAMANCI
(Name of person signing)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Karla I. Fresnedo
Signature of officer



(Seal)

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Residential Tract
Planning Area:	N/A
Community Name:	N/A
Development Name:	Tentative Tract No. 37725
PROJECT LOCATION	
Latitude & Longitude (DMS): 33.880284, -117.228602	
Project Watershed and Sub-Watershed: San Jacinto River/ Lake Elsinore	
APN(s): 316-110-005, 006, 022, 023 and 024	
Map Book and Page No.: Book 8 Page 21	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Single Family Residential
Proposed or Potential SIC Code(s)	
Area of Project Footprint (SF)	831,679 SF (Total area)
Total Area of <u>proposed</u> Impervious Surfaces within the Project Limits (SF)/or Replacement	486,480 SF(assumes 50% impervious footprint on lots)
Does the project consist of offsite road improvements?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Does the project propose to construct unpaved roads?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is the project part of a larger common plan of development (phased project)?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
EXISTING SITE CHARACTERISTICS	
Total area of <u>existing</u> Impervious Surfaces within the project limits (SF)	14,012 SF (Tarano Lane)
Is the project located within any MSHCP Criteria Cell?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
If so, identify the Cell number:	
Are there any natural hydrologic features on the project site?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Is a Geotechnical Report attached?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> 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?	0.66

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

The project site is currently vacant, and consists of five parcels. The site is located at the southwest corner of Krameria Avenue and Perris Boulevard in the City of Moreno Valley. The site generally drains from the northeast corner to the southwest corner at approximately 0.7%. An unnamed, ephemeral drainage flows north to south along the western boundary of the project site.

The project proposes to develop the site as a 66-lot single family residential tract with related access and landscape improvements. The development will also include street improvements along Krameria Avenue and Tarano Lane. A bus turnout is also proposed along Perris Boulevard. Since Perris Boulevard is fully improved and existing street flows will comingle with flows from the bus turnout, requiring treatment of the bus turnout would result in an exorbitant treatment volume, well beyond the volume that would be generated by the bus turnout, therefore placing undue burden on the project. Therefore, no treatment is required or proposed for Perris Boulevard.

The total existing net area of the site is approximately 19.08 acres. After dedication, the proposed net area of the site is approximately 17.59 acres. The project area, including proposed offsite improvements, and existing offsite improvements tributary to the project's BMPs is 831,679 SF.

Drainage Area 1 includes the westerly portion of the Krameria Avenue frontage, adjacent parkway and landscape easement, totaling 31,446 SF. Bioretention Swale 1 is proposed to provide treatment of the area. Runoff from Krameria Avenue will be directed to the swale via curb openings. Once treated in the soil media, runoff will enter an underdrain, ultimately directing flows to the existing catch basin at the southeast corner of Krameria Avenue and Tarano Lane. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically.

Drainage Area 2 includes the center portion of the Krameria Avenue frontage, adjacent parkway and landscape easement, totaling 24,770 SF. Bioretention Swale 2 is proposed to provide treatment of the area. Runoff from Krameria Avenue will be directed to the swale via curb openings. Once treated in the soil media, runoff will enter an underdrain, ultimately directing flows to the existing storm drain structure in Krameria Avenue. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically.

Drainage Area 3 includes the easterly portion of Krameria Avenue frontage, adjacent parkway and landscape easement, 2,692 SF. Bioretention Swale 3 is proposed to provide treatment of the area. Runoff from Krameria Avenue will be directed to the swale via curb openings. Once treated in the soil media, runoff will enter an underdrain, ultimately directing flows to the existing catch basin at the southwest corner of Krameria Avenue and Perris Boulevard. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically.

Drainage Area 4 includes the northwest portion of the site, and the Tarano Lane frontage, totaling 435,267 SF. Bioretention Area 4 is proposed to provide treatment of the area. Runoff from onsite areas will enter one of two undersidewalk drains which will direct flows via storm drain to the bioretention area. Runoff from lots 1 through 8 and the Tarano Lane frontage will enter a proposed undersidewalk drain along Tarano and will enter the bioretention area. Once treated in the bioretention area media, flows will enter the underdrain and will outlet via storm drain to a proposed storm drain in Kettenburg Lane, which is proposed to be extended to Northern Dancer Drive. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically.

Drainage Area 5 includes the southeast portion of the site, totaling 337,504 SF. Bioretention Area 5 is proposed to provide treatment of the area. Runoff from onsite areas will enter one of two undersidewalk drains which will direct flows via storm drain to the bioretention area. Once treated in the bioretention area media, flows will enter the underdrain and will outlet via storm drain to a

proposed storm drain in Kettenburg Lane, which is proposed to be extended to Northern Dancer Drive. From here, flows continue via City of Moreno Valley Storm Drain to Perris Valley Channel and Canyon Lake as they do historically.

The City will maintain the bioretention areas, and catch basins / storm drain signage. The HOA will maintain the offsite bioretention swales.

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.

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
Perris Valley Channel	None	None	N/A
San Jacinto River (Reach 3)	None	MUN-AGR-GWR-REC1-REC2-WARM-WILD-RARE	Distance from project to nearest tributary RARE waterbody is over 8 miles
Canyon Lake (aka San Jacinto River Reach 2)	Nutrients, Pathogens	MUN-AGR-GWR-REC1-REC2-WARM-WILD	N/A
San Jacinto River (Reach 1)	None	MUN-AGR-GWR-REC1-REC2-WARM-WILD-RARE	Lake Elsinore to Canyon Lake
Lake Elsinore	Nutrients, Oxygen Demanding Substances, Sediments, Turbidity, Unknown Toxicity, Pesticides	REC1-REC2-WARM-WILD	N/A
Temescal Creek (Reach 5)	None	AGR-GWR-REC1-REC2-WARM-WILD-RARE	Mid-section line of Section 17 (downstream end of freeway cut) to Elsinore Ground-water Subbasin Boundary
Temescal Creek (Reach 4)	None	AGR-GWR-REC1-REC2-WARM-WILD-RARE	Lee Lake to Mid-Sec line of Sec. 17
Temescal Creek (Reach 3)	None	AGR-IND-GWR-REC1-	N/A

		REC2-WARM-WILD	
Temescal Creek (Reach 2)	None	AGR-IND-GWR-REC1-REC2-WARM-LWRM	N/A
Temescal Creek (Reach 1)	pH	REC1-REC2-WARM-WILD	N/A
Santa Ana River (Reach 3)	Copper, Lead, Pathogens	AGR-GWR-REC1-REC2-WARM-WILD-RARE-SPWN	Prado Dam to Mission Blvd. in Riverside
Prado Basin Management Zone	None	REC1-REC2-WARM-WILD-RARE	Prado Flood Control Basin
Santa Ana River (Reach 2)	Indicator Bacteria	AGR-GWR-REC1-REC2-WARM-WILD-RARE	17 th Street in Santa Ana to Prado Dam
Santa Ana River (Reach 1)	None	REC1-REC2-WARM-WILD	N/A
Tidal Prism of Santa Ana River (to within 1000' of Victoria Street) and Newport Slough	None	None	At Tidal Prism

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	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
US Army Corps of Engineers, CWA Section 404 Permit	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Statewide Construction General Permit Coverage	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Statewide Industrial General Permit Coverage	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Other (please list in the space below as required)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> 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.

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?

Yes. Existing drainage patterns have been preserved to the maximum extent possible. The entire site and redeveloped / tributary area of Tarano Lane is directed to one of the bioretention areas for treatment, prior to exiting the site to the City storm drain as it does historically.

Did you identify and protect existing vegetation? If so, how? If not, why?

No. There is no significant vegetation onsite to preserve. The entire site will be mass graded to accommodate the development.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

No. The measured infiltration rates were too low to allow for the use of an infiltration BMP. Instead, biotreatment BMPs are proposed.

Did you identify and minimize impervious area? If so, how? If not, why?

Yes. Impervious areas are limited to required streets, sidewalks and ultimately homes and related hardscape. It is assumed that 50% of the private lots at ultimate build-out will be pervious.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

Yes. The entire onsite will drain to one of the bioretention areas for treatment. Krameria Avenue runoff will be directed to bioretention swales for treatment.

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
1A	Concrete or Asphalt	24214	Type D
1B	Ornamental Landscaping	7232	Type D
2A	Concrete or Asphalt	20312	Type D
2B	Ornamental Landscaping	4458	Type D
3A	Concrete or Asphalt	2073	Type D
3B	Ornamental Landscaping	619	Type D
4A	Roofs / Concrete or Asphalt	234343 (assumes 50% coverage on private lots)	Type D
4B	Ornamental Landscaping	200924 (assumes 50% coverage on private lots)	Type D
5A	Roofs / Concrete or Asphalt	205538 (assumes 50% coverage on private lots)	Type D
5B	Ornamental Landscaping	131966 (assumes 50% coverage on private lots)	Type D

¹Reference Table 2-1 in the WQMP Guidance Document to populate this column

Table C.2 Type 'A', Self-Treating Areas

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

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

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet) [A]	Post-project surface type	Runoff factor [B]	Product [C] = [A] x [B]	DMA name /ID	Area (square feet) [D]	Ratio [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
1A and 1B	Bioretention Swale 1
2A and 2B	Bioretention Swale 2
3A and 3B	Bioretention Swale 3
4A and 4B	Bioretention Area 4
5A and 5B	Bioretention Area 5

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: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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 Copermitee 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? If Yes, list affected DMAs:		X
...have any DMAs located within 100 feet of a water supply well? If Yes, list affected DMAs:		X
...have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact? If Yes, list affected DMAs:		X
...have measured in-situ infiltration rates of less than 1.6 inches / hour? If Yes, list affected DMAs:	X	
...have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface? If Yes, list affected DMAs:		X
...geotechnical report identify other site-specific factors that would preclude effective and safe infiltration? Describe here:		X

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.

D.2 Harvest and Use Assessment

Please check what applies: None of the below apply. Therefore, Harvest and Use has been assessed.

- 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 Copermitttee).
- 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: 7.92 acres

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: 11.17 acres

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: 1.104

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: 12.33

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)
12.33	7.92

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: 66 lots x 4 people = 264

Project Type: Residential

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: 11.17 acres

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 of toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: 110

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: 1,229

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)
1,229	264

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:

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:

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:

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:

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).

<u>Minimum required non-potable use (Step 4)</u>	<u>Projected average daily use (Step 1)</u>

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.

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	
1A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1B	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2B	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3B	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4B	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5B	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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.

All DMAs are treated using a LID BMP. No alternative compliance is required or proposed.

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]	
						Bioretention Swale 1
1A	24214	Asphalt	1	0.89	21598.9	
1B	7232	Landscaping	0.1	0.11	798.8	
					$\Sigma =$	
$A_T = \Sigma$		31446			22397.7	0.66 1231.9 1232
						<i>Design Storm Depth (in)</i> <i>Design Volume, V_{BMP} (cubic feet)</i> <i>Capture Volume, V_{BMP} (cubic feet)</i> <i>Proposed Volume on Plans (cubic feet)</i>
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]	
						Bioretention Swale 2
2A	20312	Asphalt	1	0.89	18118.3	
2B	4458	Landscaping	0.1	0.11	492.4	
					$\Sigma =$	
$A_T = \Sigma$		24770			18610.7	0.66 1023.6 1024
						<i>Design Storm Depth (in)</i> <i>Design Volume, V_{BMP} (cubic feet)</i> <i>Capture Volume, V_{BMP} (cubic feet)</i> <i>Proposed Volume on Plans (cubic feet)</i>

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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]	<i>Bioretention Swale 3</i>			
3A	2073	Asphalt	1	0.89	1849.1	<i>Design Storm Depth (in)</i>	<i>Design Volume, (cubic feet)</i>	<i>Capture V_{BMP} (cubic feet)</i>	<i>Proposed Volume on Plans (cubic feet)</i>
3B	619	Landscaping	0.1	0.11	68.4				
A_T = Σ		2692			Σ= 1917.5	0.66	105.5		106

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]	<i>Bioretention Area 4</i>			
4A	234343	Roofs	1	0.89	209034	<i>Design Storm Depth (in)</i>	<i>Design Volume, (cubic feet)</i>	<i>Capture V_{BMP} (cubic feet)</i>	<i>Proposed Volume on Plans (cubic feet)</i>
4B	200924	Landscaping	0.1	0.11	22193.7				
A_T = Σ		435267			Σ= 231227.7	0.66	12717.5		12718

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]	<i>Bioretention Area 5</i>			
5A	205538	Roofs	1	0.89	183339.9	<i>Design Storm Depth (in)</i>	<i>Design Volume, (cubic feet)</i>	<i>Capture V_{BMP} (cubic feet)</i>	<i>Proposed Volume on Plans (cubic feet)</i>
5B	131966	Landscaping	0.1	0.11	14576.7				
A_T = Σ		337504			Σ= 197916.6	0.66	10885.4		10886

[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

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.

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.

N/A

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 &
<input type="checkbox"/> Detached Residential Development	P	N	P	P	N	P	P	P
<input type="checkbox"/> Attached Residential Development	P	N	P	P	N	P	P	P ⁽²⁾
<input type="checkbox"/> Commercial/Industrial Development	P ⁽³⁾	P	P ⁽¹⁾	P ⁽¹⁾	P ⁽⁵⁾	P ⁽¹⁾	P	P
<input type="checkbox"/> Automotive Repair Shops	N	P	N	N	P ^(4, 5)	N	P	P
<input type="checkbox"/> Restaurants (>5,000 ft ²)	P	N	N	N	N	N	P	P
<input type="checkbox"/> Hillside Development (>5,000 ft ²)	P	N	P	P	N	P	P	P
<input type="checkbox"/> Parking Lots (>5,000 ft ²)	P ⁽⁶⁾	P	P ⁽¹⁾	P ⁽¹⁾	P ⁽⁴⁾	P ⁽¹⁾	P	P
<input type="checkbox"/> Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

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.

N/A

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage ²
<i>Total Credit Percentage¹</i>	

¹Cannot Exceed 50%

²Obtain 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.

N/A

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
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><i>Design Storm Depth (in)</i></p> </div> <div style="width: 45%;"> <p><i>Minimum Design Capture Volume or Storm Design Rate (cubic feet or cfs)</i></p> </div> </div>						<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><i>Total Storm Water Credit Reduction %</i></p> </div> <div style="width: 45%;"> <p><i>Proposed Volume or Flow on Plans (cubic feet or cfs)</i></p> </div> </div>
$A_T = \sum[A]$						$\Sigma = [D] \quad [E] \quad [F] = \frac{[D] \times [E]}{[G]} \quad [F] \times (1 - [H]) \quad [I]$

[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

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.

N/A

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID ¹	Priority Pollutant(s) of Concern to Mitigate ²	Removal Percentage ³	Efficiency

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: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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 Copermitttee 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 concentration¹ 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	24.8	17.75	28.4
Volume (Cubic Feet)	34,413	26,266	23.7

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.

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.

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	The catch basins on Street ‘A’ will be marked with “Only Rain Down the Storm Drain” or similar.	Catch basin signage will be maintained by the City. Educational materials have been included in this document.

Landscape / Outdoor Pesticide Use	Drip irrigation shall be used for all common lot and front yard landscaping except where turf is proposed. Spray irrigation will not be used within 2' of hardscape. Fertilizer and pesticide use shall be minimized. The proposed plant palette will take into consideration environmental constraints including site soils, slopes, climate, sun, wind, rain, air movement, ecological consistency and plant interactions. Plant material proposed within the bioretention areas will be tolerant of periodic saturation and flooding.	Landscaping within Lots A and B will be maintained by the City. Landscaping within the public right of way and within the landscape easement will be maintained by the HOA. Landscaping within these areas shall be maintained using minimum pesticides. Educational materials have been included in this document and shall be provided to new homeowners by the HOA when lots are sold. Homeowners will maintain landscaping on private lots and within adjacent right of way.
Pools, Spas, Ponds, Decorative Fountains and Other Water Features		Educational materials have been included in this document and shall be provided to new homeowners by the HOA when lots are sold.
Roofing, Gutters, Trim	Roofing, gutters and trim made of copper or other unprotected metals will not be used.	

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 Swale 1	Tentative Tract Map
2	Bioretention Swale 2	Tentative Tract Map
3	Bioretention Swale 3	Tentative Tract Map
4	Bioretention Basin 4	Tentative Tract Map
5	Bioretention Basin 5	Tentative Tract Map

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.

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: The City will maintain the onsite bioretention areas while the HOA will maintain the offsite swales.

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.

Operation and Maintenance Plan and Maintenance Mechanism will be provided in the Final WQMP.

Appendix 1: Maps and Site Plans

WQMP Site Plan (includes Location Map) and Receiving Waters Map

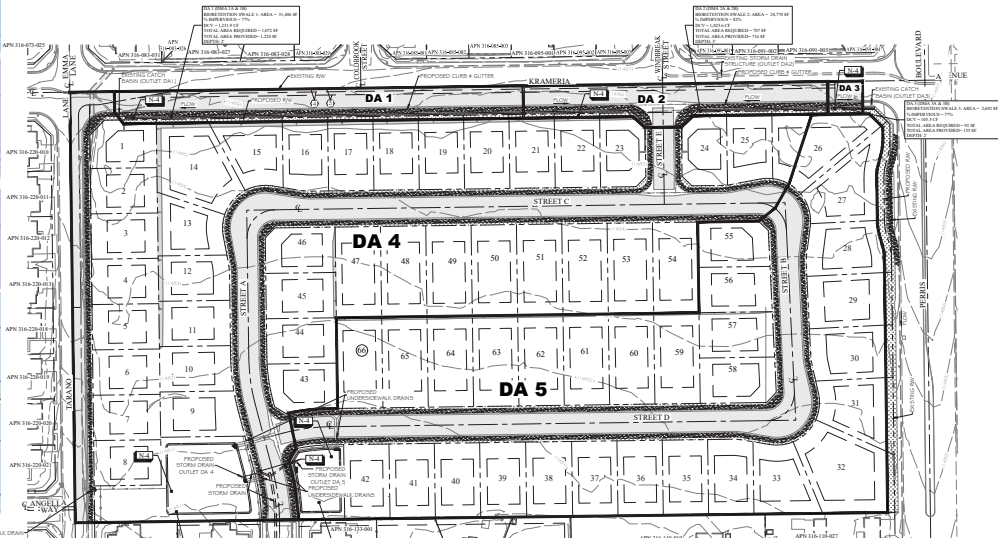
Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

TYPE D - AREAS DRAINING TO BMPs

PRELIMINARY WATER QUALITY MANAGEMENT PLAN

APN 316-110-005, 006, 022, 023 & 024
KRAMERIA AVENUE & PERRIS BOULEVARD
CITY OF MORENO VALLEY

APN	Area	Area Description	Area Size	Area Use	Area Classification	Area Owner	Area Status
APN 316-110-005	DA 1	Proposed AC Pavement	1.8	Pavement	Proposed	City of Moreno Valley	Proposed
APN 316-110-006	DA 2	Proposed AC Pavement	1.2	Pavement	Proposed	City of Moreno Valley	Proposed
APN 316-110-022	DA 3	Proposed AC Pavement	1.0	Pavement	Proposed	City of Moreno Valley	Proposed
APN 316-110-023	DA 4	Proposed AC Pavement	2.0	Pavement	Proposed	City of Moreno Valley	Proposed
APN 316-110-024	DA 5	Proposed AC Pavement	3.0	Pavement	Proposed	City of Moreno Valley	Proposed



LEGAL DESCRIPTION

THE LAND OPERATIVE REFERRED TO IS SITUATED IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA AND DESCRIBED AS FOLLOWS:

- PARCELS 1:
THE NORTH HALF OF THE NORTH HALF OF LOT 17 IN BLOCK 2 OF RIVERSIDE ALPACA ACRES, AS SHOWN BY MAP ON FILE IN BOOK R PAGE 31 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.
ACCRETING THAT PORTION OF LAND CONVEYED TO THE CITY OF MORENO VALLEY BY DEED RECORDED AUGUST 24, 1992 AS INSTRUMENT NO. 31-0033.
- PARCELS 2:
THE SOUTH ONE HALF OF THE NORTH ONE HALF OF LOT 17, BLOCK 2 OF RIVERSIDE ALPACA ACRES, AS SHOWN BY MAP ON FILE IN BOOK R PAGE 2 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.
- PARCELS 3:
THE SOUTH HALF OF LOT 17 IN BLOCK 2 OF RIVERSIDE ALPACA ACRES, AS SHOWN BY MAP ON FILE IN BOOK R PAGE 2 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

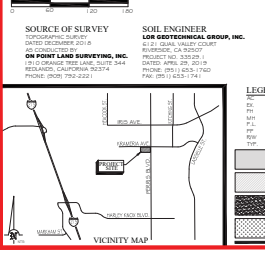
- #### EASEMENTS
- AN EASEMENT FOR ELECTRICAL SUPPLY SYSTEMS IN FAVOR OF SOUTHERN CALIFORNIA Edison COMPANY, RECORDED APRIL 2, 1974 AS INSTRUMENT NO. 41210 OF OFFICIAL RECORDS.
 - THE LOCATION OF SAND ASSESSMENT LIES WITHIN PERIODS BOUNDARIES RIGHT-OF-WAY.
 - AN EASEMENT FOR ACCEPTANCE OF DRAINAGE WATER DISCHARGED FROM PERIODS BOUNDARIES IN FAVOR OF OVERSEAS REALTY ENTERPRISES, INC. AND CITY OF MORENO VALLEY, RECORDED MAY 19, 1987 AS INSTRUMENT NO. 2814532 OF OFFICIAL RECORDS.
 - THE LOCATION OF SAND ASSESSMENT LIES WITHIN PERIODS BOUNDARIES RIGHT-OF-WAY.
 - AN EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF TRENCHES AND SLOPE BANKS IN FAVOR OF OVERSEAS REALTY ENTERPRISES, INC. AND CITY OF MORENO VALLEY, RECORDED SEPTEMBER 29, 1987 AS INSTRUMENT NO. 2814532 OF OFFICIAL RECORDS.
 - AN EASEMENT FOR GRANAGE IN FAVOR OF THE CITY OF MORENO VALLEY, RECORDED SEPTEMBER 29, 1987 AS INSTRUMENT NO. 2814532 OF OFFICIAL RECORDS.
 - AN EASEMENT FOR PUBLIC HIGHWAY PURPOSES, INCLUDING PUBLIC UTILITY AND PUBLIC SERVICE FACILITIES (CABLE, PHONE, UTILS, AND HIGHWAYS) IN FAVOR OF THE CITY OF MORENO VALLEY, A MUNICIPAL CORPORATION, RECORDED AUGUST 24, 1992 AS INSTRUMENT NO. 31-0033 OF OFFICIAL RECORDS.

KEY NOTES

NO.	DESCRIPTION	RESPONSIBLE PARTY
1	REGULATION OF PROPERTY OWNERS, OPERATORS, TENANTS, OCCUPANTS, OR EMPLOYEES	DEVELOPER/OWNER
2	CONSTRUCTION AND MAINTENANCE OF TRENCHES AND SLOPE BANKS	CONTRACTOR AS PER PERMITS
3	COMMON AREA UTILITY CONTROL	CONTRACTOR AS PER PERMITS
4	CONSTRUCTION AND MAINTENANCE OF SAND ASSESSMENTS	CONTRACTOR AS PER PERMITS
5	LANDSCAPE AND VEGETATION SYSTEM DESIGN	LANDSCAPE ARCHITECT
6	EROSION CONTROL MEASURES	CONTRACTOR AS PER PERMITS
7	EROSION CONTROL SYSTEM DESIGN	CONTRACTOR AS PER PERMITS
8	EROSION CONTROL SYSTEM DESIGN	CONTRACTOR AS PER PERMITS
9	EROSION CONTROL SYSTEM DESIGN	CONTRACTOR AS PER PERMITS

DMA CLASSIFICATIONS

APN	Area	Area Description	Area Size	Area Use	Area Classification	Area Owner	Area Status
APN 316-110-005	DA 1	Proposed AC Pavement	1.8	Pavement	Proposed	City of Moreno Valley	Proposed
APN 316-110-006	DA 2	Proposed AC Pavement	1.2	Pavement	Proposed	City of Moreno Valley	Proposed
APN 316-110-022	DA 3	Proposed AC Pavement	1.0	Pavement	Proposed	City of Moreno Valley	Proposed
APN 316-110-023	DA 4	Proposed AC Pavement	2.0	Pavement	Proposed	City of Moreno Valley	Proposed
APN 316-110-024	DA 5	Proposed AC Pavement	3.0	Pavement	Proposed	City of Moreno Valley	Proposed



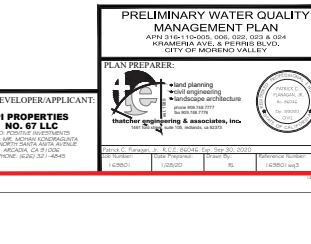
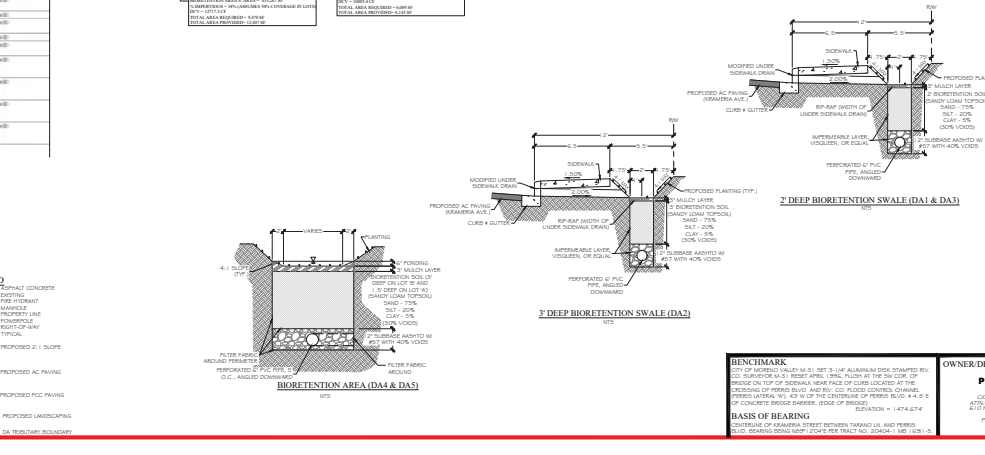
LEGEND

Existing Concrete	Proposed AC Pavement
Existing Asphalt	Proposed FPC Pavement
Existing Paved Area	Proposed Landscaping
Existing Grass	Proposed Landscaping (Triangular Boundary)
Proposed AC Pavement	
Proposed FPC Pavement	
Proposed Landscaping	



SOURCE OF SURVEY
SURVEY NO. 2023
DATED OCTOBER 2018
BY ON POINT LAND SURVEYING, INC.
REGISTERED SURVEYOR 82327-2-044
PHONE (909) 793-2221
FAX (909) 793-2221

SOIL ENGINEER
LOS ANGELES TECHNICAL GROUP, INC.
4111 QUAL VALLEY COURT
PERRIS, CALIFORNIA 92570
PHONE (951) 425-1760
FAX (951) 425-1741



PRELIMINARY WATER QUALITY MANAGEMENT PLAN APN 316-110-005, 006, 022, 023 & 024 KRAMERIA AVENUE & PERRIS BOULEVARD CITY OF MORENO VALLEY	PLAN PREPARER: - land planning - civil engineering - landscape architecture - surveying - environmental planning	BENCHMARK CELESTIAL NAVIGATION SYSTEM NAD 83 - UTM ZONE 11N ELEVATION = 1474.674 BASIS OF BEARING CORNER OF KRAMERIA STREET BETWEEN TARRANT AND PERRIS ELEVATION BEING SHOWN ABOVE THE TRACT NO. 202481 - L&S 16291 - 0.
OWNER/DEVELOPER/APPLICANT: PI PROPERTIES 67 LLC C/O RIVERSIDE COUNTY 410 NORTH SACTA AVENUE, SUITE 100 RIVERSIDE, CA 92503 PHONE (951) 321-4848	Scale: AS SHOWN Date Prepared: 11/02/2023 Drawn by: RL Checked by: ML Reviewed by: ML	PI PROPERTIES 67 LLC C/O RIVERSIDE COUNTY 410 NORTH SACTA AVENUE, SUITE 100 RIVERSIDE, CA 92503 PHONE (951) 321-4848





RECEIVING WATER BODIES EXHIBIT
N.T.S.

Appendix 2: Construction Plans

Tentative Tract Map (includes Conceptual Grading Information)

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

IN THE CITY OF MORENO VALLEY

TENTATIVE TRACT MAP NO. 37725

BEING A SUBDIVISION OF A PORTION OF LOT 17, IN BLOCKS 2 OF RIVERSIDE ALFALFA ACRES, AS SHOWN BY MAP ON FILE IN BOOK 8 PAGE 21 OF MAPS, RECORDS OF RIVERSIDE COUNTY CALIFORNIA

AUGUST 2019

LEGAL DESCRIPTION

THE LAND HEREINAFTER REFERRED TO IS SITUATED IN THE CITY OF MORENO VALLEY, CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL 1:
THE NORTH HALF OF THE NORTH HALF OF LOT 17 IN BLOCK 2 OF RIVERSIDE ALFALFA ACRES AS SHOWN BY MAP ON FILE IN BOOK 8 PAGE 21 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 2:
THE SOUTH ONE HALF OF THE NORTH ONE HALF OF LOT 17, BLOCK 2 OF RIVERSIDE ALFALFA ACRES AS SHOWN BY MAP ON FILE IN BOOK 8 PAGE 21 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 3:
THE SOUTH ONE HALF OF LOT 17 IN BLOCK 2 OF RIVERSIDE ALFALFA ACRES, AS SHOWN BY MAP ON FILE IN BOOK 8 PAGE 21 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

EXCEPTING FROM BOTH PARCELS ALL MINERALS, OIL, GAS AND OTHER HYDROCARBON SUBSTANCES AND ALL RIGHTS THEREIN THAT MAY BE PRODUCED FROM A CATCH OF 500 FEET BELOW THE SURFACE OF SAID EARTH OR FROM THE SURFACE OF SAID LAND FOR THE PURPOSE OF MINING, DRILLING, OR THE EXTRACTION OF OIL, GAS AND OTHER HYDROCARBON SUBSTANCES OR OTHER USE OR GOVERNMENT OF THE SURFACE OF SAID LAND TO A DEPTH OF FIFTY FEET BELOW THE SURFACE THROUGH RIGHT TO DRILL INTO, LOCATE WELLS AND PRODUCE OIL, GAS AND OTHER HYDROCARBON SUBSTANCES FROM ANY PART OF SAID LAND, WHICH LIES BELOW 500 FEET FROM THE SURFACE THEREOF.

2.c

EASEMENTS

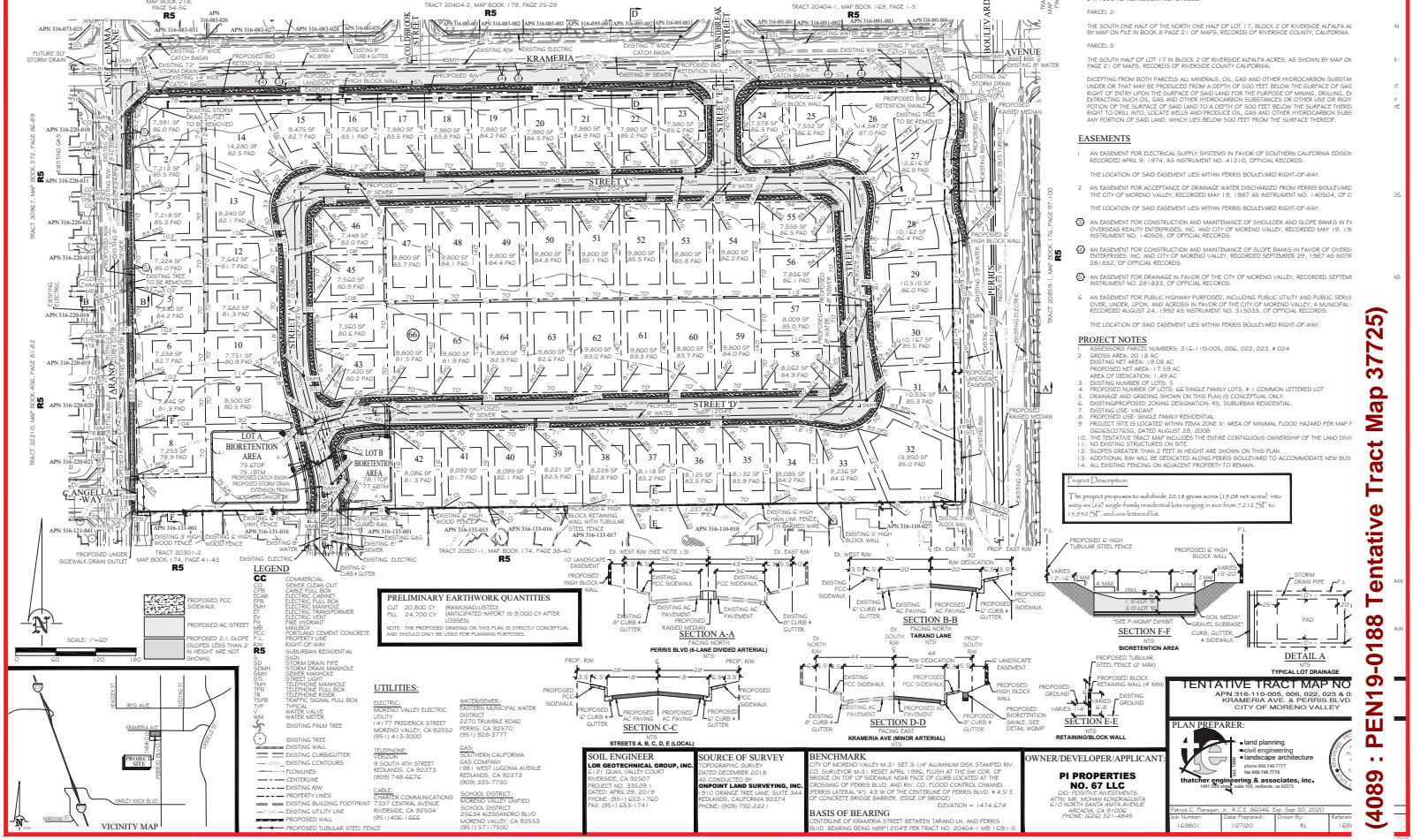
1. AN EASEMENT FOR ELECTRICAL SUPPLY SYSTEMS IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY, INC. AND CITY OF MORENO VALLEY, RECORDS SEPTEMBER 29, 1987 AS INSTRUMENT NO. 140554, OF RECORDS.
 2. AN EASEMENT FOR ACCEPTANCE OF DRAINAGE WATER DISCHARGED FROM PERISS BOULEVARD IN FAVOR OF THE CITY OF MORENO VALLEY, RECORDS MAY 19, 1987 AS INSTRUMENT NO. 140554, OF RECORDS.
 3. AN EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SHOULDER AND SLOPE BANKS IN FAVOR OF OVERSEAS REALTY ENTERPRISES, INC. AND CITY OF MORENO VALLEY, RECORDS SEPTEMBER 29, 1987 AS INSTRUMENT NO. 140554, OF RECORDS.
 4. AN EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SLOPE BANKS IN FAVOR OF OVERSEAS REALTY ENTERPRISES, INC. AND CITY OF MORENO VALLEY, RECORDS SEPTEMBER 29, 1987 AS INSTRUMENT NO. 140554, OF RECORDS.
 5. AN EASEMENT FOR DRAINAGE IN FAVOR OF THE CITY OF MORENO VALLEY, RECORDS SEPTEMBER 29, 1987 AS INSTRUMENT NO. 140554, OF RECORDS.
 6. AN EASEMENT FOR PUBLIC HIGHWAY PURPOSES, INCLUDING PUBLIC UTILITY AND PUBLIC SERVICE, OVER, UNDER, UPON, AND ACROSS IN FAVOR OF THE CITY OF MORENO VALLEY, A MUNICIPAL CORPORATION, RECORDS AUGUST 24, 1992 AS INSTRUMENT NO. 315033, OF RECORDS.
- THE LOCATION OF SAID EASEMENTS LIES WITHIN PERISS BOULEVARD RIGHT-OF-WAY.

PROJECT NOTES

1. ASSASSINATOR'S PARCEL NUMBERS: 311-11-000, 002, 023, 024
2. DISTINGUISHING AREA: 17.08 AC.
3. PROPOSED NET AREA: 17.59 AC.
4. AREA OF DEDICATION: 1.49 AC.
5. DISTINGUISHING NUMBER OF LOTS: 62 CHANGING FAMILY UNITS, 4 COMMON LETTICED LOT
6. DRAINAGE AND GRADING SHOWN ON THIS PLAN IS CONCEPTUAL ONLY.
7. DISTINGUISHING ZONING DESIGNATION: RS, SUBURBAN RESIDENTIAL.
8. DISTINGUISHING USE: VACANT.
9. PROJECT SITE IS LOCATED WITHIN FEMA ZONE X: AREA OF MINIMAL FLOOD HAZARD PER MAP F 18033-003E, DATED AUGUST 23, 2008.
10. THE TENTATIVE TRACT MAP INCLUDES THE ENTIRE CONTIGUOUS OWNERSHIP OF THE LAND DIVISION, INCLUDING STRIPES ON SITE.
11. SLOPES GREATER THAN 2 FEET IN HEIGHT ARE SHOWN ON THIS PLAN.
12. ADDITIONAL ROW WILL BE DEDICATED ALONG PERISS BOULEVARD TO ACCOMMODATE NEW BUS AND ALL EXISTING FENCING ON ADJACENT PROPERTY TO REMAIN.

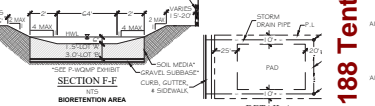
PROJECT DESCRIPTION

The project proposes to subdivide 20.8 gross acres (19.08 net acres) into 62 units (42 single-family residential lots ranging in size from 7,112 S.F. to 9,242 S.F.) and common facilities.



PRELIMINARY EARTHWORK QUANTITIES
 CUT: 20,800 CY (KRAMERIA) DISTRICT
 FILL: 24,700 CY (UNIMPROVED IMPRST IS 9,000 CY AFTER LOSSES)
 NOTE: THE PROPOSED GRADING ON THIS PLAN IS STRICLY CONCEPTUAL AND SHOULD ONLY BE USED FOR PLANNING PURPOSES.

UTILITIES
 ELECTRIC: MORENO VALLEY ELECTRIC UTILITY, 14177 PERISSO STREET, MORENO VALLEY, CA 92556 (951) 418-2000
 WATER: RIVERSIDE COUNTY WATER DISTRICT, 2270 TRUMBULL ROAD, PERISS, CA 92570 (951) 928-3777
 GAS: SOUTH CALIFORNIA GAS COMPANY, 1901 WEST VIGORNA AVENUE, READING, CA 92373 (909) 355-7750
 CABLE: SPECTRUM COMMUNICATIONS, 7337 CENTRAL AVENUE, RIVERSIDE, CA 92504 (951) 406-1666
 TELEPHONE: VERIZON, 9 SOUTH 4TH STREET, READING, CA 92373 (909) 748-6272



TENTATIVE TRACT MAP NO. 37725
 APN 318-11-0-005, 006, 023, 024 & 0
 KRAMERIA AVE. & PERISS BLVD
 CITY OF MORENO VALLEY

PLAN PREPARER:
 shatler engineering & associates, inc.
 4710 N. WILSON AVENUE
 HESLER, CA 91733
 PHONE: (924) 521-4845

PI PROPERTIES
 CO. #67 LLC
 ATTN: MR. NISHAN KOTAMURTHY
 610 NORTH SANTA ANITA AVENUE
 HESLER, CA 91733
 PHONE: (924) 521-4845

OWNER/DEVELOPER/APPLICANT:
 PI PROPERTIES CO. #67 LLC
 610 NORTH SANTA ANITA AVENUE
 HESLER, CA 91733
 PHONE: (924) 521-4845

Sheela C. Panwar, P., R.C.E. 820246 Exp. Sep 30, 2020
 Date Prepped: 8/2/19 Date Drawn: 8/2/19
 Scale: 1"=40' Date Plotted: 8/2/19



Appendix: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

**PRELIMINARY GEOTECHNICAL AND
INFILTRATION/PERCOLATION FEASIBILITY INVESTIGATION
TENTATIVE TRACT MAP NO. 37725
MORENO VALLEY, CALIFORNIA**

**PROJECT NO. 33529.1
APRIL 29, 2019**

Prepared For:

Positive Investments
610 North Santa Anita Avenue
Arcadia, California 91006

Attention: Mr. Mohan Kondragunta

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

April 30, 2019

Positive Investments
610 North Santa Anita Avenue
Arcadia, California 91006

Project No. 33529.1

Attention: Mr. Mahan Kondragunta

Subject: Preliminary Geotechnical and Infiltration/Percolation Feasibility Investigation,
Tentative Tract Map No. 37725, Moreno Valley, California.

LOR Geotechnical Group, Inc., is pleased to present this report summarizing our geotechnical investigation for the above referenced project. In summary, it is our opinion that the proposed development is feasible from a geotechnical perspective, provided the recommendations presented in the attached report are incorporated into design and construction.

To provide adequate support for the proposed residential structures, we recommend that a compacted fill mat be constructed beneath footings and slabs. The compacted fill mat will provide a dense, high-strength soil layer to uniformly distribute the anticipated foundation loads over the underlying soils. All undocumented fill material and any loose alluvial materials should be removed from structural areas and areas to receive engineered compacted fill. The data developed during this investigation indicates that removals on the order of approximately 2 to 3 feet will be required within the currently planned development areas. The given removal depths are preliminary. The actual depths of the removals should be determined during the grading operation by observation and/or in-place density testing.

Very low expansion potential, fair R-value quality, poor infiltration and percolation characteristics, and a negligible soluble sulfate content generally characterize the onsite soil materials tested.

LOR Geotechnical Group, Inc.

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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INTRODUCTION

During April of 2019, a Preliminary Geotechnical and Infiltration/Percolation Feasibility Investigation was performed by LOR Geotechnical Group, Inc. for proposed residential development of Tentative Tract Map No. 37725 in the City of Moreno Valley, California. The purpose of this investigation was to conduct a technical evaluation of the geologic setting of the site and to provide geotechnical design recommendations for the proposed improvements. The scope of our services included:

- Review of available pertinent geotechnical literature, reports, maps, and agency information pertinent to the study area;
- Interpretation of aerial photographs of the site and surrounding regions dated 1966 through 2018;
- Geologic field reconnaissance mapping to verify the areal distribution of earth units and significance of surficial features as compiled from documents, literature, and reports reviewed;
- A subsurface field investigation to determine the physical soil conditions pertinent to the proposed development;
- Percolation testing via the falling head test method was conducted at three locations proposed for dry wells;
- Infiltration testing via the double ring infiltrometer test method at two locations within the approximate area proposed for the infiltration of onsite runoff waters;
- Laboratory testing of selected soil samples obtained during the field investigation;
- Development of geotechnical recommendations for site grading and foundation design; and
- Preparation of this report summarizing our findings, and providing conclusions and recommendations for site development.

The approximate location of the site is shown on the attached Index Map, Enclosure A-1, within Appendix A.

To orient our investigation at the site, you provided us with Tentative Tract Map No. 37725, prepared by Thatcher Engineering & Associates, Inc., dated March 25, 2019, that showed the existing site conditions as well as the proposed development. As noted on that map, the site will be developed with 66 single-family residential lots and the associated interior streets. Dry wells and an infiltration basin are also proposed. The Site Plan was utilized as a base map for our field investigation and is presented as Enclosure A-2, within Appendix A.

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PROJECT CONSIDERATIONS

Information furnished to this firm indicates that the proposed project will consist of the construction of 66 single-family residences. These will likely be one or two stories in height and are anticipated to be of wood frame construction with an exterior plaster veneer. Light to moderate foundation loads are anticipated with such structures. Cuts and fills on the order of a few feet are proposed to create the planar building pads.

Three dry wells are proposed along the south side of Krameria Avenue and an infiltration basin is proposed in the southwest corner of the site.

EXISTING SITE CONDITIONS

The subject site consists of a rectangular shaped, relatively flat, vacant area of land that is approximately 20 acres in size. At the time of our investigation, vegetation on the site consisted of a moderate growth of weeds and one tree was present in the northeast corner of the site. The topography of the site is planar, with a very gentle fall towards the south-southwest.

Krameria Avenue, a partially improved roadway, bounds the site on the north followed by a tract of single family residences. Perris Boulevard, an improved roadway, bounds the site on the east followed by a tract of single family residences. Tarano Lane, a partially improved roadway, bounds the site on the west followed by a tract of single family residences. A tract of single-family homes is present to the south of the site.

AERIAL PHOTOGRAPH ANALYSIS

The aerial photographs reviewed consisted of vertical aerial stereoscopic photographs of varying scales. We reviewed imagery available from Google Earth (2018) and from Historic Aerials (2018).

The site consisted of vacant land in all of the photographs reviewed.

Our review of the aerial photographs did not reveal any adverse geologic conditions, such as possible faults or landslides, as being present at or within close proximity to the site.

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FIELD EXPLORATION PROGRAM

Our subsurface field exploration program was conducted on April 18, 2019 and consisted of drilling 6 exploratory borings with a truck-mounted Mobile B-61 drill rig equipped with 8-inch diameter hollow stem augers. The borings were drilled to depths of approximately 21 to 51.5 feet below the existing ground surface. The approximate locations of our exploratory borings are presented on the attached Site Plan, Enclosure A-2 within Appendix A.

The subsurface conditions encountered in the exploratory borings were logged by a geologist from this firm. Relatively undisturbed and bulk samples were obtained at a maximum depth interval of 5 feet and returned to our geotechnical laboratory in sealed containers for further testing and evaluation. A detailed description of the field exploration program and the boring logs are presented in Appendix B.

LABORATORY TESTING PROGRAM

Selected soil samples obtained during the field investigation were subjected to laboratory testing to evaluate their physical and engineering properties. Laboratory testing included in-place moisture content and dry density, laboratory compaction characteristics, direct shear, expansion index, sieve analysis, sand equivalent, R-value, and soluble sulfate content. A detailed description of the laboratory testing program and the test results are presented in Appendix C.

GEOLOGIC CONDITIONS

Regional Geologic Setting

The site is located within the south-central portion of Moreno Valley which lies within the northern end of Perris Valley. This area is located on the Perris block, within the northern Peninsular Ranges geologic province of southern California. While the Perris block is considered to be a relatively stable structural block, it is bounded by active faults. The Perris block is underlain predominately by a very large mass of crystalline igneous rocks of Cretaceous age and older metasedimentary and metavolcanic rocks.

The Perris block has a series of erosional surfaces, marked by low topographic relief and capped with unconsolidated alluvial sediments stripped from the surrounding highlands, such as the Box Spring Mountains and the hills around Lake Perris located east of the site.

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These were mapped by the California Division of Mines and Geology as being underlain by deposits of relatively unconsolidated, but weakly to moderately indurated younger to older alluvium (Morton and Matti, 2001 and Morton, 2003).

The nearest known active fault zone is the San Jacinto fault zone located approximately 10.6 kilometers (6.6 miles) to the northeast. Other major faults within the region include the Elsinore fault zone located approximately 25 kilometers (16.5 miles) to the southwest, and San Andreas fault zone located approximately 26.7 kilometers (16.5 miles) to the northeast. The site and the regional geologic setting are shown on Enclosure A-3 within Appendix A.

Site Geologic Conditions

Fill: As encountered within our exploratory borings, fill materials on the order of 2 feet are present. The fill materials were noted to be red brown, dry, and loose silty sand. These materials are most likely the result of weed abatement practices (discing).

Older Alluvium: Underlying the fill materials at the site, older alluvial materials were encountered within all of our exploratory borings to the maximum depths explored. These units were noted to consist of silty sand and lean clay with sand, and a minor unit of sandy silt/lean clay with sand. The older alluvial materials were in a relatively medium dense/ stiff state upon first encounter, becoming dense/very stiff to very dense/hard quickly with depth based on our equivalent Standard Penetration Test (SPT) data and in-place density testing.

A detailed description of the subsurface soil conditions as encountered within our exploratory borings, is presented on the Boring Logs within Appendix B.

Groundwater Hydrology

Groundwater was encountered within our exploratory borings B-1 at a depth of approximately 32 feet below the existing ground surface and within our exploratory boring B-6 at a depth of approximately 29.5 feet below the existing ground surface.

Records for nearby wells which were readily available from the State of California Department of Water Resources online database (CDWR, 2019) and the Western Municipal Water District Cooperative Well Measurement Program (WMWD, 2019) were reviewed as a part of this investigation. In addition, historic groundwater level data was reviewed from a groundwater contour map prepared by the U.S.G.S. (Carson and Matti, 1985).

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According to the State of California Department for Water resources online database, the nearest well with available data is State Well Number 03S03W32B001S located to the southeast, approximately 1.1 kilometers (0.7 miles). In this well, groundwater was last measured at a depth of 25 feet below the ground surface on November 27, 2018. The depth to groundwater in the past was noted to vary slightly over time, with the water at a high of approximately 24 feet below the surface in 2017. Data for this well was presented from 2011 to 2018. The elevation for this well was listed as 1,476 feet above mean sea level.

Groundwater well data from the Cooperative Well Measuring Program, Fall 2018 indicates the nearest well is that well noted above.

Based on the information above, groundwater is anticipated to lie approximately 25 to 30 feet in the general site area.

Surface Runoff

Current surface runoff of precipitation waters across the site is generally as sheet flow to the south-southwest.

Mass Movement

Mass movement features such as landslides, rockfalls, or debris flows within the site vicinity are not known to exist and no evidence of mass movement was observed on the site or in the vicinity during our review of aerial photographs or reconnaissance.

Faulting

No active or potentially active faults are known to exist at the subject site. In addition, the subject site does not lie within a current State of California Earthquake Fault Zone (Hart and Bryant, 2003).

As previously mentioned, the closest known active fault is the San Jacinto Valley segment of the San Jacinto fault zone, located approximately 10.9 kilometers (6.8 miles) to the northeast. In addition, other relatively close active faults include the Glen Ivy segment of the Elsinore fault zone, located approximately 25 kilometers (15.5 miles) to the southwest, and the San Bernardino segment of the San Andreas fault zone located approximately 26.7 kilometers (16.7 miles) to the northeast.

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The San Jacinto fault zone is a sub-parallel branch of the San Andreas fault zone, extending from the northwestern San Bernardino area, southward into the El Centro region. This fault has been active in recent times with several large magnitude events. It is believed that the San Jacinto fault is capable of producing an earthquake magnitude on the order of 6.5 or greater.

The Elsinore fault zone is one of the largest in southern California. At its northern end it splays into two segments and at its southern end it is cut by the Yuba Wells fault. The primary sense of slip along the Elsinore fault is right lateral strike-slip. It is believed that the Elsinore fault zone is capable of producing an earthquake magnitude on the order of 6.5 to 7.5.

The San Andreas fault is considered to be the major tectonic feature of California, separating the Pacific Plate and the North American Plate. While estimates vary, the San Andreas fault is generally thought to have an average slip rate on the order of 24mm/yr and capable of generating large magnitude events on the order of 7.5 or greater.

Current standards of practice often include a discussion of all potential earthquake sources within a 100 kilometer (62 mile) radius. However, while there are other large earthquake faults within a 100 kilometer (62 mile) radius of the site, none of these are considered as relevant to the site due to their greater distance and/or smaller anticipated magnitudes.

Historical Seismicity

In order to obtain a general perspective of the historical seismicity of the site and surrounding region, a search was conducted for seismic events at and around the area within various radii. This search was conducted utilizing the historical seismic search program by EPI Software, Inc. (Reeder, 2000). This program conducts a search of a user selected cataloged seismic events database, within a specified radius and selected magnitudes, and then plots the events onto an overlay map of known faults. For this investigation the database of seismic events utilized by the EPI program was obtained from the Southern California Seismic Network (SCSN) available from the Southern California Earthquake Center. At the time of our search the data base contained data from January 1, 1932 through December 31, 2010.

In our first search, the general seismicity of the region was analyzed by selecting an epicenter map listing all events of magnitude 4.0 and greater, recorded since 1932, within a 100 kilometer (62 mile) radius of the site, in accordance with guidelines of the California Division of Mines and Geology. This map illustrates the regional seismic history of moderate to large events.

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As depicted on Enclosure A-4, within Appendix A, the site lies within a relatively active region associated with the San Andreas fault trending northwest and the northwest trending faulting of the Mojave Desert geomorphic province. Of these events, the closest was a magnitude 4.1 located approximately 15 kilometers (9 miles) to the north of the site.

In the second search, the micro seismicity of the area lying within a 15 kilometer (9 mile) radius of the site was examined by selecting an epicenter map listing events on the order of 1.0 and greater since 1978. In addition, only the "A" events, or most accurate events were selected. Caltech indicates the accuracy of the "A" events to be approximately 1 km. The results of this search is a map that presents the seismic history around the area of the site with much greater detail, not permitted on the larger map. The reason for limiting the events to the last 40± years on the detail map is to enhance the accuracy of the map. Events recorded prior the mid 1970's are generally considered to be less accurate due to advancements in technology. As depicted on this map, Enclosure A-5, the San Jacinto fault zone appear to be the source of numerous events.

In summary, the historical seismicity of the site entails numerous small to medium magnitude earthquake events occurring around the subject site, predominately associated with the presence of the San Jacinto fault zone. Any future developments at the subject site should anticipate that moderate to large seismic events could occur very near the site.

Secondary Seismic Hazards

Other secondary seismic hazards generally associated with severe ground shaking during an earthquake include liquefaction, seiches and tsunamis, earthquake induced flooding, landsliding and rockfalls, and seismic-induced settlement.

Liquefaction: The potential for liquefaction generally occurs during strong ground shaking within loose granular sediments where the depth to groundwater is usually less than 50 feet. Although groundwater can be present at an historical depth of approximately 25 feet beneath the site, the site is underlain by dense/very stiff to dense/very hard older alluvial soils. The near surface loose soils will be removed and replaced with compacted fill during site grading. Therefore, the possibility for liquefaction to occur at the site is considered very low.

Seiches/Tsunamis: The potential for the site to be affected by a seiche or tsunami (earthquake generated wave) is considered nil due to absence of any large bodies of water near the site.

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Flooding (Water Storage Facility Failure): There are no large water storage facilities located on or near the site which could possibly rupture during an earthquake and affect the site by flooding.

Seismically-Induced Landsliding: Our research, site reconnaissance and review of aerial imagery of the site and vicinity indicates that there are no known or suspected landslides at the site or in close proximity to the site and, therefore, the potential for seismically-induced landslides occurring at the site is considered very low.

Rockfalls: No large, exposed, loose or unrooted boulders that could affect the integrity of the site are present above the site.

Seismically-Induced Settlement: Settlement generally occurs within areas of loose, granular soils with relatively low density. Since the site is underlain by dense/very stiff to dense/very hard older alluvial materials, the potential for settlement is considered low. In addition, the earthwork operations recommended to be conducted during the development of the site will mitigate any near surface loose soil conditions.

SOILS AND SEISMIC DESIGN CRITERIA (California Building Code 2016)

Section 1613 of Chapter 16 of the 2016 California Building Code (CBC) contains the procedures and definitions for the calculations of the earthquake loads on structures and non structural components that are permanently attached to structures and their supports and attachments.

It should be noted that the classification of use and occupancy of all proposed structures at the site, and thus design requirements, shall be the responsibility of the structural engineer and the building official.

CBC Earthquake Design Summary

The following earthquake design criteria have been formulated for the site utilizing the source referenced above. However, these values should be reviewed and the final design should be performed by a qualified structural engineer familiar with the region.

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CBC 2016 SEISMIC DESIGN SUMMARY*	
Site Location (WGS 84) 33.88001, -117.22842, Occupancy Category II	
Site Class Definition Chapter 20 ASCE 7	D
S_s Mapped Spectral Response Acceleration at 0.2s Period, (Figure 1613.3.1(1))	1.500
S_1 Mapped Spectral Response Acceleration at 1s Period, (Figure 1613.3.3(2))	0.600
F_a Short Period Site Coefficient at 0.2s Period, (Table 1613.3.3(1))	1.0
F_v Long Period Site Coefficient at 1s Period,(Table 1613.3.3(2))	1.5
S_{MS} Adjusted Spectral Response Acceleration at 0.2s Period, (eq .16-37)	1.500
S_{M1} Adjusted Spectral Response Acceleration at 1s Period, (eq .16-38)	0.900
S_{DS} Design Spectral Response Acceleration at 0.2s Period,(eq .16-39)	1.000
S_{D1} Design Spectral Response Acceleration at 1s Period, (eq .16-40)	0.600
Seismic Design Category - Short Period (Table 1613.3.5(1))	D
Seismic Design Category - Long Period (Table 1613.3.5(2))	D
*Values obtained from OSHPD online U.S. Seismic Design Maps tool	

PERCOLATION AND INFILTRATION TESTING AND TEST RESULTS

Percolation Testing - Dry Wells

Three test holes were advanced in the areas requested to a depth of approximately 15 feet below the existing ground surface. This depth was chosen in order to maintain a 10-foot separation between the bottom of the proposed dry wells and historic high groundwater. Immediately after drilling the test holes on April 18, 2019, a 3-inch diameter perforated plastic pipe wrapped with filter fabric was inserted to the total depth drilled of 15 feet. The annular space between the pipe and the boring wall was filled with 3/4-inch gravel. The void ratio for the gravel used was tested in our laboratory in general accordance with ASTM C29. The results of this test are provided Appendix D. The depths of the boreholes were measured prior to and upon the completion of testing. Testing consisted of filling the test hole to approximately 5 feet below the existing ground and the drop in water was measured in 30-minute intervals, refilling after every 30-minutes, for 11 readings. No water was added during the final reading. Prior to conducting the 30-minute readings, two, 25-minute readings were conducted in order to determine the testing interval (ie 30-minutes versus 10- minutes). The total number of readings for each hole was 13.

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Test holes were found to have the following clear water rates:

Test No.	Clear Water Rates*	
	Percolation Rate (gal/sf/day)	Infiltration Rate** in/hr
P-1	9.1	0.3
P-2	22.3	0.8
P-3	4.5	0.2
*Final refilled reading **Porchet Method, rounded to the nearest tenth of an inch		

The test results are provided on the attached Falling Head Percolation Test Results, Enclosures D-1 through D-3. The test results indicate poor percolation characteristics for the soils tested.

Infiltration Testing - Infiltration Basin

Two double ring infiltration tests were conducted at the general locations requested and as illustrated on Enclosure A-2. Test pits were excavated to depths of approximately 8 feet below the existing ground surface and a 12-inch diameter casing was installed within the center of the test locations with a 24-inch diameter casing centered around it. Each 20-inch tall casing was imbedded to a depth of approximately 3-inches. The test locations were tested immediately after the casings were installed by filling both the inside and outside casings and maintaining a water level to a depth of approximately 1-inch.

The testing procedure was as follows:

Both the inside and outside areas of the casings were filled with water to a level of approximately 3-inches above the ground surface. Water was then metered to maintain this water level within both rings. The volume of water use in a given time period was recorded at various time intervals to establish the infiltration rate of the water within the inner ring. See the attached Infiltration Test Data sheets, Enclosures D-4 and D-5 within Appendix D for the test information and measurements.

The infiltration rate is measured as the drop in water level compared to the permeability of the bottom surface area soils in the bottom of the test hole.

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If casing is not used, the water column in the test hole is allowed to seep into both the bottom and sidewalls of the hole, for which the drop in water level must be corrected and reduced for the volume of water seeping into the sidewall and for the diameter of the test hole. As described above, the tests described herein were conducted using a 12-inch diameter inner casing and 24-inch diameter outer casing.

The test holes were found to have the following measured clear water infiltration rates:

Test No.	Depth (ft)*	Elevation (msl)	Infiltration Rate** in/hr
DRI-1	8	1,473	0.4
DRI-2	8	1,473	0.4
* depth measured below existing ground surface ** average of final two readings			

The results of our infiltration testing are attached as Enclosures D-4 and D-5. The test results indicate poor infiltration characteristics for the soils tested.

CONCLUSIONS

General

This investigation provides a broad overview of the geotechnical and geologic factors which are expected to influence future site planning and development. On the basis of our field investigation and testing program, it is the opinion of LOR Geotechnical Group, Inc., that the proposed development is feasible from a geotechnical standpoint, provided the recommendations presented in this report are incorporated into design and implemented during grading and construction.

The subsurface conditions encountered in our exploratory borings are indicative of the locations explored. The subsurface conditions presented here are not to be construed as being present the same everywhere on the site. If conditions are encountered during the construction of the project which differ significantly from those presented in this report, this firm should be notified immediately so we may assess the impact to the recommendations provided.

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Foundation Support

Based upon the field investigation and test data, it is our opinion that the existing fill soils will not, in their present condition, provide uniform and/or adequate support for the proposed improvements.

Left as is, this condition could cause unacceptable differential and/or overall settlements upon application of the anticipated foundation loads.

To provide adequate support for the proposed structural improvements, we recommend that a compacted fill mat be constructed beneath footings and slabs. This compacted fill mat will provide a dense, high-strength soil layer to uniformly distribute the anticipated foundation loads over the underlying soils. In addition, the construction of this compacted fill mat will allow for the removal of any undocumented fill soils that are present within the proposed building areas. Conventional foundation systems, using either individual spread footings and/or continuous wall footings, will provide adequate support for the anticipated downward and lateral loads when utilized in conjunction with the recommended fill mat.

Soil Expansiveness

Our laboratory testing found the soils tested to have a very low expansion potential. For very low expansive soils, no specialized construction procedures to resist expansive soil activity are necessary.

Careful evaluation of on-site soils and any import fill for their expansion potential should be conducted during the grading operation.

Sulfate Protection

The results of the soluble sulfate tests conducted on selected subgrade soils expected to be encountered at foundation levels indicate that there is a negligible sulfate exposure to concrete elements in contact with the on site soils per the 2016 CBC. Therefore, no specific recommendations are given for concrete elements to be in contact with the onsite soils.

Infiltration / Percolation

The results of our field investigation and test data indicates the site soils are not conducive to infiltration or percolation.

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Therefore water quality storm water systems should not incorporate on-site infiltration/percolation when determining storm water treatment capacity.

Geologic Mitigations

No special geologic recommendation methods are deemed necessary at this time, other than the geotechnical recommendations provided in the following sections.

Seismicity

Seismic ground rupture is generally considered most likely to occur along pre-existing active faults. Since no known faults are known to exist at, or project into the site, the probability of ground surface rupture occurring at the site is considered nil.

Due to the site's close proximity to the faults described above, it is reasonable to expect a strong ground motion seismic event to occur during the lifetime of the proposed development on the site. Large earthquakes could occur on other faults in the general area, but because of their lesser anticipated magnitude and/or greater distance, they are considered less significant than the faults described above from a ground motion standpoint.

The effects of ground shaking anticipated at the subject site should be mitigated by the seismic design requirements and procedures outlined in Chapter 16 of the California Building Code. However, it should be noted that the current building code requires the minimum design to allow a structure to remain standing after a seismic event, in order to allow for safe evacuation. A structure built to code may still sustain damage which might ultimately result in the demolishing of the structure (Larson and Slosson, 1992).

RECOMMENDATIONS

Geologic Recommendations

No special geologic recommendation methods are deemed necessary at this time, other than the geotechnical recommendations provided in the following sections.

General Site Grading

It is imperative that no clearing and/or grading operations be performed without the presence of a qualified geotechnical engineer.

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An on-site, pre-job meeting with the owner, the developer, the contractor, and geotechnical engineer should occur prior to all grading related operations. Operations undertaken at the site without the geotechnical engineer present may result in exclusions of affected areas from the final compaction report for the project.

Grading of the subject site should be performed in accordance with the following recommendations as well as applicable portions of the California Building Code, and/or applicable local ordinances.

All areas to be graded should be stripped of significant vegetation and other deleterious materials.

It is our recommendation that any existing fills under any proposed flatwork and/or paved areas be removed and replaced with engineered compacted fill. If this is not done, premature structural distress (settlement) of the flatwork and pavement may occur. Any undocumented fills encountered during grading should be completely removed and cleaned of significant deleterious materials. These may then be reused as compacted fill.

Cavities created by removal of undocumented fill soils and/or subsurface obstructions should be thoroughly cleaned of loose soil, organic matter and other deleterious materials, shaped to provide access for construction equipment, and backfilled as recommended in the following Engineered Compacted Fill section of this report.

Initial Site Preparation

Any and all existing uncontrolled fills and any loose/soft native alluvial soils should be removed from structural areas and areas to receive structural fills. The data developed during this investigation indicates that removals on the order of 2 to 3 feet will be required to encounter competent older alluvium. However, deeper removals may be required locally. Removals should extend horizontally at a distance equal to the depth of the removals plus proposed fill and at least a minimum of 5 feet. The actual depths of removals should be determined during the grading operation by observation and/or by in-place density testing.

Preparation of Fill Areas

After the removals described above and prior to placing fill, the surfaces of all areas to receive fill should be scarified to a depth of at least 6 inches. The scarified soil should be brought to near optimum moisture content and compacted to a relative compaction of at least 90 percent (ASTM D 1557).

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Preparation of Foundation Areas

All footings should rest upon a minimum of 24 inches of properly compacted fill material placed over competent natural alluvial soils. In areas where the required fill thickness is not accomplished by the removal of unsuitable soils, the footing areas should be further subexcavated to a depth of at least 24 inches below the proposed footing base grade, with the subexcavation extending at least 5 feet beyond the footing lines. The bottom of this excavation should then be scarified to a depth of at least 6 inches, brought to near optimum moisture content, and recompact to at least 90 percent relative compaction (ASTM D 1557) prior to refilling the excavation to grade as properly compacted fill. Fill areas should not be constructed so as to place structures across any area where the maximum depth of fill to minimum depth of fill is greater than a 3:1 ratio.

To provide adequate support, concrete slabs-on-grade should bear on a minimum of 24 inches of compacted soil. The final pad surfaces should be rolled to provide smooth, dense surfaces upon which to place the concrete.

Engineered Compacted Fill

The on-site soils should provide adequate quality fill material, provided they are free from organic matter and other deleterious materials. Unless approved by the geotechnical engineer, rock or similar irreducible material with a maximum dimension greater than 6 inches should not be buried or placed in fills.

Import fill, if required, should be inorganic, non-expansive granular soils free from rocks or lumps greater than 6 inches in maximum dimension. Sources for import fill should be approved by the geotechnical engineer prior to their use.

Fill should be spread in maximum 8-inch uniform, loose lifts, with each lift brought to near optimum moisture content prior to, during and/or after placement, and compacted to a relative compaction of at least 90 percent in accordance with ASTM D 1557.

Based upon the relative compaction of the near surface soils determined during this investigation and the relative compaction anticipated for compacted fill soil, we estimate a compaction shrinkage factor of approximately 10 to 15 percent. Therefore, 1.10 to 1.15 cubic yards of in-place materials would be necessary to yield one cubic yard of properly compacted fill material. Subsidence is anticipated to be 0.10 feet. These values are for estimating purposes only, and are exclusive of losses due to stripping or the removal of subsurface obstructions.

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These values may vary due to differing conditions within the project boundaries and the limitations of this investigation. Shrinkage should be monitored during construction. If percentages vary, provisions should be made to revise final grades or adjust quantities of borrow or export.

Short-Term Excavations

Following the California Occupational and Safety Health Act (CAL-OSHA) requirements, excavations 5 feet deep and greater should be sloped or shored. All excavations and shoring should conform to CAL-OSHA requirements.

Short-term excavations 5-feet deep and greater shall conform to Title 8 of the California Code of Regulations, Construction Safety Orders, Section 1504 and 1539 through 1547. Based on our exploratory borings, it appears that Type C soil is the predominant type of soil on the project and all short-term excavations should be based on this type of soil. Deviation from the standard short-term slopes are permitted using Option 4, Design by a Registered Professional Engineer (Section 1541.1).

Short-term slope construction and maintenance are the responsibility of the contractor, and should be a consideration of his methods of operation and the actual soil conditions encountered.

Slope Construction

Preliminary data indicates that cut and fill slopes should be constructed no steeper than two horizontal to one vertical. Fill slopes should be overfilled during construction and then cut back to expose fully compacted soil. A suitable alternative would be to compact the slopes during construction, then roll the final slopes to provide dense, erosion-resistant surfaces.

Slope Protection

Since the site soils are susceptible to erosion by running water, measures should be provided to prevent surface water from flowing over slope faces. Slopes at the project should be planted with a deep rooted ground cover as soon as possible after completion. The use of succulent ground covers such as iceplant or sedum is not recommended. If watering is necessary to sustain plant growth on slopes, the watering system should be monitored to assure proper operation and to prevent over watering.

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Foundation Design

If the site is prepared as recommended, the proposed structure may be safely founded on conventional shallow foundations, either individual spread footings and/or continuous wall footings, bearing on a minimum of 24 inches of engineered compacted fill.

All foundations should have a minimum width of 12 inches and should be established a minimum of 12 inches below lowest adjacent grade.

For the minimum width and depth, spread foundations may be designed using an allowable bearing pressure of 1,800 psf. This bearing pressure may be increased by 400 psf for each additional foot of width, and by 400 psf for each additional foot of depth, up to a maximum of 4,000 psf. For example, a footing 3 feet wide and embedded 2 feet will have an allowable bearing pressure of 3,000 psf.

The above values are net pressures; therefore, the weight of the foundations and the backfill over the foundations may be neglected when computing dead loads. The values apply to the maximum edge pressure for foundations subjected to eccentric loads or overturning. The recommended pressures apply for the total of dead plus frequently applied live loads, and incorporate a factor of safety of at least 3.0. The allowable bearing pressures may be increased by one-third for temporary wind or seismic loading. The resultant of the combined vertical and lateral seismic loads should act within the middle one-third of the footing width. The maximum calculated edge pressure under the toe of foundations subjected to eccentric loads or overturning should not exceed the increased allowable pressure. Buildings should be setback from slopes in accordance with the California Building Code.

Resistance to lateral loads will be provided by passive earth pressure and base friction. For footings bearing against compacted fill, passive earth pressure may be considered to be developed at a rate of 300 pounds per square foot per foot of depth. Base friction may be computed at 0.30 times the normal load. Base friction and passive earth pressure may be combined without reduction. These values are for dead load plus live load and may be increased by one-third for wind or seismic loading.

Settlement

Total settlement of individual foundations will vary depending on the width of the foundation and the actual load supported. Maximum settlement of shallow foundations designed and constructed in accordance with the preceding recommendations are estimated to be on the order of 0.5 inch.

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Differential settlements between adjacent footings should be about one-half of the total settlement. Settlement of all foundations is expected to occur rapidly, primarily as a result of elastic compression of supporting soils as the loads are applied, and should be essentially completed shortly after initial application of the loads.

Building Area Slab-On-Grade

Concrete floor slabs should bear on a minimum of 24 inches of engineered compacted fill placed over competent native materials. The final pad surfaces should be rolled to provide smooth, dense surfaces upon which to place the concrete.

Slabs to receive moisture-sensitive coverings should be provided with a moisture vapor barrier. This barrier may consist of an impermeable membrane. Two inches of sand over the membrane will reduce punctures and aid in obtaining a satisfactory concrete cure. The sand should be moistened just prior to placing of concrete. The slabs should be protected from rapid and excessive moisture loss which could result in slab curling. Careful attention should be given to slab curing procedures, as the site area is subject to large temperature extremes, humidity, and strong winds.

Exterior Flatwork

To provide adequate support, exterior flatwork improvements should rest on a minimum of 12 inches of soil compacted to at least 90 percent (ASTM D 1557).

Flatwork surface should be sloped a minimum of 1 percent away from buildings and slopes, to approved drainage structures.

Wall Pressures

The design of footings for retaining structures should be performed in accordance with the recommendations described earlier under Preparation of Foundation Areas and Foundation Design. For design of retaining wall footings, the resultant of the applied loads should act in the middle one-third of the footing, and the maximum edge pressure should not exceed the basic allowable value without increase.

For design of retaining walls unrestrained against movement at the top, we recommend an equivalent fluid density of 50 pounds per cubic foot (pcf) be used. This assumes level backfill consisting of recompacted, non-expansive, native soils placed against the structures and with the backcut slope extending upward from the base of the stem at 35 degrees from the vertical or flatter.

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To avoid overstressing or excessive tilting during placement of backfill behind walls, heavy compaction equipment should not be allowed within the zone delineated by a 45 degree line extending from the base of the wall to the fill surface.

The backfill directly behind the walls should be compacted using light equipment such as hand operated vibrating plates and rollers. No material larger than 3-inches in diameter should be placed in direct contact with the wall.

Wall pressures should be verified prior to construction, when the actual backfill materials and conditions have been determined. Recommended pressures are applicable only to level, non-expansive, properly drained backfill (with no additional surcharge loadings). If inclined backfills are proposed, this firm should be contacted to develop appropriate active earth pressure parameters. Toe bearing pressure for non-structural walls on soils, not prepared as described earlier under Preparation of Foundation Areas, should not exceed California Building Code values.

Sulfate Protection

The results of the soluble sulfate tests conducted on selected subgrade soils expected to be encountered at foundation levels are presented on Enclosure C.

Based on the test results it appears that there is a negligible sulfate exposure to concrete elements in contact with on site soils. The CBC, therefore, does not recommend special design criteria for concrete elements in contact with such materials.

Preliminary Pavement Design

Testing and design for preliminary on-site pavement was conducted in accordance with the California Highway Design Manual. Based upon our preliminary sampling and testing, and upon Traffic Index indicated by the City of Moreno Valley Standard Plans (2018), it appears that the structural sections tabulated below should provide satisfactory pavements for the subject pavement improvements:

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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AREA	T.I.	DESIGN R-VALUE	PRELIMINARY SECTION
Local Street	6.0	30	0.35' AC*/0.70' CAB
AC - Asphalt Concrete CAB - Crushed Aggregate Base * City of Moreno Valley minimum			

The above structural sections are predicated upon 90 percent relative compaction (ASTM D 1557) of all utility trench backfills and 95 percent relative compaction (ASTM D 1557) of the upper 12 inches of pavement subgrade soils and of any aggregate base utilized.

In addition, the aggregate base should meet specifications for Crushed Aggregate Base.

In areas of the pavement which will receive high abrasion loads due to start-ups and stops, or where trucks will move on a tight turning radius, consideration should be given to installing concrete pads. Such pads should be a minimum of 0.5-foot thick concrete, with a 0.35-foot thick aggregate base. Concrete pads are also recommended in areas adjacent to trash storage areas where heavier loads will occur due to operation of trucks lifting trash dumpsters.

It should be noted that all of the above pavement design was based upon the results of preliminary sampling and testing, and should be verified by additional sampling and testing during construction when the actual subgrade soils are exposed.

Infiltration / Percolation

Based upon our field investigation and infiltration test data, the site soils are not considered suitable for infiltration or percolation. Therefore water quality storm water systems should not incorporate on-site infiltration/percolation when determining storm water treatment capacity.

Construction Monitoring

Post investigative services are an important and necessary continuation of this investigation. Project plans and specifications should be reviewed by the project geotechnical consultant prior to construction to confirm that the intent of the recommendations presented herein have been incorporated into the design.

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Additional expansion index and soluble sulfate testing may be required after the site is rough graded.

During construction, sufficient and timely geotechnical observation and testing should be provided to correlate the findings of this investigation with the actual subsurface conditions exposed during construction. Items requiring observation and testing include, but are not necessarily limited to, the following:

1. Site preparation-stripping and removals.
2. Excavations, including approval of the bottom of excavation prior to filling.
3. Scarifying and recompacting prior to fill placement.
4. Subgrade preparation for pavements and slabs-on-grade.
5. Placement of engineered compacted fill and backfill, including approval of fill materials and the performance of sufficient density tests to evaluate the degree of compaction being achieved.
6. Foundation excavations.

LIMITATIONS

This report contains geotechnical conclusions and recommendations developed solely for use by Positive Investments, and their design consultants, for the purposes described earlier. It may not contain sufficient information for other uses or the purposes of other parties. The contents should not be extrapolated to other areas or used for other facilities without consulting LOR Geotechnical Group, Inc.

The recommendations are based on interpretations of the subsurface conditions concluded from information gained from subsurface explorations and a surficial site reconnaissance. The interpretations may differ from actual subsurface conditions, which can vary horizontally and vertically across the site. If conditions are encountered during the construction of the project which differ significantly from those presented in this report, this firm should be notified immediately in order that we may assess the impact to the recommendations provided. Due to possible subsurface variations, all aspects of field construction addressed in this report should be observed and tested by the project geotechnical consultant.

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If parties other than LOR Geotechnical Group, Inc. provide construction monitoring services, they must be notified that they will be required to assume responsibility for the geotechnical phase of the project being completed by concurring with the recommendations provided in this report or by providing alternative recommendations.

The report was prepared using generally accepted geotechnical engineering practices under the direction of a state licensed geotechnical engineer. No warranty, expressed or implied, is made as to conclusions and professional advice included in this report. Any persons using this report for bidding or construction purposes should perform such independent investigations as deemed necessary to satisfy themselves as to the surface and subsurface conditions to be encountered and the procedures to be used in the performance of work on this project.

TIME LIMITATIONS

The findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the Standards-of-Practice and/or Governmental Codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a significant amount of time without a review by LOR Geotechnical Group, Inc. verifying the suitability of the conclusions and recommendations.

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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CLOSURE

It has been a pleasure to assist you with this project. We look forward to being of further assistance to you as construction begins. Should conditions be encountered during construction that appear to be different than indicated by this report, please contact this office immediately in order that we might evaluate their effect.

Should you have any questions regarding this report, please do not hesitate to contact our office at your convenience.

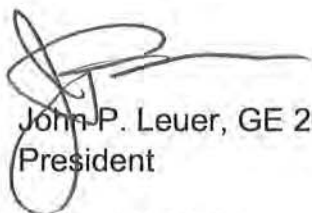
Respectfully submitted,
LOR Geotechnical Group, Inc.



Andrew A. Tardie
Staff Geologist



Robert M. Markoff, CEG
Engineering Geologist



John P. Leuer, GE 2030
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AAT:RMM:JPL:ss



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vickyv@thatcherengineering.com

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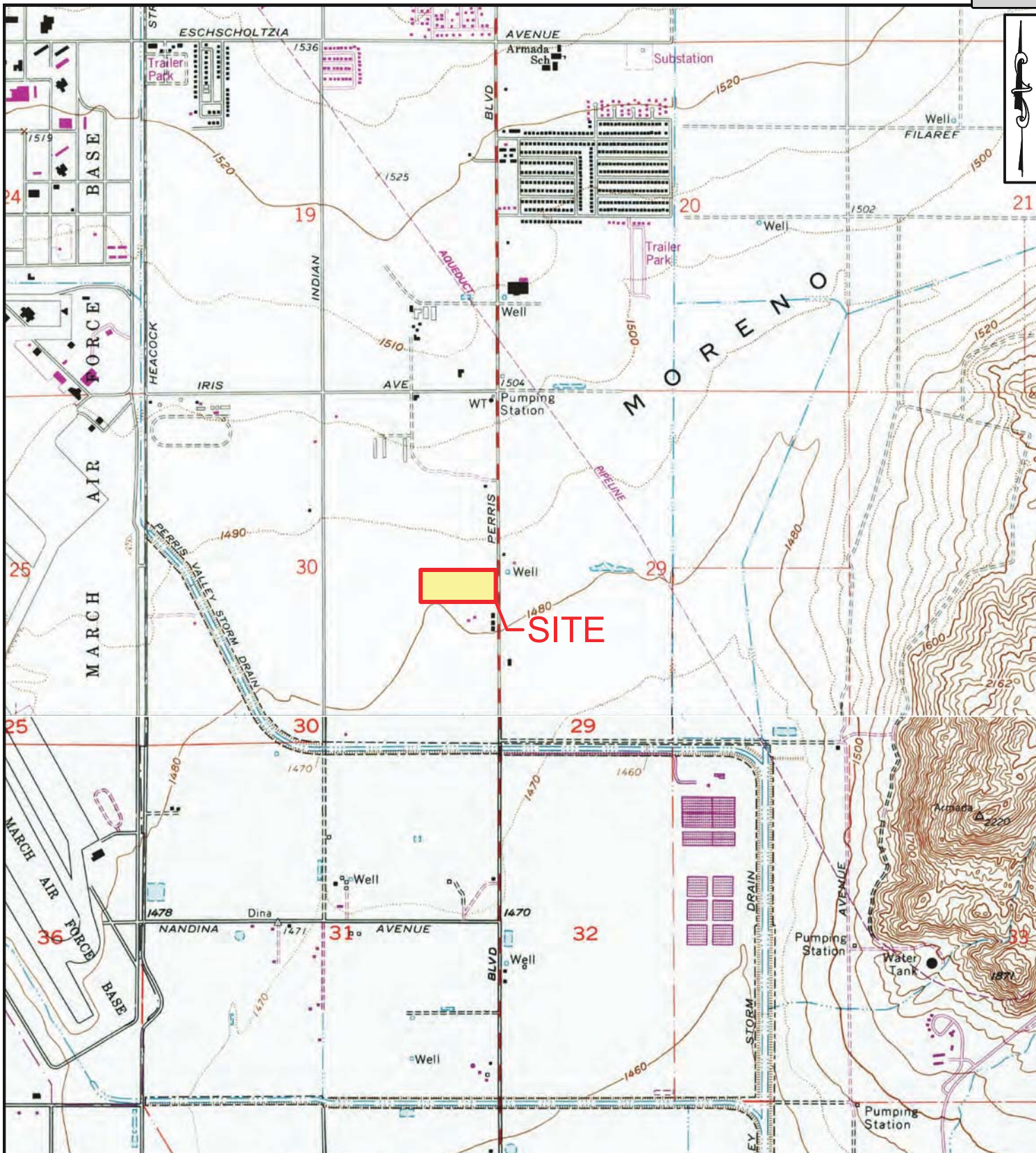
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APPENDIX A

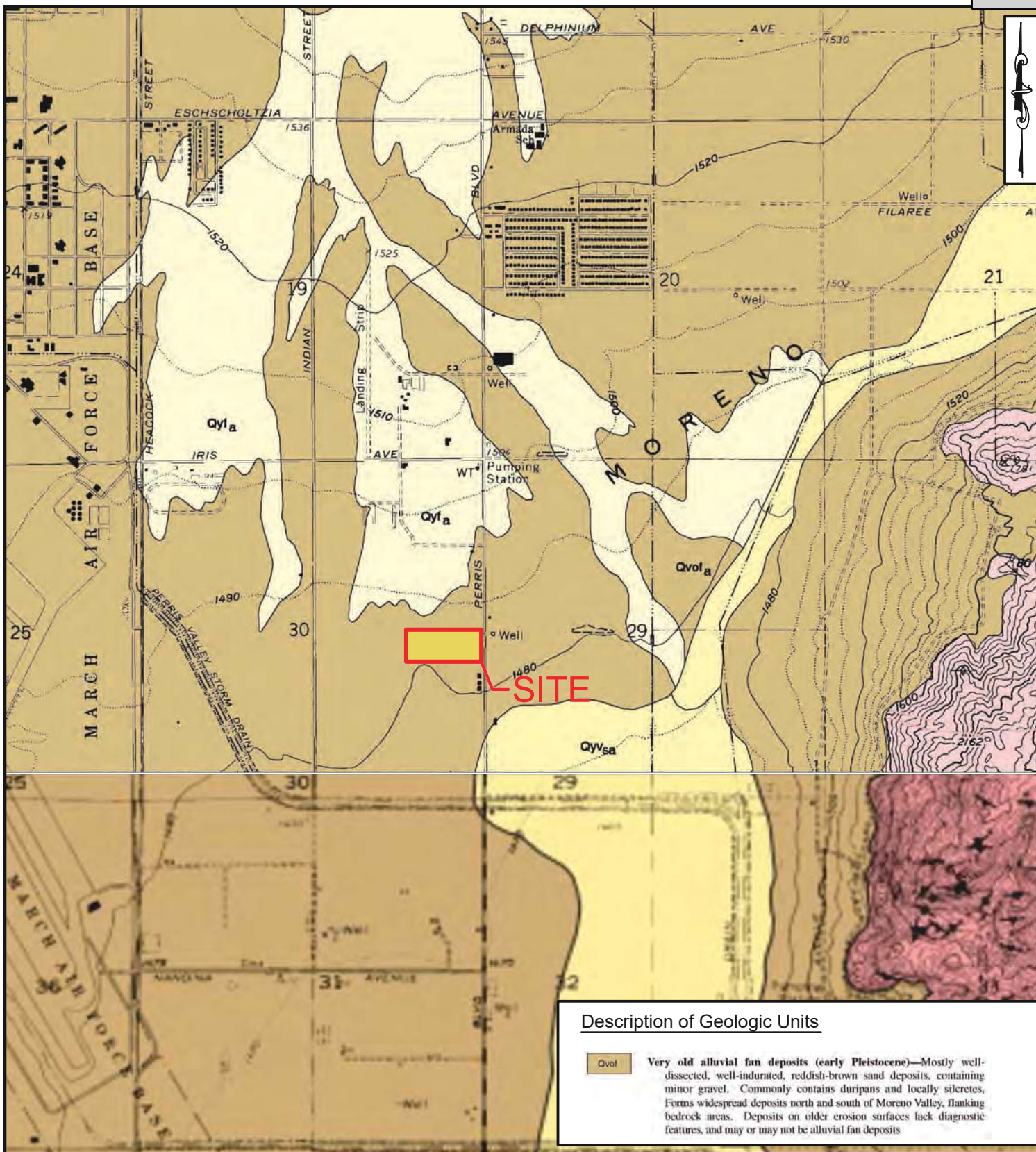
Index Map, Site Plan, Regional Geologic Map, and Seismicity Maps



Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

INDEX MAP

PROJECT:	TENTATIVE TRACT MAP NO. 37725, MORENO VALLEY, CALIFORNIA	PROJECT NO:	33529.
CLIENT:	POSITIVE INVESTMENTS	ENCLOSURE:	A-
LOR Geotechnical Group, Inc.	DATE:		APRIL 2019
	SCALE:		1" = 2,000'



Description of Geologic Units

Qvol Very old alluvial fan deposits (early Pleistocene)—Mostly well-dissected, well-indurated, reddish-brown sand deposits, containing minor gravel. Commonly contains duripans and locally siltclay. Forms widespread deposits north and south of Moreno Valley, flanking bedrock areas. Deposits on older erosion surfaces lack diagnostic features, and may or may not be alluvial fan deposits

REGIONAL GEOLOGIC MAP

(Morton & Matti, 2001 & Morton, 2002)

PROJECT: TENTATIVE TRACT MAP NO. 37725, MORENO VALLEY, CALIFORNIA

PROJECT NO: 33529.

CLIENT: POSITIVE INVESTMENTS

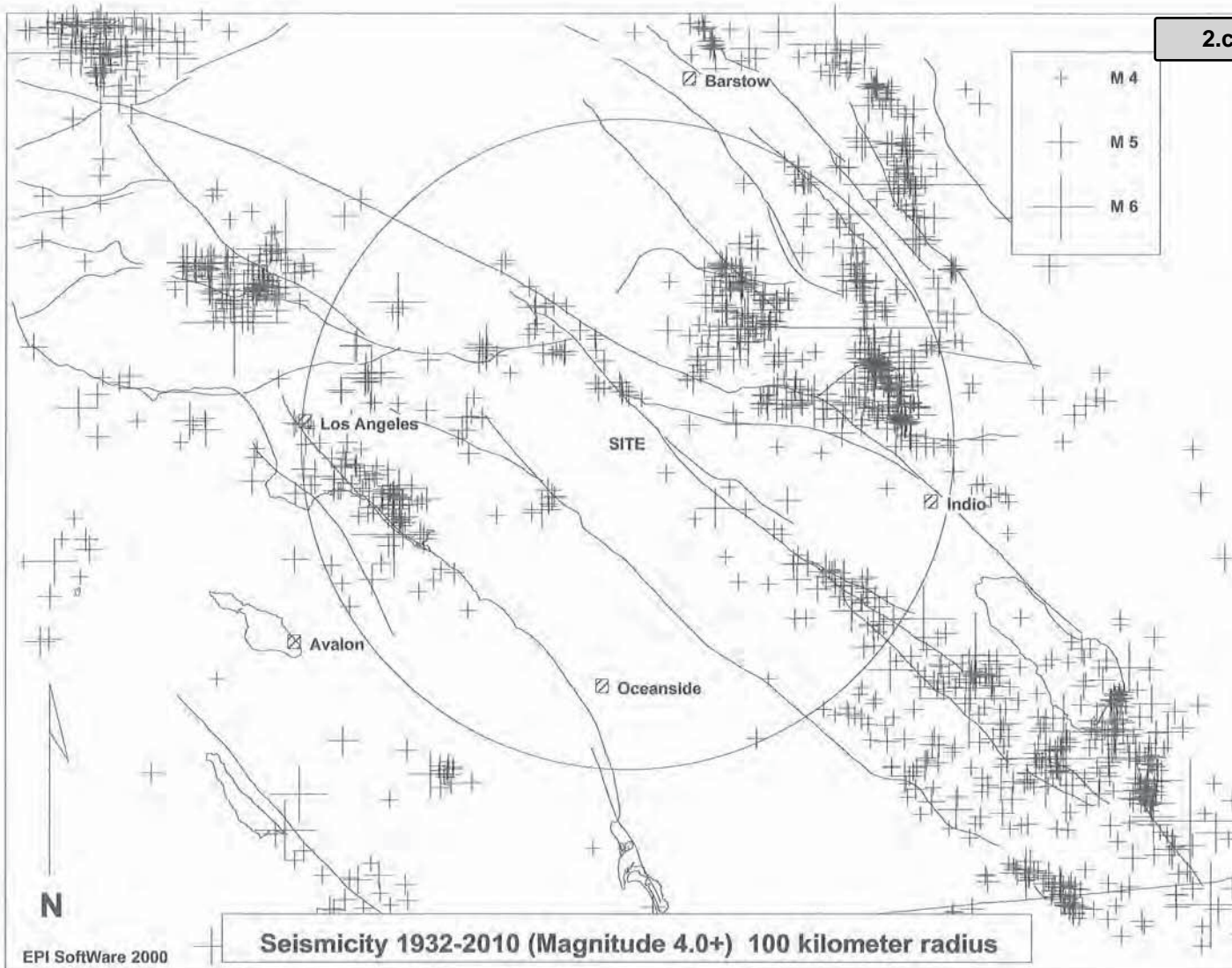
ENCLOSURE: A-1

LOR Geotechnical Group, Inc.

DATE: APRIL 2019

SCALE: 1" = 2,000'

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)



SITE LOCATION: 33.88001 LAT. -117.22842 LONG.

MINIMUM LOCATION QUALITY: C

TOTAL # OF EVENTS ON PLOT: 1498

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 600

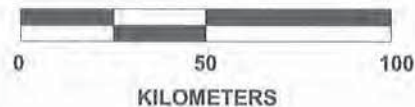
MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

4.0- 4.9 : 539
 5.0- 5.9 : 56
 6.0- 6.9 : 4
 7.0- 7.9 : 1
 8.0- 8.9 : 0

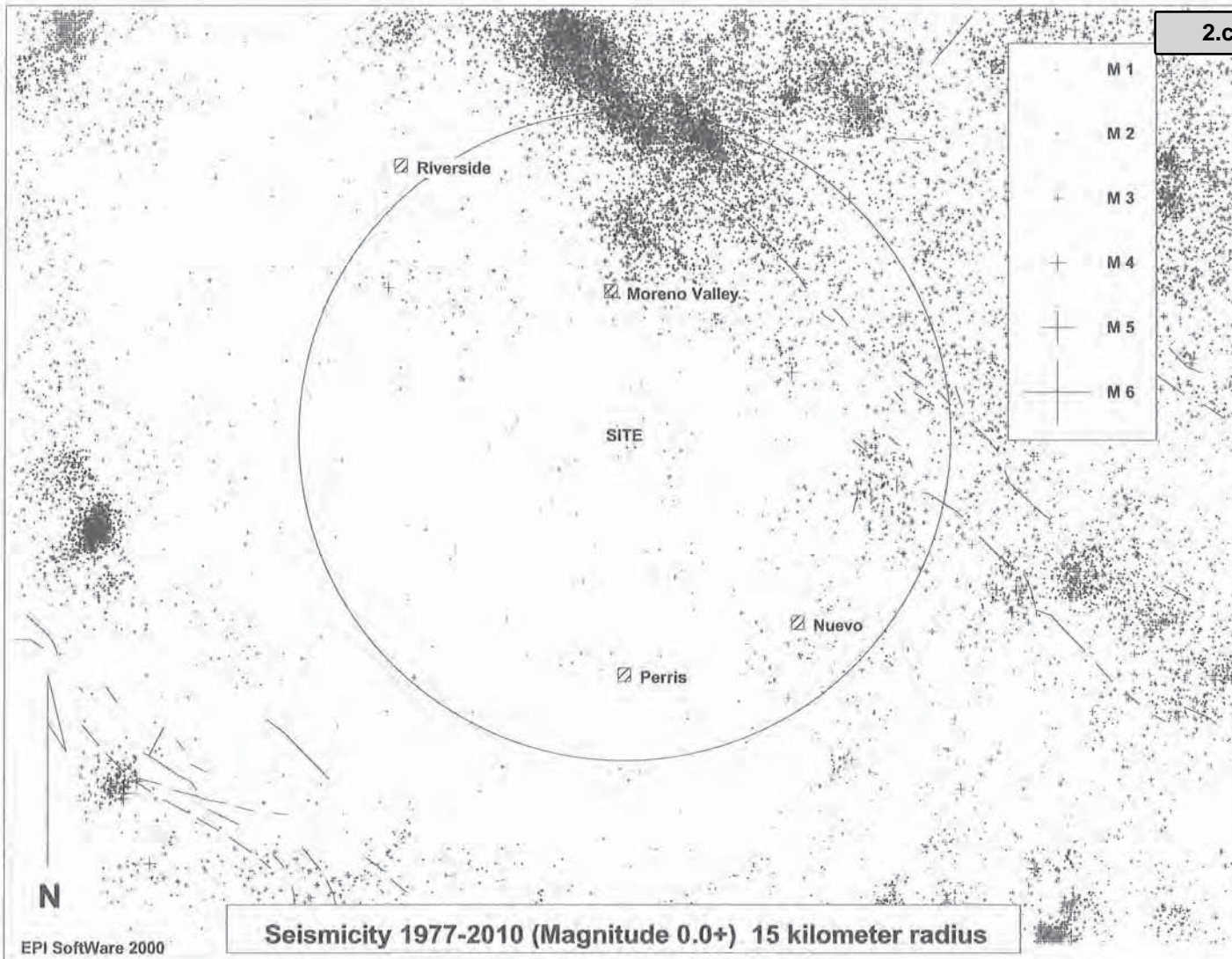
CLOSEST EVENT: 4.1 ON SATURDAY, FEBRUARY 13, 2010 LOCATED APPROX. 15 KILOMETERS NORTH OF THE SITE

LARGEST 5 EVENTS:

7.3 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 81 KILOMETERS NORTHEAST OF THE SITE
 6.4 ON SATURDAY, MARCH 11, 1933 LOCATED APPROX. 76 KILOMETERS SOUTHWEST OF THE SITE
 6.3 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 51 KILOMETERS NORTHEAST OF THE SITE
 6.1 ON THURSDAY, APRIL 23, 1992 LOCATED APPROX. 84 KILOMETERS EAST OF THE SITE
 6.0 ON SATURDAY, DECEMBER 04, 1948 LOCATED APPROX. 83 KILOMETERS EAST OF THE SITE



Enclosure A-4



SITE LOCATION: 33.88001 LAT. -117.22842 LONG.

MINIMUM LOCATION QUALITY: A

TOTAL # OF EVENTS ON PLOT: 20316

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 4224

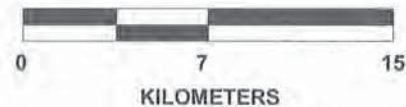
MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

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 2.0- 2.9 : 518
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 6.0- 6.9 : 0
 7.0- 7.9 : 0
 8.0- 8.9 : 0

CLOSEST EVENT: 0.0 ON FRIDAY, NOVEMBER 16, 1979 LOCATED APPROX. .4 KILOMETER OF THE SITE

LARGEST 5 EVENTS:

4.1 ON SATURDAY, FEBRUARY 13, 2010 LOCATED APPROX. 14 KILOMETERS NORTH OF THE SITE
 3.8 ON MONDAY, JULY 10, 2006 LOCATED APPROX. 11 KILOMETERS EAST OF THE SITE
 3.8 ON THURSDAY, SEPTEMBER 12, 1996 LOCATED APPROX. 8 KILOMETERS NORTHEAST OF THE SITE
 3.8 ON SATURDAY, MARCH 20, 1999 LOCATED APPROX. 14 KILOMETERS NORTH OF THE SITE
 3.5 ON TUESDAY, JANUARY 24, 1999 LOCATED APPROX. 12 KILOMETERS NORTHWEST OF THE SITE



Enclosure A-5

APPENDIX B

Field Investigation Program and Boring Logs

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

APPENDIX B FIELD INVESTIGATION

Subsurface Exploration

The site was investigated on April 18, 2019 and consisted of advancing 6 exploratory borings to depths between 21 feet and 51.5 feet below the existing ground surface. The approximate locations of the borings are shown on Enclosure A-2, within Appendix A.

The drilling exploration was conducted using a truck-mounted Mobile B61 drill rig equipped with 8-inch diameter hollow stem augers. The soils were continuously logged by our geologist who inspected the site, created detailed logs of the borings, obtained undisturbed, as well as disturbed, soil samples for evaluation and testing, and classified the soils by visual examination in accordance with the Unified Soil Classification System.

Relatively undisturbed samples of the subsoils were obtained at a maximum interval of 5 feet. The samples were recovered by using a California split barrel sampler of 2.50 inch inside diameter and 3.25 inch outside diameter from the ground surface to the total depth explored. The samplers were driven by a 140 pound automatic trip hammer dropped from a height of 30 inches. The number of hammer blows required to drive the sampler into the ground the final 12 inches were recorded and further converted to an equivalent SPT N-value. Factors such as efficiency of the automatic trip hammer used during this investigation (80%), borehole diameter (8"), and rod length at the test depth were considered for further computing of equivalent SPT N-values corrected for field procedures (N₆₀) which are included in the boring logs, Enclosures B-1 through B-3.

The undisturbed soil samples were retained in brass sample rings of 2.42 inches in diameter and 1.00 inch in height, and placed in sealed containers. Disturbed soil samples were obtained at selected levels within the borings and placed in sealed containers for transport to the laboratory.

All samples obtained were taken to our geotechnical laboratory for storage and testing. Detailed logs of the borings are presented on the enclosed Boring Logs, Enclosures B-1 through B-6. A Boring Log Legend and Soil Classification Chart are presented on Enclosures B-i and B-ii, respectively.

LOG OF BORING B-1

TEST DATA							U.S.C.S.	DESCRIPTION
DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY		
0		9, 10					SM	@ 0 feet, FILL: SILTY SAND , approximately 10% coarse grained sand, 30% medium grained sand, 35% fine grained sand, 25% silty fines, brown, dry, loose.
5	24		7.4	120.1	█		ML	@ 2 feet, OLDER ALLUVIUM: SILTY SAND , approximately 20% coarse grained sand, 25% medium grained sand, 25% fine grained sand, 30% silty fines with trace clay, red-brown, damp.
10	30		12.3	111.0	█			@ 5 feet, SANDY SILT , trace gravel to 1/2", approximately 5% coarse grained sand, 10% medium grained sand, 30% fine grained sand, 55% silty fines, red-brown, damp, some thin calcite stringers, some pinhole porosity.
15	75 for 11"		7.5	121.9	█			@ 10 feet, becomes slightly finer grained, no visible porosity, no secondary calcite, dry.
20	45		10.4	126.0	█			@ 15 feet, trace secondary calcite as nodules.
25	81 for 11"		7.9	130.1	█		ML SM	@ 20 feet, SANDY SILT/SILTY SAND , approximately 15% coarse grained sand, 15% medium grained sand, 20% fine grained sand, 50% silty fines, red-brown, damp.
30	35		15.7	114.3	█		SM	@ 25 feet, SILTY SAND , approximately 20% coarse grained sand, 20% medium grained sand, 30% fine grained sand, 30% silty fines with trace clay, red-brown, moist.
35	38		12.3	117.8	█		CL	@ 30 feet, LEAN CLAY with SAND , approximately 5% coarse grained sand, 15% medium grained sand, 20% fine grained sand, 60% clayey fines of low plasticity, moist.
40	43		13.4	118.9	█			@ 32 feet, groundwater.
45	40		13.0	121.1	█			
50	38		14.8	118.0	█			
55	43		19.9	108.6	█			
								END OF BORING @ 51.5'
								Fill to 2' Groundwater @ 32' No bedrock

PROJECT:	Tentative Tract Map No. 37725	PROJECT NUMBER:	33529.1
CLIENT:	Positive Investments	ELEVATION:	1484
LOR GEOTECHNICAL GROUP INC.		DATE DRILLED:	April 18, 2019
		EQUIPMENT:	Mobile B-61
		HOLE DIA.: 8"	ENCLOSURE:	B-1

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

LOG OF BORING B-2

TEST DATA								DESCRIPTION
DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY	U.S.C.S.	
0							SM	@ 0 feet, FILL: SILTY SAND, approximately 10% coarse grained sand, 25% medium grained sand, 30% fine grained sand, 30% silty fines with trace clay, brown, dry, loose.
	13	3, 4, 7, 11	4.5	114.6			ML CL	@ 2 feet, OLDER ALLUVIUM: SANDY SILT/LEAN CLAY with SAND, approximately 15% coarse grained sand, 15% medium grained sand, 20% fine grained sand, 50% silty and clayey fines, red-brown, dry, some pinhole porosity.
5	66 for 11"		5.3	111.7				@ 5 feet, becomes dry, pinhole porosity remains, some thin calcite stringers.
	66 for 11"		6.4	113.6			SM	@ 7 feet, SILTY SAND, approximately 25% coarse grained sand, 30% medium grained sand, 30% fine grained sand, 15% silty fines, red-brown, dry.
10	68		7.2	124.3				@ 10 feet, becomes finer grained, approximately 15% coarse grained sand, 25% medium grained sand, 30% fine grained sand, 30% silty fines, red-brown, dry.
15	38		11.8	122.3			CL	@ 15 feet, LEAN CLAY with SAND, approximately 5% coarse grained sand, 15% medium grained sand, 20% fine grained sand, 60% clayey fines of low plasticity, red-brown, damp, some calcite nodules.
20	69		8.9	128.2				@ 20 feet, contains some pinhole porosity, no calcite.
25								END OF BORING @ 21.5' Fill to 2' No groundwater No bedrock

PROJECT:	Tentative Tract Map No. 37725	PROJECT NUMBER:	33529.1
CLIENT:	Positive Investments	ELEVATION:	1482
LOR GEOTECHNICAL GROUP INC.		DATE DRILLED:	April 18, 2019
		EQUIPMENT:	Mobile B-61
		HOLE DIA.: 8"	ENCLOSURE:	B-2

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

LOG OF BORING B-3

TEST DATA							U.S.C.S.	DESCRIPTION
DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY		
0		3, 7, 8 9, 10, 11					SM	@ 0 feet, <u>FILL</u> : SILTY SAND, approximately 20% coarse grained sand, 20% medium grained sand, 40% fine grained sand, 30% silty fines, brown, dry, loose.
2.4	24		14.0	108.9			CL	@ 2 feet, <u>OLDER ALLUVIUM</u> : LEAN CLAY with SAND, approximately 5% coarse grained sand, 10% medium grained sand, 30% fine grained sand, 65% clayey fines of low plasticity, red-brown, damp, some pinhole porosity, some thin calcite stringers. @ 5 feet, becomes strong brown, no visible porosity.
5	23		14.2	110.5				
10	28		6.2	118.9			SM	@ 10 feet, SILTY SAND, approximately 25% coarse grained sand, 30% medium grained sand, 30% fine grained sand, 15% silty fines with trace clay, red-brown, damp, some pinhole porosity.
15	54		5.1	123.7				
20	63		7.7	126.5				@ 20 feet, slight increase in silty fines with trace clay.
25	25		15.0	112.9			CL	@ 25 feet, LEAN CLAY with SAND, approximately 15% coarse grained sand, 20% medium grained sand, 20% fine grained sand, 55% clayey fines of low plasticity, red-brown, damp.
								END OF BORING @ 26.5'
								Fill to 2' No groundwater No bedrock
30								

PROJECT:	Tentative Tract Map No. 37725	PROJECT NUMBER:	33529.1
CLIENT:	Positive Investments	ELEVATION:	1482
LOR GEOTECHNICAL GROUP INC.		DATE DRILLED:	April 18, 2019
		EQUIPMENT:	Mobile B-61
	HOLE DIA.: 8"	ENCLOSURE:	B-3

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

LOG OF BORING B-4

TEST DATA								U.S.C.S.	DESCRIPTION
DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY			
0								SM	@ 0 feet, FILL : SILTY SAND, approximately 10% coarse grained sand, 30% medium grained sand, 30% fine grained sand, 30% silty fines, brown, dry, loose.
19	19		3.1	117.1	█				@ 2 feet, OLDER ALLUVIUM : SILTY SAND, approximately 25% coarse grained sand, 30% medium grained sand, 30% fine grained sand, 15% silty fines, red-brown, dry.
5	28		7.1	115.9	█			CL	@ 5 feet, LEAN CLAY with SAND, approximately 10% coarse grained sand, 15% medium grained sand, 15% fine grained sand, 60% clayey fines of low plasticity, red-brown, dry, some pinhole porosity, some thin calcite stringers.
10	48		9.4	125.7	█				@ 10 feet, calcite stringers no longer present.
15	36		4.7	118.6	█			SM	@ 15 feet, SILTY SAND , approximately 25% coarse grained sand, 30% medium grained sand, 30% fine grained sand, 15% silty fines, strong brown, dry.
20	74		5.8	120.7	█				@ 20 feet, SILTY SAND , approximately 20% coarse grained sand, 20% medium grained sand, 25% fine grained sand, 35% silty fines, red-brown, dry.
									END OF BORING @ 21'
									Fill to 2' No groundwater No bedrock
25									

PROJECT:	Tentative Tract Map No. 37725	PROJECT NUMBER:	33529.1
CLIENT:	Positive Investments	ELEVATION:	1484
LOR GEOTECHNICAL GROUP INC.		DATE DRILLED:	April 18, 2019
		EQUIPMENT:	Mobile B-61
	HOLE DIA.: 8"	ENCLOSURE:	B-4

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

LOG OF BORING B-5

TEST DATA							U.S.C.S.	DESCRIPTION
DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY		
0							SM	@ 0 feet, FILL: SILTY SAND , approximately 15% coarse grained sand, 25% medium grained sand, 35% fine grained sand, 25% silty fines, brown, dry, loose.
14	14		3.1	117.0	█			@ 2 feet, OLDER ALLUVIUM: SILTY SAND , approximately 20% coarse grained sand, 25% medium grained sand, 25% fine grained sand, 30% silty fines, strong brown, damp, trace pinhole porosity.
5	18		3.3	113.1	█			@ 5 feet, becomes yellowish-brown, dry.
10	26		7.8	119.6	█		CL	@ 10 feet, LEAN CLAY with SAND , approximately 15% coarse grained sand, 15% medium grained sand, 15% fine grained sand, 55% clayey fines of low plasticity, red-brown, damp, some pinhole porosity.
15	33		10.7	118.2	█			@ 15 feet, becomes slightly finer grained.
20	61		6.6	122.7	█			
25	24		12.4	115.8	█			@ 25 feet, becomes moist, some secondary calcite, light red-brown.
								END OF BORING @ 26.5'
								Fill to 2' No groundwater No bedrock
30								

PROJECT:	Tentative Tract Map No. 37725	PROJECT NUMBER:	33529.1
CLIENT:	Positive Investments	ELEVATION:	1485
LOR GEOTECHNICAL GROUP INC.		DATE DRILLED:	April 18, 2019
		EQUIPMENT:	Mobile B-61
		HOLE DIA.: 8"	ENCLOSURE:	B-5

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

LOG OF BORING B-6

TEST DATA							U.S.C.S.	DESCRIPTION
DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY		
0		9, 10					SM	@ 0 feet, <u>FILL</u> : SILTY SAND, approximately 15% coarse grained sand, 25% medium grained sand, 25% fine grained sand, 35% silty fines, brown, dry, loose.
10	10		4.2	109.6				@ 2 feet, <u>OLDER ALLUVIUM</u> : SILTY SAND, approximately 20% coarse grained sand, 25% medium grained sand, 30% fine grained sand, 25% silty fines, strong brown, dry, some pinhole porosity.
5	18		14.8	110.1			CL	@ 5 feet, <u>LEAN CLAY</u> with SAND, approximately 5% coarse grained sand, 10% medium grained sand, 20% fine grained sand, 65% clayey fines of low plasticity, strong brown, damp, some pinhole porosity, some thin calcite stringers.
10	47		7.8	121.9				@ 10 feet, becomes red-brown, no visible porosity, no secondary calcite.
15	54		2.5	120.4			SM	@ 16 feet, <u>SILTY SAND</u> , approximately 25% coarse grained sand, 30% medium grained sand, 30% fine grained sand, 15% silty fines, strong brown, dry.
20	42		7.5	123.1			CL	@ 20 feet, <u>LEAN CLAY</u> with SAND, approximately 10% coarse grained sand, 15% medium grained sand, 20% fine grained sand, 55% clayey fines of low plasticity, red-brown, damp, trace pinhole porosity.
25	31		14.0	114.4				@ 25 feet, becomes moist.
30	32		16.3	111.8				@ 29.5 feet, groundwater.
								END OF BORING @ 31.5'
35								Fill to 2' Groundwater @ 29.5' No bedrock

PROJECT:	Tentative Tract Map No. 37725	PROJECT NUMBER:	33529.1
CLIENT:	Positive Investments	ELEVATION:	1483
LOR GEOTECHNICAL GROUP INC.		DATE DRILLED:	April 18, 2019
		EQUIPMENT:	Mobile B-61
	HOLE DIA.: 8"	ENCLOSURE:	B-6

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

CONSISTENCY OF SOIL

SANDS

SPT BLOWS

CONSISTENCY

0-4	Very Loose
4-10	Loose
10-30	Medium Dense
30-50	Dense
Over 50	Very Dense

COHESIVE SOILS

SPT BLOWS

CONSISTENCY

0-2	Very Soft
2-4	Soft
4-8	Medium
8-15	Stiff
15-30	Very Stiff
30-60	Hard
Over 60	Very Hard

SAMPLE KEY

Symbol

Description



INDICATES CALIFORNIA SPLIT SPOON SOIL SAMPLE

INDICATES BULK SAMPLE

INDICATES SAND CONE OR NUCLEAR DENSITY TEST

INDICATES STANDARD PENETRATION TEST (SPT) SOIL SAMPLE

TYPES OF LABORATORY TESTS

- 1 Atterberg Limits
- 2 Consolidation
- 3 Direct Shear (undisturbed or remolded)
- 4 Expansion Index
- 5 Hydrometer
- 6 Organic Content
- 7 Proctor (4", 6", or Cal216)
- 8 R-value
- 9 Sand Equivalent
- 10 Sieve Analysis
- 11 Soluble Sulfate Content
- 12 Swell
- 13 Wash 200 Sieve

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

BORING LOG LEGEND

PROJECT:	TENTATIVE TRACT MAP NO. 37725, MORENO VALLEY, CALIFORNIA	PROJECT NO.:	33529.1
CLIENT:	POSITIVE INVESTMENTS	ENCLOSURE:	B-
LOR Geotechnical Group, Inc.		DATE:	APRIL 2019

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS <i>(LITTLE OR NO FINES)</i>		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 <i>(APPRECIABLE AMOUNT OF FINES)</i>		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS <i>(LITTLE OR NO FINES)</i>		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES <i>(APPRECIABLE AMOUNT OF FINES)</i>		SM	SILTY SANDS, SAND - SILT MIXTURES
			SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR 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 GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

PARTICLE SIZE LIMITS

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
12"	3"	3/4"	No. 4	No. 10	No. 40	200	
(U.S. STANDARD SIEVE SIZE)							

SOIL CLASSIFICATION CHART

PROJECT	TENTATIVE TRACT MAP NO. 37725, MORENO VALLEY, CALIFORNIA	PROJECT NO.	33529.1
CLIENT:	POSITIVE INVESTMENTS	ENCLOSURE:	B-ii
LOR Geotechnical Group, Inc.		DATE:	APRIL 2019

APPENDIX C

Laboratory Testing Program and Test Results

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

APPENDIX C LABORATORY TESTING

General

Selected soil samples obtained from our borings were tested in our geotechnical laboratory to evaluate the physical properties of the soils affecting foundation design and construction procedures. The laboratory testing program performed in conjunction with our investigation included in-place moisture content and dry density, laboratory compaction characteristics, direct shear, expansion index, sieve analysis, sand equivalent, R-value, and soluble sulfate content. Descriptions of the laboratory tests are presented in the following paragraphs:

Moisture Density Tests

The moisture content and dry density information provides an indirect measure of soil consistency for each stratum, and can also provide a correlation between soils on this site. The dry unit weight and field moisture content were determined for selected undisturbed samples, in accordance with ASTM D 2922 and ASTM D 2216, respectively, and the results are shown on the Boring Logs, Enclosures B-1 through B-6 for convenient correlation with the soil profile.

Laboratory Compaction

Selected soil samples were tested in the laboratory to determine compaction characteristics using the ASTM D 1557 compaction test method. The results are presented in the following table:

LABORATORY COMPACTION				
Boring Number	Sample Depth (feet)	Soil Description (U.S.G.S.)	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)
B-2	2-4	(ML/CL) Sandy Silt/Lean Clay with Sand	131.5	8.0
B-3	0-3	(SM) Silty Sand	134.5	7.5

Direct Shear Tests

Shear tests are performed with a direct shear machine in general accordance with ASTM D 3080 at a constant rate-of-strain (usually 0.04 inches/minute). The machine is designed to test a sample partially extruded from a sample ring in single shear. Samples are tested at varying normal loads in order to evaluate the shear strength parameters, angle of internal friction and cohesion. Samples are tested in a remolded condition (90 percent relative compaction per ASTM D 1557) and soaked, to represent the worse case conditions expected in the field.

The results of the shear tests are presented in the following table:

DIRECT SHEAR TESTS				
Boring Number	Sample Depth (feet)	Soil Description (U.S.G.S.)	Angle of Internal Friction (degrees)	Apparent Cohesion (psf)
B-2	2-4	(ML/CL) Sandy Silt/Lean Clay with Sand	25	400
B-3	0-3	(SM) Silty Sand	25	400

Expansion Index Tests

Remolded samples are tested to determine their expansion potential in accordance with the Expansion Index (EI) test. The test is performed in accordance with the Uniform Building Code Standard 18-2. The test results are presented in the following table:

EXPANSION INDEX TESTS				
Boring Number	Sample Depth (feet)	Soil Description (U.S.C.S.)	Expansion Index (EI)	Expansion Potential
B-3	0-3	(SM) Silty Sand	15	Very Low

Sieve Analysis

A quantitative determination of the grain size distribution was performed for selected samples in accordance with the ASTM D 422 laboratory test procedure. The determination is performed by passing the soil through a series of sieves, and recording the weights of retained particles on each screen. The results of the sieve analyses are presented graphically on Enclosure C-1.

Sand Equivalent

The sand equivalent of selected soils were evaluated using the California Sand Equivalent Test Method, Caltrans Number 217. The results of the sand equivalent tests are presented with the grain size distribution analyses on Enclosure C-1.

R-Value Test

Soil samples were obtained at probable pavement subgrade level and was tested to determine its R-value using the California R-Value Test Method, Caltrans Number 301. The results of the R-value test is presented on Enclosure C-1.

Soluble Sulfate Content Tests

The soluble sulfate content of selected subgrade soils was evaluated and the concentration of soluble sulfates in the soils was determined by measuring the optical density of a barium sulfate precipitate. The precipitate results from a reaction of barium chloride with water extractions from the soil samples. The measured optical density is correlated with readings on precipitates of known sulfate concentrations. The test results are presented on the following table:

SOLUBLE SULFATE CONTENT TESTS			
Boring Number	Sample Depth (feet)	Soil Description (U.S.G.S.)	Sulfate Content (percent by weight)
B-2	2-4	(ML/CL) Sandy Silt/Lean Clay with Sand	< 0.005
B-3	0-3	(SM) Silty Sand	< 0.005

APPENDIX D

Percolation and Infiltration Test Results

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

FALLING HEAD PERCOLATION TEST RESULTS

PROJECT NO.: 33529.1 DATE TESTED: 04/18/19

PROJECT: Tentative Tract Map No. 37725 HOLE DIAMETER: 8 in

LOCATION: Moreno Valley, California PIPE DIAMETER: 3 in

TESTED BY: A.L. % VOIDS IN GRAVEL / 100 0.5

TEST NO: P-1 GRAVEL CORRECTION FACTOR: 0.570

DATE DRILLED: 04/18/19

READING	TIME START	TIME STOP	TIME INTERVAL		TOTAL TIME	INITIAL WATER LEVEL		FINAL WATER LEVEL		INITIAL HOLE DEPTH		FINAL HOLE DEPTH		CHANGE IN WATER LEVEL	AVERAGE WETTED DEPTH	Q*	
			min	hr.		hr.	ft.	in.	ft.	in.	ft.	in.	ft.			in.	ft.	gal/sq.ft./day	in/hr**
TEST PERIOD																	
1	9:13	9:38	25	0.42	0.42	5	0	5	7	15	0	15	0	0.58	9.71	7.6	0.28
2	9:40	10:05	25	0.42	0.83	5	0	5	8	15	0	15	0	0.67	9.67	8.7	0.33
3	10:06	10:36	30	0.50	1.33	5	0	5	9	15	0	15	0	0.75	9.63	8.2	0.31
4	10:39	11:09	30	0.50	1.83	5	0	5	8	15	0	15	0	0.67	9.67	7.3	0.27
5	11:10	11:40	30	0.50	2.33	5	1	5	10	15	0	15	0	0.75	9.54	8.3	0.31
6	11:41	12:11	30	0.50	2.83	5	0	5	9	15	0	15	0	0.75	9.63	8.2	0.31
7	12:12	12:42	30	0.50	3.33	5	0	5	10	15	0	15	0	0.83	9.58	9.1	0.34
8	12:43	13:13	30	0.50	3.83	5	0	5	10	15	0	15	0	0.83	9.58	9.1	0.34
9	13:14	13:43	29	0.48	4.32	5	1	5	10	15	0	15	0	0.75	9.54	8.6	0.32
10	13:44	14:14	30	0.50	4.82	5	0	5	9	15	0	15	0	0.75	9.63	8.2	0.34
11	14:15	14:45	30	0.50	5.32	5	0	5	10	15	0	15	0	0.83	9.58	9.1	0.34
12	14:46	15:16	30	0.50	5.82	5	0	5	10	15	0	15	0	0.83	9.58	9.1	0.34
13	15:16	15:46	30	0.50	6.32	5	10	6	6	15	0	15	0	0.67	8.83	7.9	0.30

BORING DEPTH: 15.0 ft
 INITIAL TEST HOLE DEPTH: 15.0 ft
 FINAL TEST HOLE DEPTH: 15.0 ft

* = clear water rate
 ** = Porchet Method

FALLING HEAD PERCOLATION TEST RESULTS

PROJECT NO.: 33529.1 DATE TESTED: 04/18/19

PROJECT: Tentative Tract Map No. 37725 HOLE DIAMETER: 8 in

LOCATION: Moreno Valley, California PIPE DIAMETER: 3 in

TESTED BY: A.L. % VOIDS IN GRAVEL / 100 0.5

TEST NO: P-2 GRAVEL CORRECTION FACTOR: 0.570

DATE DRILLED: 04/18/19

READING	TIME START	TIME STOP	TIME INTERVAL		TOTAL TIME	INITIAL WATER LEVEL		FINAL WATER LEVEL		INITIAL HOLE DEPTH		FINAL HOLE DEPTH		CHANGE IN WATER LEVEL	AVERAGE WETTED DEPTH	Q*	
			min	hr.		hr.	ft.	in.	ft.	in.	ft.	in.	ft.			in.	ft.	gal/sq.ft./day	in/hr**
TEST PERIOD																	
1	9:12	9:37	25	0.42	0.42	5	0	7	1	15	0	15	0	2.08	8.96	29.4	1.10
2	9:38	10:03	25	0.42	0.83	4	9	6	9	15	0	15	0	2.00	9.25	27.3	1.02
3	10:04	10:34	30	0.50	1.33	5	1	7	1	15	0	15	0	2.00	8.92	23.6	0.88
4	10:36	11:06	30	0.50	1.83	5	0	7	0	15	0	15	0	2.00	9.00	23.4	0.87
5	11:07	11:37	30	0.50	2.33	5	0	7	0	15	0	15	0	2.00	9.00	23.4	0.87
6	11:39	12:09	30	0.50	2.83	5	0	7	0	15	0	15	0	2.00	9.00	23.4	0.87
7	12:10	12:40	30	0.50	3.33	5	0	7	0	15	0	15	0	2.00	9.00	23.4	0.87
8	12:41	13:11	30	0.50	3.83	5	3	7	2	15	0	15	0	1.92	8.79	22.9	0.86
9	13:11	13:41	30	0.50	4.33	5	0	6	11	15	0	15	0	1.92	9.04	22.3	0.83
10	13:42	14:12	30	0.50	4.83	5	0	7	0	15	0	15	0	2.00	9.00	23.4	0.87
11	14:13	14:43	30	0.50	5.33	5	0	7	0	15	0	15	0	2.00	9.00	23.4	0.87
12	14:44	15:14	30	0.50	5.83	5	0	6	11	15	0	15	0	1.92	9.04	22.3	0.83
13	15:14	15:44	30	0.50	6.33	6	11	7	9	15	0	15	0	0.83	7.67	11.4	0.43

BORING DEPTH: 15.0 ft

INITIAL TEST HOLE DEPTH: 15.0 ft

FINAL TEST HOLE DEPTH: 15.0 ft

* = clear water rate

** = Porchet Method

FALLING HEAD PERCOLATION TEST RESULTS

PROJECT NO.: 33529.1 DATE TESTED: 04/18/19

PROJECT: Tentative Tract Map No. 37725 HOLE DIAMETER: 8 in

LOCATION: Moreno Valley, California PIPE DIAMETER: 3 in

TESTED BY: A.L. % VOIDS IN GRAVEL / 100 0.5

TEST NO: P-3 GRAVEL CORRECTION FACTOR: 0.570

DATE DRILLED: 04/18/19

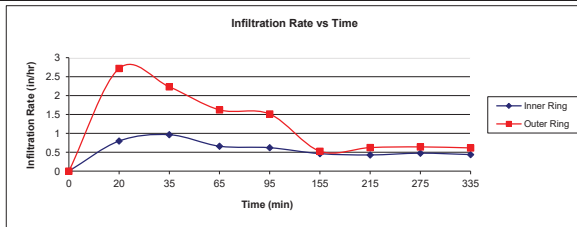
READING	TIME START	TIME STOP	TIME INTERVAL		TOTAL TIME	INITIAL WATER LEVEL		FINAL WATER LEVEL		INITIAL HOLE DEPTH		FINAL HOLE DEPTH		CHANGE IN WATER LEVEL	AVERAGE WETTED DEPTH	Q*	
			min	hr.		hr.	ft.	in.	ft.	in.	ft.	in.	ft.			in.	ft.	in/hr**
TEST PERIOD																	
1	9:28	9:53	25	0.42	0.42	4	10	5	0	15	0	15	0	0.17	10.08	2.1	0.08
2	9:53	10:18	25	0.42	0.83	5	0	5	2	15	0	15	0	0.17	9.92	2.1	0.08
3	10:18	10:48	30	0.50	1.33	5	0	5	3	15	0	15	0	0.25	9.88	2.7	0.10
4	10:48	11:18	30	0.50	1.83	5	0	5	5	15	0	15	0	0.42	9.79	4.5	0.17
5	11:18	11:48	30	0.50	2.33	5	0	5	7	15	0	15	0	0.58	9.71	6.3	0.24
6	11:48	12:18	30	0.50	2.83	5	0	5	5	15	0	15	0	0.42	9.79	4.5	0.17
7	12:18	12:48	30	0.50	3.33	5	0	5	7	15	0	15	0	0.58	9.71	6.3	0.24
8	12:48	13:18	30	0.50	3.83	5	0	5	5	15	0	15	0	0.42	9.79	4.5	0.17
9	13:20	13:50	30	0.50	4.33	4	11	5	6	15	0	15	0	0.58	9.79	6.3	0.23
10	13:51	14:22	31	0.52	4.85	5	0	5	5	15	0	15	0	0.42	9.79	4.3	0.16
11	14:23	14:53	30	0.50	5.35	5	0	5	5	15	0	15	0	0.42	9.79	4.5	0.17
12	14:54	15:24	30	0.50	5.85	5	0	5	5	15	0	15	0	0.42	9.79	4.5	0.17
13	15:24	15:54	30	0.50	6.35	5	5	5	10	15	0	15	0	0.42	9.38	4.7	0.17

BORING DEPTH: 15.0 ft
 INITIAL TEST HOLE DEPTH: 15.0 ft
 FINAL TEST HOLE DEPTH: 15.0 ft

* = clear water rate
 ** = Porchet Method

DOUBLE RING INFILTRMETER TEST DATA

Project:	Tentative Tract Map No. 37725	Client:	Positive Investments
Project No.:	33529.1	Test Date:	April 22, 2019
Soil Classification:	(SM) Silty Sand	Test Hole No.:	DRI-1
Depth of Test Hole:	8 ft	Test Hole Diameter:	12 in. inner, 24 in. annular
Liquid Used:	Tap Water	Date Excavated:	April 22, 2019
Area of Rings:	Inner = 0.785 ft ² , Annular 2.36 ft ²	pH:	7.8
Tested By:	A.L.	Depth of Water in Rings:	3 in
Liquid Level		Ring Penetration:	3 in
Maintained Using:	Vacuum Seal		
Depth to Water Table:	25 ft		

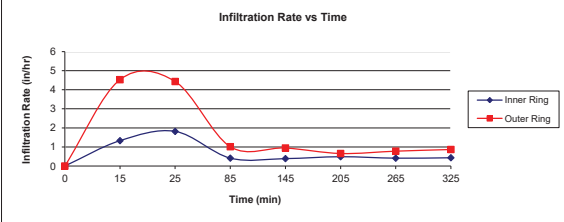


TEST PERIOD

TRIAL NO.	INNER			ANNULAR SPACE			WATER USED (lbs.)		WATER USED (gal)		INFILTRATION RATE (gal/sf.day)		INFILTRATION RATE (in/hr)		LIQUID TEMP (°F)	REMARKS
	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	inner	annular space	inner	annular space	inner	annular space	inner	annular space		
1	S	8:55	20	8:55	20	20	1.08	11.07	0.130	1.329	11.9	40.5	0.8	2.7	68	outer ring slight leak
	E	9:15		9:15											68	
2	S	9:15	15	9:15	15	35	0.98	6.82	0.118	0.819	14.4	33.3	1.0	2.2	69	outer ring slight leak
	E	9:30		9:30											69	
3	S	9:30	30	9:30	30	65	1.34	9.91	0.161	1.190	9.8	24.2	0.7	1.6	71	outer ring slight leak
	E	10:00		10:00											71	
4	S	10:00	30	10:00	30	95	1.26	9.24	0.151	1.109	9.2	22.6	0.6	1.5	72	outer ring no longer leaking
	E	10:30		10:30											72	
5	S	10:35	60	10:35	60	155	1.88	6.42	0.226	0.771	6.9	7.8	0.5	0.5	73	refilled outer
	E	11:35		11:35											73	
6	S	11:35	60	11:35	60	215	1.74	7.62	0.209	0.915	6.4	9.3	0.4	0.6	75	
	E	12:35		12:35											75	
7	S	12:35	60	12:35	60	275	1.93	7.84	0.232	0.941	7.1	9.6	0.5	0.6	77	
	E	13:35		13:35											77	
8	S	13:35	60	13:35	60	335	1.78	7.51	0.214	0.902	6.5	9.2	0.4	0.6	77	
	E	14:35		14:35											78	

DOUBLE RING INFILTRATOR TEST DATA

Project:	Tentative Tract Map No. 37725	Client:	Positive Investments
Project No.:	33529.1	Test Date:	April 22, 2019
Soil Classification:	(SM) Silty Sand	Test Hole No.:	DRI-2
Depth of Test Hole:	8 ft	Test Hole Diameter:	12 in. inner, 24 in. annular
Liquid Used:	Tap Water	Date Excavated:	April 22, 2019
Area of Rings:	Inner = 0.785 ft ² , Annular 2.36 ft ²	pH:	7.8
Tested By:	A.L.	Depth of Water in Rings:	3.5 in
Liquid Level Maintained Using:	Vacuum Seal	Ring Penetration:	3 in
Depth to Water Table:	25 ft		



TEST PERIOD

TRIAL NO.	INNER			ANNULAR SPACE			WATER USED (lbs.)		WATER USED (gal)		INFILTRATION RATE (gal/sf.day)		INFILTRATION RATE (in/hr)		LIQUID TEMP (°F)	REMARKS
	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	inner	annular space	inner	annular space	inner	annular space	inner	annular space		
1	S	9:08	15	S	9:08	15	1.35	13.84	0.162	1.661	19.8	67.6	1.3	4.5	68	outer ring slight leak
	E	9:23		E	9:23											
2	S	9:23	10	S	9:23	25	1.23	9.03	0.148	1.084	27.1	66.1	1.8	4.4	68	outer ring no longer leaking
	E	9:33		E	9:33											
3	S	9:36	60	S	9:36	85	1.68	12.39	0.202	1.487	6.2	15.1	0.4	1.0	69	refilled outer
	E	10:36		E	10:36											
4	S	10:36	60	S	10:36	145	1.58	11.55	0.190	1.387	5.8	14.1	0.4	0.9	71	
	E	11:36		E	11:36											
5	S	11:36	60	S	11:36	205	1.98	8.03	0.238	0.964	7.3	9.8	0.5	0.7	72	
	E	12:36		E	12:36											
6	S	12:36	60	S	12:36	265	1.67	9.53	0.200	1.144	6.1	11.6	0.4	0.8	73	
	E	13:36		E	13:36											
7	S	13:36	60	S	13:36	325	1.76	10.59	0.211	1.271	6.5	12.9	0.4	0.9	75	
	E	14:36		E	14:36											

BULK DENSITY & VOIDS IN AGGREGATE TEST DATA

ASTM C29

Project No.:	33529.1	Sample No.	N/A
Project:	Tentative Tract Map No. 37725	Produced By:	Quikcrete
Sample Date:	4/18/2019	Aggregate Size:	3/4"
Sample Location:	N/A	Wt. Of Sample:	50 lbs
Sampled By:	Andrew	Tested By:	Mark

Water Temperature (celcius)	25.5
Water Density (kg/m3)	996.91848
Water & Tare (kg)	4.6931
Tare (kg)	1.8973
Volume (m3)	0.002804
Factor (m-3)	356.577
Aggregate & Tare (kg)	5.984
Tare (kg)	1.8973
Bulk Density (kg/m3)	1457.224
Aggregate in Air (g)	433.5
Aggregate in Water (g)	285.7
Specific Gravity (kg/m3)	2.933
Voids in Aggregate (%)	50.163

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

LOR Geotechnical Group Inc.

Enclosure D-6

Appendix 4: Historical Site Conditions

Not applicable

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix 5: LID Infeasibility

Not applicable

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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 Thatcher Engineering Date 8/12/2019
 Designed by Kristin Tissot Case No TTM 37725
 Company Project Number/Name 169801

BMP Identification

BMP NAME / ID Bioretention Swale 1
Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, D_{85} = 0.66 inches
 from the Isohyetal Map in Handbook Appendix E

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)
1A	24214	Concrete or Asphalt	1	0.89	21598.9			
1B	7232	Ornamental Landscaping	0.1	0.11	798.8			
31446		Total			22397.7	0.66	1231.9	1232

Notes:

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Bioretention Facility - Design Procedure		BMP ID Bio Swale 1	Legend:	Required Entries
				Calculated Cells
Company Name:	Thatcher Engineering		Date: 8/12/2019	
Designed by:	Kristin Tissot		County/City Case No.: TTM 37725	
Design Volume				
Enter the area tributary to this feature			$A_T =$	0.72
Enter V_{BMP} determined from Section 2.1 of this Handbook			$V_{BMP} =$	1,232
Type of Bioretention Facility Design				
<input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> No side slopes required (perpendicular to parking space or Planter Boxes)				
Bioretention Facility Surface Area				
Depth of Soil Filter Media Layer			$d_S =$	2.0
Top Width of Bioretention Facility, excluding curb			$w_T =$	2.0
ERROR, the minimum width for the Bioretention Facility design selected has not been met				
Total Effective Depth, d_E			$d_E =$	1.15
$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$				
Minimum Surface Area, A_m			$A_M =$	1,072
$A_M (ft^2) = \frac{V_{BMP} (ft^3)}{d_E (ft)}$				
Proposed Surface Area			$A =$	1,224
Bioretention Facility Properties				
Side Slopes in Bioretention Facility			$z =$	4
Diameter of Underdrain				6
Longitudinal Slope of Site (3% maximum)				0.47
6" Check Dam Spacing				0
Describe Vegetation:				
Notes:				

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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 **Thatcher Engineering** Date **8/12/2019**
 Designed by **Kristin Tissot** Case No **TTM 37725**
 Company Project Number/Name **169801**

BMP Identification

BMP NAME / ID **Bioretention Swale 2**
Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, D_{85} = **0.66** inches
 from the Isohyetal Map in Handbook Appendix E

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)
2A	20312	Concrete or Asphalt	1	0.89	18118.3			
2B	4458	Ornamental Landscaping	0.1	0.11	492.4			
24770		Total			18610.7	0.66	1023.6	1024

Notes:

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Bioretention Facility - Design Procedure		BMP ID Bio Swale 2	Legend:	Required Entries
				Calculated Cells
Company Name:	Thatcher Engineering		Date: 8/12/2019	
Designed by:	Kristin Tissot		County/City Case No.: TTM 37725	
Design Volume				
Enter the area tributary to this feature			$A_T =$	0.56 acres
Enter V_{BMP} determined from Section 2.1 of this Handbook			$V_{BMP} =$	1,024 ft ³
Type of Bioretention Facility Design				
<input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> 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			$w_T =$	2.0 ft
The minimum depth for the Bioretention Facility design selected has not been set				
Total Effective Depth, d_E			$d_E =$	1.45 ft
$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) \times 0.5$				
Minimum Surface Area, A_m			$A_M =$	707 ft ²
$A_M (ft^2) = \frac{V_{BMP} (ft^3)}{d_E (ft)}$				
Proposed Surface Area			$A =$	716 ft ²
Bioretention Facility Properties				
Side Slopes in Bioretention Facility			$=$	4 :1
Diameter of Underdrain				6 inches
Longitudinal Slope of Site (3% maximum)				0.47
6" Check Dam Spacing				0 feet
Describe Vegetation:				
Notes:				

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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 **Thatcher Engineering**
 Designed by **Kristin Tissot**
 Company Project Number/Name **169801**

Date **8/12/2019**
 Case No **TTM 37725**

BMP Identification

BMP NAME / ID **Bioretention Swale 3**
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 $D_{85} =$ **0.66** 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)
3A	2073	Concrete or Asphalt	1	0.89	1849.1			
3B	619	Ornamental Landscaping	0.1	0.11	68.4			
2692		Total			1917.5	0.66	105.5	106

Notes:

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Bioretention Facility - Design Procedure	BMP ID Bio Swale 3	Legend:	Required Entries
			Calculated Cells
Company Name:	Thatcher Engineering	Date: 8/12/2019	
Designed by:	Kristin Tissot	County/City Case No.: TTM 37725	
Design Volume			
Enter the area tributary to this feature		$A_T =$	0.06 acres
Enter V_{BMP} determined from Section 2.1 of this Handbook		$V_{BMP} =$	106 ft ³
Type of Bioretention Facility Design			
<input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> No side slopes required (perpendicular to parking space or Planter Boxes)			
Bioretention Facility Surface Area			
Depth of Soil Filter Media Layer		$d_S =$	2.0 ft
Top Width of Bioretention Facility, excluding curb		$w_T =$	2.0 ft
the minimum width for the Bioretention Facility design selected has not been set			
Total Effective Depth, d_E			
$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) =$	0.5	$d_E =$	1.15 ft
Minimum Surface Area, A_m			
$A_M (ft^2) = \frac{V_{BMP} (ft^3)}{d_E (ft)}$		$A_M =$	93 ft ²
Proposed Surface Area		$A =$	135 ft ²
Bioretention Facility Properties			
Side Slopes in Bioretention Facility		=	4 :1
Diameter of Underdrain			6 inches
Longitudinal Slope of Site (3% maximum)			0.47
6' Check Dam Spacing			0 feet
Describe Vegetation:			
Notes:			

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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 Thatcher Engineering Date 1/27/2020
 Designed by Kristin Tissot Case No TTM 37725
 Company Project Number/Name 169801

BMP Identification

BMP NAME / ID Bioretention Area 4
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 $D_{85} =$ 0.66 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)			
4A	234343	Roofs	1	0.89	209034						
4B	200924	Ornamental Landscaping	0.1	0.11	22193.7						
435267		Total			231227.7				0.66	12717.5	12718

Notes:

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Bioretention Facility - Design Procedure		BMP ID Bio Basin 4	Legend:	Required Entries	
				Calculated Cells	
Company Name:	Thatcher Engineering		Date:	1/27/2020	
Designed by:	Kristin Tissot		County/City Case No.:	TTM 37725	
Design Volume					
Enter the area tributary to this feature			$A_T =$	9.99	acres
Enter V_{BMP} determined from Section 2.1 of this Handbook			$V_{BMP} =$	12,718	ft ³
Type of Bioretention Facility Design					
<input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> No side slopes required (perpendicular to parking space or Planter Boxes)					
Bioretention Facility Surface Area					
Depth of Soil Filter Media Layer			$d_S =$	1.5	ft
Top Width of Bioretention Facility, excluding curb			$w_T =$	100.0	ft
Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$			$d_E =$	1.34	ft
Minimum Surface Area, A_M $A_M \text{ (ft}^2\text{)} = \frac{V_{BMP} \text{ (ft}^3\text{)}}{d_E \text{ (ft)}}$			$A_M =$	9,470	ft ²
Proposed Surface Area			$A =$	12,407	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:					

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 Thatcher Engineering Date 1/27/2020
 Designed by Kristin Tissot Case No TTM 37725
 Company Project Number/Name 169801

BMP Identification

BMP NAME / ID Bioretention Area 5
Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, D_{85} = 0.66 inches
 from the Isohyetal Map in Handbook Appendix E

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)			
5A	205538	Roofs	1	0.89	183339.9						
5B	131966	Ornamental Landscaping	0.1	0.11	14576.7						
337504		Total			197916.6				0.66	10885.4	10886

Notes:

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Bioretention Facility - Design Procedure		BMP ID Bio Basin 5	Legend:	Required Entries	
				Calculated Cells	
Company Name:	Thatcher Engineering		Date: 1/27/2020		
Designed by:	Kristin Tissot		County/City Case No.: TTM 37725		
Design Volume					
Enter the area tributary to this feature			$A_T =$	7.75	acres
Enter V_{BMP} determined from Section 2.1 of this Handbook			$V_{BMP} =$	10,886	ft ³
Type of Bioretention Facility Design					
<input checked="" type="radio"/> Side slopes required (parallel to parking spaces or adjacent to walkways) <input type="radio"/> 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			$w_T =$	58.0	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 $A_M (ft^2) = \frac{V_{BMP} (ft^3)}{d_E (ft)}$			$A_M =$	6,089	ft ²
Proposed Surface Area			$A =$	8,145	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: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

 NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
 AND LOW LOSS FRACTION ESTIMATIONS
 =====

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 Ver. 23.0 Release Date: 07/01/2016 License ID 1533

Analysis prepared by:

THATCHER ENGINEERING & ASSOCIATES, INC.
 1461 FORD STREET, SUITE 105
 REDLANDS, CA 92373
 PHONE: (909) 748-7777 FAX: (909) 748-7776

 Problem Descriptions:

169801 - APN 316-110-005, 006, 022, 023, 024
 PRE-DEVELOPMENT LOW LOSS
 2-YEAR STORM EVENT
 =====

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE. (Fm)
 AND LOW LOSS FRACTION ESTIMATIONS FOR AMC I:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 1.90 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	17.62	100.00	91.(AMC II)	0.370	0.265

TOTAL AREA (Acres) = 17.62

AREA-AVERAGED LOSS RATE, \bar{F}_m (in./hr.) = 0.370

AREA-AVERAGED LOW LOSS FRACTION, \bar{Y} = 0.735
 =====

 NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
 AND LOW LOSS FRACTION ESTIMATIONS
 =====

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Analysis prepared by:

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 Problem Descriptions:

169801 - APN 316-110-005, 006, 022, 023, 024
 POST-DEVELOPMENT LOW LOSS
 2-YEAR STORM EVENT
 =====

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
 AND LOW LOSS FRACTION ESTIMATIONS FOR AMC I:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 1.90 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp (in./hr.)	YIELD
1	7.75	100.00	69. (AMC II)	0.812	0.000
2	9.87	0.00	98. (AMC II)	0.000	0.882

TOTAL AREA (Acres) = 17.62

AREA-AVERAGED LOSS RATE, \bar{F}_m (in./hr.) = 0.357

AREA-AVERAGED LOW LOSS FRACTION, \bar{Y} = 0.506
 =====

SMALL AREA UNIT HYDROGRAPH MODEL

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Problem Descriptions:

169801 - APN 316-110-005, 006, 022, 023, 024
PRE-DEVELOPMENT HYDRO
2-YEAR STORM EVENT

RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
TOTAL CATCHMENT AREA (ACRES) = 17.62
SOIL-LOSS RATE, Fm, (INCH/HR) = 0.370
LOW LOSS FRACTION = 0.735
TIME OF CONCENTRATION (MIN.) = 24.80
SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED
RETURN FREQUENCY (YEARS) = 2
5-MINUTE POINT RAINFALL VALUE (INCHES) = 0.12
30-MINUTE POINT RAINFALL VALUE (INCHES) = 0.38
1-HOUR POINT RAINFALL VALUE (INCHES) = 0.47
3-HOUR POINT RAINFALL VALUE (INCHES) = 0.82
6-HOUR POINT RAINFALL VALUE (INCHES) = 1.14
24-HOUR POINT RAINFALL VALUE (INCHES) = 1.90

TOTAL CATCHMENT RUNOFF VOLUME (ACRE-FEET) = 0.79
TOTAL CATCHMENT SOIL-LOSS VOLUME (ACRE-FEET) = 2.00

Table with 8 columns: TIME (HOURS), VOLUME (AF), Q (CFS), 0., 2.5, 5.0, 7.5, 10.0. Rows show data for times 0.29, 0.71, 1.12, 1.53, 1.95, 2.36, 2.77, 3.19, 3.60.

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

4.01	0.0429	0.15	Q	.	.	.	.
4.43	0.0479	0.15	Q	.	.	.	.
4.84	0.0530	0.15	Q	.	.	.	.
5.25	0.0582	0.15	Q	.	.	.	.
5.67	0.0635	0.16	Q	.	.	.	.
6.08	0.0690	0.16	Q	.	.	.	.
6.49	0.0746	0.17	Q	.	.	.	.
6.91	0.0804	0.17	Q	.	.	.	.
7.32	0.0863	0.18	Q	.	.	.	.
7.73	0.0924	0.18	Q	.	.	.	.
8.15	0.0987	0.19	Q	.	.	.	.
8.56	0.1052	0.19	Q	.	.	.	.
8.97	0.1119	0.20	Q	.	.	.	.
9.39	0.1189	0.21	Q	.	.	.	.
9.80	0.1261	0.22	Q	.	.	.	.
10.21	0.1336	0.22	Q	.	.	.	.
10.63	0.1415	0.24	Q	.	.	.	.
11.04	0.1497	0.24	Q	.	.	.	.
11.45	0.1583	0.26	.Q	.	.	.	.
11.87	0.1674	0.27	.Q	.	.	.	.
12.28	0.1779	0.34	.Q	.	.	.	.
12.69	0.1904	0.39	.Q	.	.	.	.
13.11	0.2044	0.43	.Q	.	.	.	.
13.52	0.2194	0.45	.Q	.	.	.	.
13.93	0.2357	0.50	.Q	.	.	.	.
14.35	0.2536	0.55	.Q	.	.	.	.
14.76	0.2744	0.67	.Q	.	.	.	.
15.17	0.2985	0.74	.Q	.	.	.	.
15.59	0.3249	0.81	.Q	.	.	.	.
16.00	0.3567	1.05	.Q	.	.	.	.
16.41	0.4975	7.19	.	.	Q	.	.
16.83	0.6345	0.84	.Q	.	.	.	.
17.24	0.6594	0.62	.Q	.	.	.	.
17.65	0.6780	0.47	.Q	.	.	.	.
18.07	0.6931	0.41	.Q	.	.	.	.
18.48	0.7050	0.28	.Q	.	.	.	.
18.89	0.7141	0.25	.Q	.	.	.	.
19.31	0.7223	0.23	Q	.	.	.	.
19.72	0.7299	0.21	Q	.	.	.	.
20.13	0.7368	0.20	Q	.	.	.	.
20.55	0.7433	0.18	Q	.	.	.	.
20.96	0.7494	0.17	Q	.	.	.	.
21.37	0.7552	0.16	Q	.	.	.	.
21.79	0.7607	0.16	Q	.	.	.	.
22.20	0.7659	0.15	Q	.	.	.	.
22.61	0.7709	0.14	Q	.	.	.	.
23.03	0.7757	0.14	Q	.	.	.	.
23.44	0.7803	0.13	Q	.	.	.	.
23.85	0.7847	0.13	Q	.	.	.	.
24.27	0.7890	0.12	Q	.	.	.	.
24.68	0.7911	0.00	Q	.	.	.	.

 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%	1463.2
10%	124.0
20%	24.8
30%	24.8
40%	24.8
50%	24.8
60%	24.8
70%	24.8
80%	24.8
90%	24.8

SMALL AREA UNIT HYDROGRAPH MODEL

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Problem Descriptions:

169801 - APN 316-110-005, 006, 022, 023, 024
 POST-DEVELOPMENT HYDRO
 2-YEAR STORM EVENT

RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
 TOTAL CATCHMENT AREA (ACRES) = 17.62
 SOIL-LOSS RATE, Fm, (INCH/HR) = 0.357
 LOW LOSS FRACTION = 0.506
 TIME OF CONCENTRATION (MIN.) = 17.75
 SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
 USER SPECIFIED RAINFALL VALUES ARE USED
 RETURN FREQUENCY (YEARS) = 2
 5-MINUTE POINT RAINFALL VALUE (INCHES) = 0.12
 30-MINUTE POINT RAINFALL VALUE (INCHES) = 0.38
 1-HOUR POINT RAINFALL VALUE (INCHES) = 0.47
 3-HOUR POINT RAINFALL VALUE (INCHES) = 0.82
 6-HOUR POINT RAINFALL VALUE (INCHES) = 1.14
 24-HOUR POINT RAINFALL VALUE (INCHES) = 1.90

TOTAL CATCHMENT RUNOFF VOLUME (ACRE-FEET) = 1.28
 TOTAL CATCHMENT SOIL-LOSS VOLUME (ACRE-FEET) = 1.51

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	2.5	5.0	7.5	10.0
0.03	0.0000	0.00	Q	.	.	.	.
0.32	0.0028	0.23	Q	.	.	.	.
0.62	0.0084	0.23	Q	.	.	.	.
0.91	0.0141	0.24	Q	.	.	.	.
1.21	0.0199	0.24	Q	.	.	.	.
1.50	0.0258	0.24	Q	.	.	.	.
1.80	0.0317	0.24	Q	.	.	.	.
2.10	0.0377	0.25	Q	.	.	.	.
2.39	0.0438	0.25	Q	.	.	.	.

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

2.69	0.0499	0.25	.Q	.	.	.	.
2.98	0.0562	0.26	.Q	.	.	.	.
3.28	0.0625	0.26	.Q	.	.	.	.
3.58	0.0689	0.26	.Q	.	.	.	.
3.87	0.0755	0.27	.Q	.	.	.	.
4.17	0.0821	0.27	.Q	.	.	.	.
4.46	0.0888	0.28	.Q	.	.	.	.
4.76	0.0956	0.28	.Q	.	.	.	.
5.05	0.1026	0.29	.Q	.	.	.	.
5.35	0.1096	0.29	.Q	.	.	.	.
5.65	0.1168	0.30	.Q	.	.	.	.
5.94	0.1241	0.30	.Q	.	.	.	.
6.24	0.1316	0.31	.Q	.	.	.	.
6.53	0.1392	0.31	.Q	.	.	.	.
6.83	0.1469	0.32	.Q	.	.	.	.
7.12	0.1548	0.32	.Q	.	.	.	.
7.42	0.1628	0.33	.Q	.	.	.	.
7.72	0.1711	0.34	.Q	.	.	.	.
8.01	0.1795	0.35	.Q	.	.	.	.
8.31	0.1881	0.35	.Q	.	.	.	.
8.60	0.1969	0.37	.Q	.	.	.	.
8.90	0.2059	0.37	.Q	.	.	.	.
9.20	0.2152	0.39	.Q	.	.	.	.
9.49	0.2247	0.39	.Q	.	.	.	.
9.79	0.2344	0.41	.Q	.	.	.	.
10.08	0.2445	0.42	.Q	.	.	.	.
10.38	0.2549	0.43	.Q	.	.	.	.
10.68	0.2656	0.44	.Q	.	.	.	.
10.97	0.2766	0.46	.Q	.	.	.	.
11.27	0.2881	0.47	.Q	.	.	.	.
11.56	0.3000	0.50	.Q	.	.	.	.
11.86	0.3124	0.51	. Q	.	.	.	.
12.15	0.3259	0.59	. Q	.	.	.	.
12.45	0.3419	0.72	. Q	.	.	.	.
12.75	0.3601	0.76	. Q	.	.	.	.
13.04	0.3791	0.79	. Q	.	.	.	.
13.34	0.3990	0.84	. Q	.	.	.	.
13.63	0.4201	0.88	. Q	.	.	.	.
13.93	0.4424	0.95	. Q	.	.	.	.
14.23	0.4664	1.01	. Q	.	.	.	.
14.52	0.4932	1.18	. Q	.	.	.	.
14.82	0.5231	1.26	. Q	.	.	.	.
15.11	0.5564	1.47	. Q	.	.	.	.
15.41	0.5942	1.62	. Q	.	.	.	.
15.70	0.6312	1.40	. Q	.	.	.	.
16.00	0.6901	3.42	.	. Q	.	.	.
16.30	0.8403	8.87	.	.	. Q	.	.
16.59	0.9678	1.56	. Q	.	.	.	.
16.89	1.0033	1.35	. Q	.	.	.	.
17.18	1.0336	1.12	. Q	.	.	.	.
17.48	1.0584	0.91	. Q	.	.	.	.
17.77	1.0795	0.81	. Q	.	.	.	.
18.07	1.0986	0.74	. Q	.	.	.	.
18.37	1.1141	0.53	. Q	.	.	.	.
18.66	1.1265	0.49	.Q	.	.	.	.
18.96	1.1380	0.45	.Q	.	.	.	.
19.25	1.1487	0.42	.Q	.	.	.	.

19.55	1.1588	0.40	.Q	.	.	.	.
19.85	1.1683	0.38	.Q	.	.	.	.
20.14	1.1773	0.36	.Q	.	.	.	.
20.44	1.1859	0.34	.Q	.	.	.	.
20.73	1.1942	0.33	.Q	.	.	.	.
21.03	1.2020	0.32	.Q	.	.	.	.
21.33	1.2096	0.30	.Q	.	.	.	.
21.62	1.2170	0.29	.Q	.	.	.	.
21.92	1.2240	0.28	.Q	.	.	.	.
22.21	1.2308	0.28	.Q	.	.	.	.
22.51	1.2375	0.27	.Q	.	.	.	.
22.80	1.2439	0.26	.Q	.	.	.	.
23.10	1.2501	0.25	.Q	.	.	.	.
23.40	1.2562	0.25	Q	.	.	.	.
23.69	1.2622	0.24	Q	.	.	.	.
23.99	1.2679	0.23	Q	.	.	.	.
24.28	1.2736	0.23	Q	.	.	.	.
24.58	1.2764	0.00	Q	.	.	.	.

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%	1455.5
10%	230.8
20%	35.5
30%	35.5
40%	17.8
50%	17.8
60%	17.8
70%	17.8
80%	17.8
90%	17.8

 RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
 RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
 (RCFC&WCD) 1978 HYDROLOGY MANUAL
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 (Rational Tabling Version 23.0)
 Release Date: 07/01/2016 License ID 1533

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***** DESCRIPTION OF STUDY *****
 * 169801 - APN 316-110-005, 006, 022, 023, 024 *
 * PRE-DEVELOPMENT DRAINAGE STUDY *
 * 2-YEAR STORM EVENT *

FILE NAME: 169801PR.DAT
 TIME/DATE OF STUDY: 16:02 08/12/2019

 USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

USER SPECIFIED STORM EVENT (YEAR) = 2.00
 SPECIFIED MINIMUM PIPE SIZE (INCH) = 4.00
 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
 10-YEAR STORM 10-MINUTE INTENSITY (INCH/HOUR) = 2.010
 10-YEAR STORM 60-MINUTE INTENSITY (INCH/HOUR) = 0.820
 100-YEAR STORM 10-MINUTE INTENSITY (INCH/HOUR) = 2.940
 100-YEAR STORM 60-MINUTE INTENSITY (INCH/HOUR) = 1.200
 SLOPE OF 10-YEAR INTENSITY-DURATION CURVE = 0.5003939
 SLOPE OF 100-YEAR INTENSITY-DURATION CURVE = 0.5001161
 COMPUTED RAINFALL INTENSITY DATA:
 STORM EVENT = 2.00 1-HOUR INTENSITY (INCH/HOUR) = 0.554
 SLOPE OF INTENSITY DURATION CURVE = 0.5004
 RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
 NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
 AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
 USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF-	CROWN TO	STREET-CROSSFALL:			CURB	GUTTER-GEOMETRIES:		MANNING	
	WIDTH	CROSSFALL	IN-	/	OUT-/PARK-	HEIGHT	WIDTH	LIP		HIKE	FACTOR
	(FT)	(FT)	SIDE	/	SIDE/	WAY	(FT)	(FT)	(FT)	(n)
1	30.0	20.0	0.018/0.018/0.020			0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
 as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
 - (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
- *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN

OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

 FLOW PROCESS FROM NODE 1.00 TO NODE 2.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

=====

ASSUMED INITIAL SUBAREA UNIFORM
 DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
 $TC = K * [(LENGTH**3) / (ELEVATION CHANGE)]**.2$
 INITIAL SUBAREA FLOW-LENGTH(FEET) = 1125.00
 UPSTREAM ELEVATION(FEET) = 86.50
 DOWNSTREAM ELEVATION(FEET) = 80.00
 ELEVATION DIFFERENCE(FEET) = 6.50
 $TC = 0.533 * [(1125.00**3) / (6.50)]**.2 = 24.803$
 2 YEAR RAINFALL INTENSITY(INCH/HOUR) = 0.863
 UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5311
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) = 8.07
 TOTAL AREA(ACRES) = 17.62 TOTAL RUNOFF(CFS) = 8.07

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 17.6 TC(MIN.) = 24.80
 PEAK FLOW RATE(CFS) = 8.07

=====

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
(RCFC&WCD) 1978 HYDROLOGY MANUAL
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***** DESCRIPTION OF STUDY *****
* 169801 - APN 316-110-005, 006, 022, 023, 024 *
* POST-DEVELOPMENT DRAINAGE STUDY *
* 2-YEAR STORM EVENT *

FILE NAME: 169801PO.DAT
TIME/DATE OF STUDY: 14:54 01/27/2020

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

USER SPECIFIED STORM EVENT(YEAR) = 2.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 4.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.96
10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) = 2.010
10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) = 0.820
100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) = 2.940
100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) = 1.200
SLOPE OF 10-YEAR INTENSITY-DURATION CURVE = 0.5003939
SLOPE OF 100-YEAR INTENSITY-DURATION CURVE = 0.5001161

COMPUTED RAINFALL INTENSITY DATA:
STORM EVENT = 2.00 1-HOUR INTENSITY(INCH/HOUR) = 0.554
SLOPE OF INTENSITY DURATION CURVE = 0.5004

RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

Table with 9 columns: NO., HALF-WIDTH (FT), CROWN TO CROSSFALL (FT), STREET-CROSSFALL IN- / OUT- / SIDE / SIDE / WAY, CURB HEIGHT (FT), GUTTER WIDTH (FT), GUTTER LIP (FT), GUTTER HIKE (FT), MANNING FACTOR (n). Row 1: 1, 30.0, 20.0, 0.018/0.018/0.020, 0.67, 2.00, 0.0313, 0.167, 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

FLOW PROCESS FROM NODE 1.00 TO NODE 2.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

=====

ASSUMED INITIAL SUBAREA UNIFORM
DEVELOPMENT IS SINGLE FAMILY (1/4 ACRE)
TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) = 1310.00
UPSTREAM ELEVATION(FEET) = 87.00
DOWNSTREAM ELEVATION(FEET) = 75.10
ELEVATION DIFFERENCE(FEET) = 11.90
TC = 0.393*[(1310.00**3)/(11.90)]**.2 = 17.750
2 YEAR RAINFALL INTENSITY(INCH/HOUR) = 1.020
SINGLE-FAMILY(1/4 ACRE LOT) RUNOFF COEFFICIENT = .7335
SOIL CLASSIFICATION IS "C"
SUBAREA RUNOFF(CFS) = 7.46
TOTAL AREA(ACRES) = 9.97 TOTAL RUNOFF(CFS) = 7.46

FLOW PROCESS FROM NODE 3.00 TO NODE 4.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

=====

ASSUMED INITIAL SUBAREA UNIFORM
DEVELOPMENT IS SINGLE FAMILY (1/4 ACRE)
TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
INITIAL SUBAREA FLOW-LENGTH(FEET) = 1165.00
UPSTREAM ELEVATION(FEET) = 86.90
DOWNSTREAM ELEVATION(FEET) = 77.60
ELEVATION DIFFERENCE(FEET) = 9.30
TC = 0.393*[(1165.00**3)/(9.30)]**.2 = 17.380
2 YEAR RAINFALL INTENSITY(INCH/HOUR) = 1.031
SINGLE-FAMILY(1/4 ACRE LOT) RUNOFF COEFFICIENT = .7346
SOIL CLASSIFICATION IS "C"
SUBAREA RUNOFF(CFS) = 5.87
TOTAL AREA(ACRES) = 7.75 TOTAL RUNOFF(CFS) = 5.87

=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 7.8 TC(MIN.) = 17.38
PEAK FLOW RATE(CFS) = 5.87

END OF RATIONAL METHOD ANALYSIS

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

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.1 on 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
<input checked="" type="checkbox"/> A. On-site storm drain inlets	<input checked="" type="checkbox"/> Locations of inlets.	<input checked="" type="checkbox"/> 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.	<input type="checkbox"/> Maintain and periodically repaint or replace inlet markings. <input checked="" type="checkbox"/> Provide stormwater pollution prevention information to new site owners, lessees, or operators. <input checked="" type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com <input type="checkbox"/> 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.”
<input type="checkbox"/> B. Interior floor drains and elevator shaft sump pumps		<input type="checkbox"/> State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	<input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow.
<input type="checkbox"/> C. Interior parking garages		<input type="checkbox"/> State that parking garage floor drains will be plumbed to the sanitary sewer.	<input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow.

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
<input type="checkbox"/> D1. Need for future indoor & structural pest control		<input type="checkbox"/> Note building design features that discourage entry of pests.	<input type="checkbox"/> Provide Integrated Pest Management information to owners, lessees, and operators.
<input checked="" type="checkbox"/> D2. Landscape/ Outdoor Pesticide Use	<input type="checkbox"/> Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. <input type="checkbox"/> Show self-retaining landscape areas, if any. <input checked="" type="checkbox"/> 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. <input type="checkbox"/> Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. <input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. <input checked="" type="checkbox"/> 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.	<input checked="" type="checkbox"/> Maintain landscaping using minimum or no pesticides. <input checked="" type="checkbox"/> See applicable operational BMPs in “What you should know for.....Landscape and Gardening” at http://rcflood.org/stormwater/ <small>Error! Hyperlink reference not valid.</small> Provide IPM information to new owners, lessees and operators. <input checked="" type="checkbox"/>

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
<input checked="" type="checkbox"/> E. Pools, spas, ponds, decorative fountains, and other water features.	<input type="checkbox"/> 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.	<input checked="" type="checkbox"/> See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
<input type="checkbox"/> F. Food service	<input type="checkbox"/> 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. <input type="checkbox"/> On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	<input type="checkbox"/> Describe the location and features of the designated cleaning area. <input type="checkbox"/> Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	<input type="checkbox"/> 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.
<input type="checkbox"/> G. Refuse areas	<input type="checkbox"/> 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. <input type="checkbox"/> If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent runoff and show locations of berms to prevent runoff from the area. <input type="checkbox"/> Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	<input type="checkbox"/> State how site refuse will be handled and provide supporting detail to what is shown on plans. <input type="checkbox"/> State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	<input type="checkbox"/> 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

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
<input type="checkbox"/> H. Industrial processes.	<input type="checkbox"/> Show process area.	<input type="checkbox"/> 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.”	<input type="checkbox"/> 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://reflood.org/stormwater/

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
<input type="checkbox"/> I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)	<input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> 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.	<p>Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.</p> <p>Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for:</p> <ul style="list-style-type: none"> ▪ 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 <p>www.cchealth.org/groups/hazmat/</p>	<input type="checkbox"/> 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

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
<input type="checkbox"/> J. Vehicle and Equipment Cleaning	<input type="checkbox"/> 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.	<input type="checkbox"/> 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): <input type="checkbox"/> 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/ <input type="checkbox"/> Car dealerships and similar may rinse cars with water only.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

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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
<input type="checkbox"/> K. Vehicle/Equipment Repair and Maintenance	<input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> 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.	<input type="checkbox"/> State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. <input type="checkbox"/> 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. <input type="checkbox"/> 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.	<p>In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:</p> <input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> 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 & Car Care Best Management Practices for Auto 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/

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
<input type="checkbox"/> L. Fuel Dispensing Areas	<input type="checkbox"/> 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. <input type="checkbox"/> 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.		<input type="checkbox"/> The property owner shall dry sweep the fueling area routinely. <input type="checkbox"/> 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.

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
<input type="checkbox"/> M. Loading Docks	<input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		<input type="checkbox"/> Move loaded and unloaded items indoors as soon as possible. <input type="checkbox"/> See Fact Sheet SC-30, “Outdoor Loading and Unloading,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

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
<input type="checkbox"/> N. Fire Sprinkler Test Water		<input type="checkbox"/> Provide a means to drain fire sprinkler test water to the sanitary sewer.	<input type="checkbox"/> See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
<p>O. Miscellaneous Drain or Wash Water or Other Sources</p> <input type="checkbox"/> Boiler drain lines <input type="checkbox"/> Condensate drain lines <input type="checkbox"/> Rooftop equipment <input type="checkbox"/> Drainage sumps <input checked="" type="checkbox"/> Roofing, gutters, and trim. <input type="checkbox"/> Other sources		<input type="checkbox"/> Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. <input type="checkbox"/> 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. <input type="checkbox"/> Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. <input type="checkbox"/> Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. <input checked="" type="checkbox"/> 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.	

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
<input type="checkbox"/> P. Plazas, sidewalks, and parking lots.			<input type="checkbox"/> 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.

Appendix 9: O&M

Not applicable for Preliminary WQMP

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Site Design & Landscape Planning SD-10



Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Each project site possesses unique topographic, hydrologic, and vegetative features, some of which are more suitable for development than others. Integrating and incorporating appropriate landscape planning methodologies into the project design is the most effective action that can be done to minimize surface and groundwater contamination from stormwater.

Approach

Landscape planning should couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Design requirements for site design and landscapes planning should conform to applicable standards and specifications of agencies with jurisdiction and be consistent with applicable General Plan and Local Area Plan policies.



SD-10 Site Design & Landscape Planning

Designing New Installations

Begin the development of a plan for the landscape unit with attention to the following general principles:

- Formulate the plan on the basis of clearly articulated community goals. Carefully identify conflicts and choices between retaining and protecting desired resources and community growth.
- Map and assess land suitability for urban uses. Include the following landscape features in the assessment: wooded land, open unwooded land, steep slopes, erosion-prone soils, foundation suitability, soil suitability for waste disposal, aquifers, aquifer recharge areas, wetlands, floodplains, surface waters, agricultural lands, and various categories of urban land use. When appropriate, the assessment can highlight outstanding local or regional resources that the community determines should be protected (e.g., a scenic area, recreational area, threatened species habitat, farmland, fish run). Mapping and assessment should recognize not only these resources but also additional areas needed for their sustenance.

Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Conserve Natural Areas during Landscape Planning

If applicable, the following items are required and must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

- Cluster development on least-sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.
- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas.
- Preserve riparian areas and wetlands.

Maximize Natural Water Storage and Infiltration Opportunities Within the Landscape Unit

- Promote the conservation of forest cover. Building on land that is already deforested affects basin hydrology to a lesser extent than converting forested land. Loss of forest cover reduces interception storage, detention in the organic forest floor layer, and water losses by evapotranspiration, resulting in large peak runoff increases and either their negative effects or the expense of countering them with structural solutions.
- Maintain natural storage reservoirs and drainage corridors, including depressions, areas of permeable soils, swales, and intermittent streams. Develop and implement policies and

Site Design & Landscape Planning SD-10

regulations to discourage the clearing, filling, and channelization of these features. Utilize them in drainage networks in preference to pipes, culverts, and engineered ditches.

- Evaluating infiltration opportunities by referring to the stormwater management manual for the jurisdiction and pay particular attention to the selection criteria for avoiding groundwater contamination, poor soils, and hydrogeological conditions that cause these facilities to fail. If necessary, locate developments with large amounts of impervious surfaces or a potential to produce relatively contaminated runoff away from groundwater recharge areas.

Protection of Slopes and Channels during Landscape Design

- Convey runoff safely from the tops of slopes.
- Avoid disturbing steep or unstable slopes.
- Avoid disturbing natural channels.
- Stabilize disturbed slopes as quickly as possible.
- Vegetate slopes with native or drought tolerant vegetation.
- Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
- Stabilize temporary and permanent channel crossings as quickly as possible, and ensure that increases in run-off velocity and frequency caused by the project do not erode the channel.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.
- Line on-site conveyance channels where appropriate, to reduce erosion caused by increased flow velocity due to increases in tributary impervious area. The first choice for linings should be grass or some other vegetative surface, since these materials not only reduce runoff velocities, but also provide water quality benefits from filtration and infiltration. If velocities in the channel are high enough to erode grass or other vegetative linings, riprap, concrete, soil cement, or geo-grid stabilization are other alternatives.
- Consider other design principles that are comparable and equally effective.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

SD-10 Site Design & Landscape Planning

Redevelopment may present significant opportunity to add features which had not previously been implemented. Examples include incorporation of depressions, areas of permeable soils, and swales in newly redeveloped areas. While some site constraints may exist due to the status of already existing infrastructure, opportunities should not be missed to maximize infiltration, slow runoff, reduce impervious areas, disconnect directly connected impervious areas.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Stormwater Management Manual for Western Washington, Washington State Department of Ecology, August 2001.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Roof Runoff Controls

SD-11



Rain Garden

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Various roof runoff controls are available to address stormwater that drains off rooftops. The objective is to reduce the total volume and rate of runoff from individual lots, and retain the pollutants on site that may be picked up from roofing materials and atmospheric deposition. Roof runoff controls consist of directing the roof runoff away from paved areas and mitigating flow to the storm drain system through one of several general approaches: cisterns or rain barrels; dry wells or infiltration trenches; pop-up emitters, and foundation planting. The first three approaches require the roof runoff to be contained in a gutter and downspout system. Foundation planting provides a vegetated strip under the drip line of the roof.

Approach

Design of individual lots for single-family homes as well as lots for higher density residential and commercial structures should consider site design provisions for containing and infiltrating roof runoff or directing roof runoff to vegetative swales or buffer areas. Retained water can be reused for watering gardens, lawns, and trees. Benefits to the environment include reduced demand for potable water used for irrigation, improved stormwater quality, increased groundwater recharge, decreased runoff volume and peak flows, and decreased flooding potential.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Designing New Installations

Cisterns or Rain Barrels

One method of addressing roof runoff is to direct roof downspouts to cisterns or rain barrels. A cistern is an above ground storage vessel with either a manually operated valve or a permanently open outlet. Roof runoff is temporarily stored and then released for irrigation or infiltration between storms. The number of rain



SD-11

Roof Runoff Controls

barrels needed is a function of the rooftop area. Some low impact developers recommend that every house have at least 2 rain barrels, with a minimum storage capacity of 1000 liters. Roof barrels serve several purposes including mitigating the first flush from the roof which has a high volume, amount of contaminants, and thermal load. Several types of rain barrels are commercially available. Consideration must be given to selecting rain barrels that are vector proof and childproof. In addition, some barrels are designed with a bypass valve that filters out grit and other contaminants and routes overflow to a soak-away pit or rain garden.

If the cistern has an operable valve, the valve can be closed to store stormwater for irrigation or infiltration between storms. This system requires continual monitoring by the resident or grounds crews, but provides greater flexibility in water storage and metering. If a cistern is provided with an operable valve and water is stored inside for long periods, the cistern must be covered to prevent mosquitoes from breeding.

A cistern system with a permanently open outlet can also provide for metering stormwater runoff. If the cistern outlet is significantly smaller than the size of the downspout inlet (say $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter), runoff will build up inside the cistern during storms, and will empty out slowly after peak intensities subside. This is a feasible way to mitigate the peak flow increases caused by rooftop impervious land coverage, especially for the frequent, small storms.

Dry wells and Infiltration Trenches

Roof downspouts can be directed to dry wells or infiltration trenches. A dry well is constructed by excavating a hole in the ground and filling it with an open graded aggregate, and allowing the water to fill the dry well and infiltrate after the storm event. An underground connection from the downspout conveys water into the dry well, allowing it to be stored in the voids. To minimize sedimentation from lateral soil movement, the sides and top of the stone storage matrix can be wrapped in a permeable filter fabric, though the bottom may remain open. A perforated observation pipe can be inserted vertically into the dry well to allow for inspection and maintenance.

In practice, dry wells receiving runoff from single roof downspouts have been successful over long periods because they contain very little sediment. They must be sized according to the amount of rooftop runoff received, but are typically 4 to 5 feet square, and 2 to 3 feet deep, with a minimum of 1-foot soil cover over the top (maximum depth of 10 feet).

To protect the foundation, dry wells must be set away from the building at least 10 feet. They must be installed in solids that accommodate infiltration. In poorly drained soils, dry wells have very limited feasibility.

Infiltration trenches function in a similar manner and would be particularly effective for larger roof areas. An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. These are described under Treatment Controls.

Pop-up Drainage Emitter

Roof downspouts can be directed to an underground pipe that daylights some distance from the building foundation, releasing the roof runoff through a pop-up emitter. Similar to a pop-up irrigation head, the emitter only opens when there is flow from the roof. The emitter remains flush to the ground during dry periods, for ease of lawn or landscape maintenance.

Roof Runoff Controls

SD-11

Foundation Planting

Landscape planting can be provided around the base to allow increased opportunities for stormwater infiltration and protect the soil from erosion caused by concentrated sheet flow coming off the roof. Foundation plantings can reduce the physical impact of water on the soil and provide a subsurface matrix of roots that encourage infiltration. These plantings must be sturdy enough to tolerate the heavy runoff sheet flows, and periodic soil saturation.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

Supplemental Information

Examples

- City of Ottawa’s Water Links Surface –Water Quality Protection Program
- City of Toronto Downspout Disconnection Program
- City of Boston, MA, Rain Barrel Demonstration Program

Other Resources

Hager, Marty Catherine, Stormwater, “Low-Impact Development”, January/February 2003.
www.stormh2o.com

Low Impact Urban Design Tools, Low Impact Development Design Center, Beltsville, MD.
www.lid-stormwater.net

Start at the Source, Bay Area Stormwater Management Agencies Association, 1999 Edition

Efficient Irrigation

SD-12



Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Irrigation water provided to landscaped areas may result in excess irrigation water being conveyed into stormwater drainage systems.

Approach

Project plan designs for development and redevelopment should include application methods of irrigation water that minimize runoff of excess irrigation water into the stormwater conveyance system.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Designing New Installations

The following methods to reduce excessive irrigation runoff should be considered, and incorporated and implemented where determined applicable and feasible by the Permittee:

- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Design irrigation systems to each landscape area's specific water requirements.
- Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
- Implement landscape plans consistent with County or City water conservation resolutions, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.



SD-12

Efficient Irrigation

- Design timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water drainage system.
- Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider design features such as:
 - Using mulches (such as wood chips or bar) in planter areas without ground cover to minimize sediment in runoff
 - Installing appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant materials where possible and/or as recommended by the landscape architect
 - Leaving a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible
 - Choosing plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth
- Employ other comparable, equally effective methods to reduce irrigation water runoff.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Alternative Building Materials

SD-21



Design Objectives

- Maximize Infiltration
- Provide Retention
- Source Control
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutant
- Collect and Convey

Description

Alternative building materials are selected instead of conventional materials for new construction and renovation. These materials reduce potential sources of pollutants in stormwater runoff by eliminating compounds that can leach into runoff, reducing the need for pesticide application, reducing the need for painting and other maintenance, or by reducing the volume of runoff.

Approach

Alternative building materials are available for use as lumber for decking, roofing materials, home siding, and paving for driveways, decks, and sidewalks.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Designing New Installations

Decking

One of the most common materials for construction of decks and other outdoor construction has traditionally been pressure treated wood, which is now being phased out. The standard treatment is called CCA, for chromated copper arsenate. The key ingredients are arsenic (which kills termites, carpenter ants and other insects), copper (which kills the fungi that cause wood to rot) and chromium (which reacts with the other ingredients to bind them to the wood). The amount of arsenic is far from trivial. A deck just 8 feet x 10 feet contains more than 1 1/3 pounds of this highly potent poison. Replacement materials include a new type of pressure treated wood, plastic and composite lumber.



SD-21 Alternative Building Materials

There are currently over 20 products in the market consisting of plastic or plastic-wood composites. Plastic lumber is made from 100% recycled plastic, # 2 HDPE and polyethylene plastic milk jugs and soap bottles. Plastic-wood composites are a combination of plastic and wood fibers or sawdust. These materials are a long lasting exterior weather, insect, and chemical resistant wood lumber replacement for non structural applications. Use it for decks, docks, raised garden beds and planter boxes, pallets, hand railings, outdoor furniture, animal pens, boat decks, etc.

New pressure treated wood uses a much safer recipe, ACQ, which stands for ammoniacal copper quaternary. It contains no arsenic and no chromium. Yet the American Wood Preservers Association has found it to be just as effective as the standard formula. ACQ is common in Japan and Europe.

Roofing

Several studies have indicated that metal used as roofing material, flashing, or gutters can leach metals into the environment. The leaching occurs because rainfall is slightly acidic and slowly dissolved the exposed metals. Common traditional applications include copper sheathing and galvanized (zinc) gutters.

Coated metal products are available for both roofing and gutter applications. These products eliminate contact of bare metal with rainfall, eliminating one source of metals in runoff. There are also roofing materials made of recycled rubber and plastic that resemble traditional materials.

A less traditional approach is the use of green roofs. These roofs are not just green, they're alive. Planted with grasses and succulents, low- profile green roofs reduce the urban heat island effect, stormwater runoff, and cooling costs, while providing wildlife habitat and a connection to nature for building occupants. These roofs are widely used on industrial facilities in Europe and have been established as experimental installations in several locations in the US, including Portland, Oregon. Their feasibility is questionable in areas of California with prolonged, dry, hot weather.

Paved Areas

Traditionally, concrete is used for construction of patios, sidewalks, and driveways. Although it is non-toxic, these paved areas reduce stormwater infiltration and increase the volume and rate of runoff. This increase in the amount of runoff is the leading cause of stream channel degradation in urban areas.

There are a number of alternative materials that can be used in these applications, including porous concrete and asphalt, modular blocks, and crushed granite. These materials, especially modular paving blocks, are widely available and a well established method to reduce stormwater runoff.

Building Siding

Wood siding is commonly used on the exterior of residential construction. This material weathers fairly rapidly and requires repeated painting to prevent rotting. Alternative “new” products for this application include cement-fiber and vinyl. Cement-fiber siding is a masonry product made from Portland cement, sand, and cellulose and will not burn, cup, swell, or shrink.

Pesticide Reduction

A common use of powerful pesticides is for the control of termites. Chlordane was used for many years for this purpose and is now found in urban streams and lakes nationwide. There are a number of physical barriers that can be installed during construction to help reduce the use of pesticides.

Sand barriers for subterranean termites are a physical deterrent because the termites cannot tunnel through it. Sand barriers can be applied in crawl spaces under pier and beam foundations, under slab foundations, and between the foundation and concrete porches, terraces, patios and steps. Other possible locations include under fence posts, underground electrical cables, water and gas lines, telephone and electrical poles, inside hollow tile cells and against retaining walls.

Metal termite shields are physical barriers to termites which prevent them from building invisible tunnels. In reality, metal shields function as a helpful termite detection device, forcing them to build tunnels on the outside of the shields which are easily seen. Metal termite shields also help prevent dampness from wicking to adjoining wood members which can result in rot, thus making the material more attractive to termites and other pests. Metal flashing and metal plates can also be used as a barrier between piers and beams of structures such as decks, which are particularly vulnerable to termite attack.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

Other Resources

There are no good, independent, comprehensive sources of information on alternative building materials for use in minimizing the impacts of stormwater runoff. Most websites or other references to “green” or “alternative” building materials focus on indoor applications, such as formaldehyde free plywood and low VOC paints, carpets, and pads. Some supplemental information on alternative materials is available from the manufacturers.

Fires are a source of concern in many areas of California. Information on the flammability of alternative decking materials is available from the University of California Forest Product Laboratory (UCFPL) website at: <http://www.ucfpl.ucop.edu/WDDeckIntro.htm>

Bioretention

TC-32



Design Considerations

- Soil for Infiltration
- Tributary Area
- Slope
- Aesthetics
- Environmental Side-effects

Description

The bioretention best management practice (BMP) functions as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. These facilities normally consist of a grass buffer strip, sand bed, ponding area, organic layer or mulch layer, planting soil, and plants. The runoff's velocity is reduced by passing over or through buffer strip and subsequently distributed evenly along a ponding area. Exfiltration of the stored water in the bioretention area planting soil into the underlying soils occurs over a period of days.

California Experience

None documented. Bioretention has been used as a stormwater BMP since 1992. In addition to Prince George's County, MD and Alexandria, VA, bioretention has been used successfully at urban and suburban areas in Montgomery County, MD; Baltimore County, MD; Chesterfield County, VA; Prince William County, VA; Smith Mountain Lake State Park, VA; and Cary, NC.

Advantages

- Bioretention provides stormwater treatment that enhances the quality of downstream water bodies by temporarily storing runoff in the BMP and releasing it over a period of four days to the receiving water (EPA, 1999).
- The vegetation provides shade and wind breaks, absorbs noise, and improves an area's landscape.

Limitations

- The bioretention BMP is not recommended for areas with slopes greater than 20% or where mature tree removal would

Targeted Constituents

<input checked="" type="checkbox"/>	Sediment	■
<input checked="" type="checkbox"/>	Nutrients	▲
<input checked="" type="checkbox"/>	Trash	■
<input checked="" type="checkbox"/>	Metals	■
<input checked="" type="checkbox"/>	Bacteria	■
<input checked="" type="checkbox"/>	Oil and Grease	■
<input checked="" type="checkbox"/>	Organics	■

Legend (Removal Effectiveness)

- Low
- ▲ Medium
- High



be required since clogging may result, particularly if the BMP receives runoff with high sediment loads (EPA, 1999).

- Bioretention is not a suitable BMP at locations where the water table is within 6 feet of the ground surface and where the surrounding soil stratum is unstable.
- By design, bioretention BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water.
- In cold climates the soil may freeze, preventing runoff from infiltrating into the planting soil.

Design and Sizing Guidelines

- The bioretention area should be sized to capture the design storm runoff.
- In areas where the native soil permeability is less than 0.5 in/hr an underdrain should be provided.
- Recommended minimum dimensions are 15 feet by 40 feet, although the preferred width is 25 feet. Excavated depth should be 4 feet.
- Area should drain completely within 72 hours.
- Approximately 1 tree or shrub per 50 ft² of bioretention area should be included.
- Cover area with about 3 inches of mulch.

Construction/Inspection Considerations

Bioretention area should not be established until contributing watershed is stabilized.

Performance

Bioretention removes stormwater pollutants through physical and biological processes, including adsorption, filtration, plant uptake, microbial activity, decomposition, sedimentation and volatilization (EPA, 1999). Adsorption is the process whereby particulate pollutants attach to soil (e.g., clay) or vegetation surfaces. Adequate contact time between the surface and pollutant must be provided for in the design of the system for this removal process to occur. Thus, the infiltration rate of the soils must not exceed those specified in the design criteria or pollutant removal may decrease. Pollutants removed by adsorption include metals, phosphorus, and hydrocarbons. Filtration occurs as runoff passes through the bioretention area media, such as the sand bed, ground cover, and planting soil.

Common particulates removed from stormwater include particulate organic matter, phosphorus, and suspended solids. Biological processes that occur in wetlands result in pollutant uptake by plants and microorganisms in the soil. Plant growth is sustained by the uptake of nutrients from the soils, with woody plants locking up these nutrients through the seasons. Microbial activity within the soil also contributes to the removal of nitrogen and organic matter. Nitrogen is removed by nitrifying and denitrifying bacteria, while aerobic bacteria are responsible for the decomposition of the organic matter. Microbial processes require oxygen and can result in depleted oxygen levels if the bioretention area is not adequately

aerated. Sedimentation occurs in the swale or ponding area as the velocity slows and solids fall out of suspension.

The removal effectiveness of bioretention has been studied during field and laboratory studies conducted by the University of Maryland (Davis et al, 1998). During these experiments, synthetic stormwater runoff was pumped through several laboratory and field bioretention areas to simulate typical storm events in Prince George's County, MD. Removal rates for heavy metals and nutrients are shown in Table 1.

Pollutant	Removal Rate
Total Phosphorus	70-83%
Metals (Cu, Zn, Pb)	93-98%
TKN	68-80%
Total Suspended Solids	90%
Organics	90%
Bacteria	90%

Results for both the laboratory and field experiments were similar for each of the pollutants analyzed. Doubling or halving the influent pollutant levels had little effect on the effluent pollutants concentrations (Davis et al, 1998).

The microbial activity and plant uptake occurring in the bioretention area will likely result in higher removal rates than those determined for infiltration BMPs.

Siting Criteria

Bioretention BMPs are generally used to treat stormwater from impervious surfaces at commercial, residential, and industrial areas (EPA, 1999). Implementation of bioretention for stormwater management is ideal for median strips, parking lot islands, and swales. Moreover, the runoff in these areas can be designed to either divert directly into the bioretention area or convey into the bioretention area by a curb and gutter collection system.

The best location for bioretention areas is upland from inlets that receive sheet flow from graded areas and at areas that will be excavated (EPA, 1999). In order to maximize treatment effectiveness, the site must be graded in such a way that minimizes erosive conditions as sheet flow is conveyed to the treatment area. Locations where a bioretention area can be readily incorporated into the site plan without further environmental damage are preferred. Furthermore, to effectively minimize sediment loading in the treatment area, bioretention only should be used in stabilized drainage areas.

Additional Design Guidelines

The layout of the bioretention area is determined after site constraints such as location of utilities, underlying soils, existing vegetation, and drainage are considered (EPA, 1999). Sites with loamy sand soils are especially appropriate for bioretention because the excavated soil can be backfilled and used as the planting soil, thus eliminating the cost of importing planting soil.

The use of bioretention may not be feasible given an unstable surrounding soil stratum, soils with clay content greater than 25 percent, a site with slopes greater than 20 percent, and/or a site with mature trees that would be removed during construction of the BMP.

Bioretention can be designed to be off-line or on-line of the existing drainage system (EPA, 1999). The drainage area for a bioretention area should be between 0.1 and 0.4 hectares (0.25 and 1.0 acres). Larger drainage areas may require multiple bioretention areas. Furthermore, the maximum drainage area for a bioretention area is determined by the expected rainfall intensity and runoff rate. Stabilized areas may erode when velocities are greater than 5 feet per second (1.5 meter per second). The designer should determine the potential for erosive conditions at the site.

The size of the bioretention area, which is a function of the drainage area and the runoff generated from the area is sized to capture the water quality volume.

The recommended minimum dimensions of the bioretention area are 15 feet (4.6 meters) wide by 40 feet (12.2 meters) long, where the minimum width allows enough space for a dense, randomly-distributed area of trees and shrubs to become established. Thus replicating a natural forest and creating a microclimate, thereby enabling the bioretention area to tolerate the effects of heat stress, acid rain, runoff pollutants, and insect and disease infestations which landscaped areas in urban settings typically are unable to tolerate. The preferred width is 25 feet (7.6 meters), with a length of twice the width. Essentially, any facilities wider than 20 feet (6.1 meters) should be twice as long as they are wide, which promotes the distribution of flow and decreases the chances of concentrated flow.

In order to provide adequate storage and prevent water from standing for excessive periods of time the ponding depth of the bioretention area should not exceed 6 inches (15 centimeters). Water should not be left to stand for more than 72 hours. A restriction on the type of plants that can be used may be necessary due to some plants' water intolerance. Furthermore, if water is left standing for longer than 72 hours mosquitoes and other insects may start to breed.

The appropriate planting soil should be backfilled into the excavated bioretention area. Planting soils should be sandy loam, loamy sand, or loam texture with a clay content ranging from 10 to 25 percent.

Generally the soil should have infiltration rates greater than 0.5 inches (1.25 centimeters) per hour, which is typical of sandy loams, loamy sands, or loams. The pH of the soil should range between 5.5 and 6.5, where pollutants such as organic nitrogen and phosphorus can be adsorbed by the soil and microbial activity can flourish. Additional requirements for the planting soil include a 1.5 to 3 percent organic content and a maximum 500 ppm concentration of soluble salts.

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Soil tests should be performed for every 500 cubic yards (382 cubic meters) of planting soil, with the exception of pH and organic content tests, which are required only once per bioretention area (EPA, 1999). Planting soil should be 4 inches (10.1 centimeters) deeper than the bottom of the largest root ball and 4 feet (1.2 meters) altogether. This depth will provide adequate soil for the plants' root systems to become established, prevent plant damage due to severe wind, and provide adequate moisture capacity. Most sites will require excavation in order to obtain the recommended depth.

Planting soil depths of greater than 4 feet (1.2 meters) may require additional construction practices such as shoring measures (EPA, 1999). Planting soil should be placed in 18 inches or greater lifts and lightly compacted until the desired depth is reached. Since high canopy trees may be destroyed during maintenance the bioretention area should be vegetated to resemble a terrestrial forest community ecosystem that is dominated by understory trees. Three species each of both trees and shrubs are recommended to be planted at a rate of 2500 trees and shrubs per hectare (1000 per acre). For instance, a 15 foot (4.6 meter) by 40 foot (12.2 meter) bioretention area (600 square feet or 55.75 square meters) would require 14 trees and shrubs. The shrub-to-tree ratio should be 2:1 to 3:1.

Trees and shrubs should be planted when conditions are favorable. Vegetation should be watered at the end of each day for fourteen days following its planting. Plant species tolerant of pollutant loads and varying wet and dry conditions should be used in the bioretention area.

The designer should assess aesthetics, site layout, and maintenance requirements when selecting plant species. Adjacent non-native invasive species should be identified and the designer should take measures, such as providing a soil breach to eliminate the threat of these species invading the bioretention area. Regional landscaping manuals should be consulted to ensure that the planting of the bioretention area meets the landscaping requirements established by the local authorities. The designers should evaluate the best placement of vegetation within the bioretention area. Plants should be placed at irregular intervals to replicate a natural forest. Trees should be placed on the perimeter of the area to provide shade and shelter from the wind. Trees and shrubs can be sheltered from damaging flows if they are placed away from the path of the incoming runoff. In cold climates, species that are more tolerant to cold winds, such as evergreens, should be placed in windier areas of the site.

Following placement of the trees and shrubs, the ground cover and/or mulch should be established. Ground cover such as grasses or legumes can be planted at the beginning of the growing season. Mulch should be placed immediately after trees and shrubs are planted. Two to 3 inches (5 to 7.6 cm) of commercially-available fine shredded hardwood mulch or shredded hardwood chips should be applied to the bioretention area to protect from erosion.

Maintenance

The primary maintenance requirement for bioretention areas is that of inspection and repair or replacement of the treatment area's components. Generally, this involves nothing more than the routine periodic maintenance that is required of any landscaped area. Plants that are appropriate for the site, climatic, and watering conditions should be selected for use in the bioretention cell. Appropriately selected plants will aide in reducing fertilizer, pesticide, water, and overall maintenance requirements. Bioretention system components should blend over time through plant and root growth, organic decomposition, and the development of a natural

soil horizon. These biologic and physical processes over time will lengthen the facility's life span and reduce the need for extensive maintenance.

Routine maintenance should include a biannual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation (EPA, 1999). Diseased vegetation should be treated as needed using preventative and low-toxic measures to the extent possible. BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water. Routine inspections for areas of standing water within the BMP and corrective measures to restore proper infiltration rates are necessary to prevent creating mosquito and other vector habitat. In addition, bioretention BMPs are susceptible to invasion by aggressive plant species such as cattails, which increase the chances of water standing and subsequent vector production if not routinely maintained.

In order to maintain the treatment area's appearance it may be necessary to prune and weed. Furthermore, mulch replacement is suggested when erosion is evident or when the site begins to look unattractive. Specifically, the entire area may require mulch replacement every two to three years, although spot mulching may be sufficient when there are random void areas. Mulch replacement should be done prior to the start of the wet season.

New Jersey's Department of Environmental Protection states in their bioretention systems standards that accumulated sediment and debris removal (especially at the inflow point) will normally be the primary maintenance function. Other potential tasks include replacement of dead vegetation, soil pH regulation, erosion repair at inflow points, mulch replenishment, unclogging the underdrain, and repairing overflow structures. There is also the possibility that the cation exchange capacity of the soils in the cell will be significantly reduced over time. Depending on pollutant loads, soils may need to be replaced within 5-10 years of construction (LID, 2000).

Cost

Construction Cost

Construction cost estimates for a bioretention area are slightly greater than those for the required landscaping for a new development (EPA, 1999). A general rule of thumb (Coffman, 1999) is that residential bioretention areas average about \$3 to \$4 per square foot, depending on soil conditions and the density and types of plants used. Commercial, industrial and institutional site costs can range between \$10 to \$40 per square foot, based on the need for control structures, curbing, storm drains and underdrains.

Retrofitting a site typically costs more, averaging \$6,500 per bioretention area. The higher costs are attributed to the demolition of existing concrete, asphalt, and existing structures and the replacement of fill material with planting soil. The costs of retrofitting a commercial site in Maryland, Kettering Development, with 15 bioretention areas were estimated at \$111,600.

In any bioretention area design, the cost of plants varies substantially and can account for a significant portion of the expenditures. While these cost estimates are slightly greater than those of typical landscaping treatment (due to the increased number of plantings, additional soil excavation, backfill material, use of underdrains etc.), those landscaping expenses that would be required regardless of the bioretention installation should be subtracted when determining the net cost.

Perhaps of most importance, however, the cost savings compared to the use of traditional structural stormwater conveyance systems makes bioretention areas quite attractive financially. For example, the use of bioretention can decrease the cost required for constructing stormwater conveyance systems at a site. A medical office building in Maryland was able to reduce the amount of storm drain pipe that was needed from 800 to 230 feet - a cost savings of \$24,000 (PGDER, 1993). And a new residential development spent a total of approximately \$100,000 using bioretention cells on each lot instead of nearly \$400,000 for the traditional stormwater ponds that were originally planned (Rappahanock,). Also, in residential areas, stormwater management controls become a part of each property owner's landscape, reducing the public burden to maintain large centralized facilities.

Maintenance Cost

The operation and maintenance costs for a bioretention facility will be comparable to those of typical landscaping required for a site. Costs beyond the normal landscaping fees will include the cost for testing the soils and may include costs for a sand bed and planting soil.

References and Sources of Additional Information

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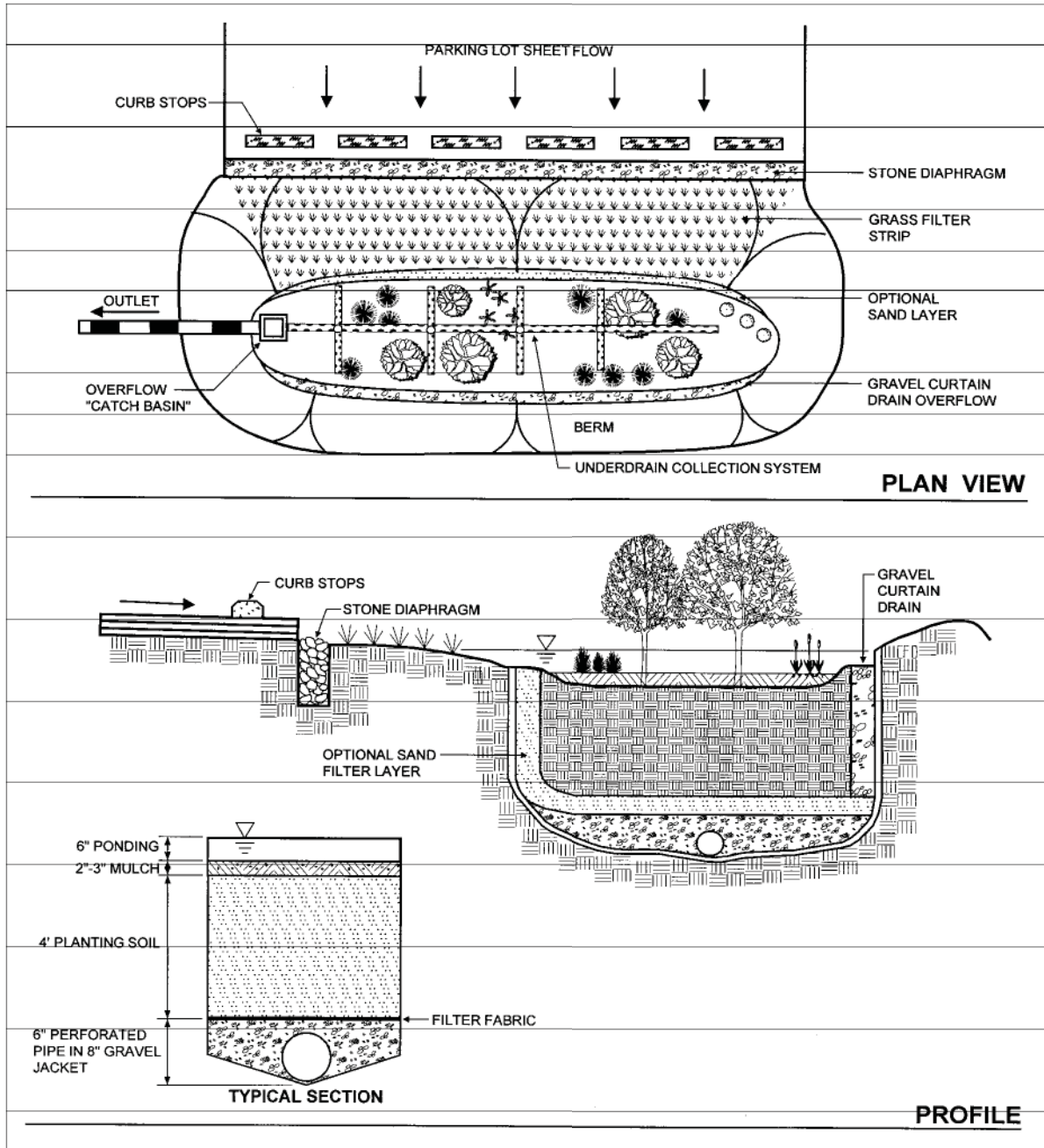
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Bioretention



Schematic of a Bioretention Facility (MDE, 2000)

Attachment: Exhibit A Initial Study Appendices (4089 : PEN19-0188 Tentative Tract Map 37725)

Drainage System Maintenance

SC-44



Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff and stormwater that may contain certain pollutants. The protocols in this fact sheet are intended to reduce pollutants reaching receiving waters through proper conveyance system operation and maintenance.

Approach

Pollution Prevention

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.

Suggested Protocols

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.
 - Stenciling of catch basins and inlets (see SC34 Waste Handling and Disposal).

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize

Targeted Constituents

Sediment	✓
Nutrients	
Trash	✓
Metals	
Bacteria	✓
Oil and Grease	
Organics	



SC-44 Drainage System Maintenance

- 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. 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 (emphasis added) state of any river, stream, or lake in California, must enter into a Stream or Lake Alteration Agreement with the Department of Fish and Game. 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 Federal Corps of Engineers and USFWS.

Illicit Connections and Discharges

- Look for evidence of illegal discharges or illicit connections during routine maintenance of conveyance system and drainage structures:
 - Is there evidence of spills such as paints, discoloring, etc?

Drainage System Maintenance

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- Are there any odors associated with the drainage system?
- Record locations of apparent illegal discharges/illicit connections?
- Track flows back to potential dischargers 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” 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.

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)
 - 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.

Training

- Train crews in proper maintenance activities, including record keeping and disposal.
- Allow only properly trained individuals to handle hazardous materials/wastes.
- 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).

SC-44 Drainage System Maintenance

- 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).

Spill Response and Prevention

- Investigate all reports of spills, leaks, and/or illegal dumping promptly.
- 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.
- Refer to fact sheet SC-11 Spill Prevention, Control, and Cleanup.

Other Considerations (Limitations and Regulations)

- 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.
- 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, liquid/sediment disposal, and prohibition against disposal of flushed effluent to sanitary sewer in some areas.
- Regulations may include adoption of substantial penalties for illegal dumping and disposal.
- Local municipal codes may include sections prohibiting discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.

Requirements

Costs

- An aggressive catch basin cleaning program could require a significant capital and O&M budget.
- The elimination of illegal dumping is dependent on the availability, convenience, and cost of alternative means of disposal. The primary cost is for staff time. Cost depends on how aggressively a program is implemented. Other cost considerations for an illegal dumping program include:
 - Purchase and installation of signs.
 - Rental of vehicle(s) to haul illegally-disposed items and material to landfills.
 - Rental of heavy equipment to remove larger items (e.g., car bodies) from channels.
 - Purchase of landfill space to dispose of illegally-dumped items and material.

- 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.

Maintenance

- Two-person teams may be required to clean catch basins with vacor 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.

Supplemental Information

Further Detail of the BMP

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 resuspension 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 or that fire hydrant line flushing coincide with storm sewer flushing.

SC-44 Drainage System Maintenance

References and Resources

California's Nonpoint Source Program Plan <http://www.swrcb.ca.gov/nps/index.html>

Clark County Storm Water Pollution Control Manual
<http://www.co.clark.wa.us/pubworks/bmpman.pdf>

Ferguson, B.K. 1991. Urban Stream Reclamation, p. 324-322, Journal of Soil and Water Conservation.

King County Storm Water Pollution Control Manual <http://dnr.metrokc.gov/wlr/dss/spcm.htm>

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program <http://www.scvurppp.org>

The Storm Water Managers Resource Center <http://www.stormwatercenter.net>

United States Environmental Protection Agency (USEPA). 2002. Pollution Prevention/Good Housekeeping for Municipal Operations Storm Drain System Cleaning. On line:
http://www.epa.gov/npdes/menuofbmps/poll_16.htm

City of Moreno Valley
Community Development Department

Mitigation Monitoring and Reporting Program for
the Krameria Avenue TTM 37725 Project

State Clearinghouse No. 2020060101
August 12, 2020

This document is designed for double-sided printing to conserve natural resources.

MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) identifies Mitigation Measures incorporated into the Krameria Avenue Tentative Tract Map (TTM) 37725 Project. For each Mitigation Measure, the MMRP identifies the potentially significant impact, the related mitigation measure, the implementation entity, the monitoring and verification entity, and timing requirements.

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Attachment: Exhibit B to 2020-38 MMRP [Revision 1] (4089 : PEN19-0188 Tentative Tract Map 37725)

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
<i>BIOLOGICAL RESOURCES</i>						
Potential Impacts on Nesting Birds.	BIO-1 Pre-Construction Burrowing Owl Survey. Burrowing owl pre-construction surveys shall be conducted within thirty (30) days prior to ground disturbance to avoid direct take of burrowing owls. Pre-construction surveys will follow the guidance outlined in Burrowing Owl Survey Instructions for the Western Riverside MSHCP (2006).	Project Proponent	Community Development Department	Prior to issuance of grading/site disturbance permits.		
Potential Impacts on Nesting Birds.	BIO-2 Pre-Construction Nesting Bird Survey. If vegetation removal is scheduled during the nesting season (typically February 1 to September 1), then a focused survey for active nests shall be conducted by a qualified biologist (as determined by a combination of academic training and professional experience in biological sciences and related resource management activities) no more than five (5) days prior to the beginning of project-related activities (including but not limited to equipment mobilization and staging, clearing, grubbing, vegetation removal, and grading). Surveys shall be conducted in proposed work areas, staging and storage areas, and soil, equipment, and material stockpile areas. For passerines and small raptors, surveys shall be conducted within a 250-foot radius surrounding the work area (in areas where access is feasible). For larger raptors, such as those from the genus <i>Buteo</i> ,	Project Proponent	Community Development Department	Prior to and throughout construction activities.		

Mitigation Monitoring and Reporting Program

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	<p>the survey area shall encompass a 500-foot radius. Surveys shall be conducted during weather conditions suited to maximize the observation of possible nests and shall concentrate on areas of suitable habitat. If a lapse in project-related work of five (5) days or longer occurs, an additional nest survey shall be required before work can be reinitiated. If nests are encountered during any preconstruction survey, a qualified biologist shall determine if it may be feasible for construction to continue as planned without impacting the success of the nest, depending on conditions specific to each nest and the relative location and rate of construction activities. If the qualified biologist determines construction activities have potential to adversely affect a nest, the biologist shall immediately inform the construction manager to halt construction activities within minimum exclusion buffer of 50 feet for songbird nests, and 200 to 500 feet for raptor nests, depending on species and location. Active nest(s) within the Project Site shall be monitored by a qualified biologist during construction if work is occurring directly adjacent to the established no-work buffer. Construction activities within the no-work buffer may proceed after a qualified biologist determines the nest is no longer active due to natural causes (e.g. young have fledged, predation, or other non-anthropogenic nest failure).</p>					

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		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
Potential Impacts on State or Federally Protected Wetlands.	BIO-3 Regulatory Agency Permits. A “No Permit Required Letter” shall be obtained from the United States Army Corps of Engineers (USACE) prior to ground disturbing activities. A Section 401 Water Quality Certification or Waste Discharge Requirement (WDR) shall be obtained from the Regional Water Quality Control Board (RWQCB) prior to ground disturbing activities. A Section 1602 Lake and Streambed Alteration Agreement (LSAA) shall be obtained from the California Department of Fish and Wildlife (CDFW) prior to ground-disturbing activities.	Project Proponent	Community Development Department	Prior to issuance of grading/site disturbance permits.		
Potential Impacts on MSHCP Riparian/Riverine Resources.	BIO-4 MSHCP Riparian/Riverine Resources. In order to mitigate impacts to onsite MSHCP riparian (0.010 ac) and riverine (0.108 ac) resources, the applicant shall purchase an equivalent, or superior level, of 0.118 acres of re-establishment credits at the Riverpark Mitigation Bank (1:1 mitigation ratio). Prior to issuance of grading/site disturbance permits, the applicant shall provide proof of the purchase of mitigation credits to the City of Moreno Valley Community Development Department.	Project Proponent	Community Development Department	Prior to issuance of grading/site disturbance permits.		
Potential Impacts on Stephen’s Kangaroo Rat.	BIO-5 SKR Fee Area. The Project Site is located within the Stephens’ kangaroo rat (SKR) HCP Fee Area which is administered by the RCHCA. The SKR Fee is established at \$500 per acre. Based on a Project site size of 20.18 acres, the applicant shall pay an SKR Fee in the amount of \$10,090.	Project Proponent	Community Development Department	Prior to issuance of grading/site disturbance permits.		

Mitigation Monitoring and Reporting Program

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		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
<i>CULTURAL RESOURCES</i>						
Adverse Change in the Significance of an Archaeological Resource.	<p>CUL-1 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 Assembly Bill 52 (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 California Public Resources Code Section 21080.3.2(b)(1) of AB52. Details in the CRMP shall include:</p> <ul style="list-style-type: none"> 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 	Project Proponent	Community Development Department	Prior to issuance of grading/site disturbance permits.		

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	<p>will conduct a mandatory Cultural Resources Worker Sensitivity Training for 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;</p> <p>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.</p>					

Mitigation Monitoring and Reporting Program

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
Adverse Change in the Significance of an Archaeological Resource.	CUL-2 Prior to the issuance of a grading permit, the Developer shall secure agreements with the Rincon Band of Luiseño Indians, 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.	Project Proponent	Community Development Department	Prior to issuance of grading/site disturbance permits.		
Adverse Change in the Significance of an Archaeological Resource.	CUL-3 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:	Project Proponent	Community Development Department	Throughout grading/site disturbance activities.		

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		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	<p>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 Department:</p> <ul style="list-style-type: none"> 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. 					
Adverse Change in the Significance of an Archaeological Resource.	CUL-4 The City shall verify that the following note is included on the Grading Plan:	Project Proponent	Community Development Department	Prior to issuance of grading/site disturbance permits.		

Mitigation Monitoring and Reporting Program

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	“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.”					
Adverse Change in the Significance of an Archaeological Resource.	CUL-5 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.	Project Proponent	Community Development Department	Throughout grading/site disturbance activities.		

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Potential Disturbance of Buried Human Remains.	CUL-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).	Project Proponent	Community Development Department	Throughout construction activities.		
GEOLOGY AND SOILS						
Adverse Change in the Significance of a Paleontological Resource.	GEO-1 Conduct Paleontological Sensitivity Training for Construction Personnel. The applicant shall retain a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology and shall conduct a paleontological sensitivity training for construction personnel prior to commencement of excavation activities. The training will include a handout and will focus on how to identify paleontological resources that may be encountered during earthmoving activities and the procedures to be followed in such an event, the duties of paleontological monitors, notification and other procedures to follow upon discovery of resources, and the general steps a	Project Proponent	Community Development Department	Prior to issuance of grading/site disturbance permits.		

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	qualified professional paleontologist would follow in conducting a salvage investigation if one is necessary.					
Adverse Change in the Significance of a Paleontological Resource.	GEO-2 Conduct Periodic Paleontological Spot Checks during Grading and Earth-moving Activities. The applicant shall retain a professional paleontologist who meets the qualifications set forth by the Society of Vertebrate Paleontology and shall conduct periodic Paleontological Spot Checks beginning at depths below six feet to determine if construction excavations have extended into older Quaternary deposits. After the initial paleontological spot check, further periodic checks will be conducted at the discretion of the qualified paleontologist. If the qualified paleontologist determines that construction excavations have extended into the older Quaternary deposits, construction monitoring for paleontological resources will be required. The applicant shall retain a qualified paleontological monitor, who will work under the guidance and direction of a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology. The paleontological monitor shall be present during all construction excavations (e.g., grading, trenching, or clearing/grubbing) into the older Pleistocene alluvial deposits. Multiple earth-moving construction activities may require multiple paleontological monitors. The frequency of monitoring shall be	Project Proponent	Community Development Department	Throughout grading/site disturbance activities.		

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	based on the rate of excavation and grading activities, proximity to known paleontological resources and/or unique geological features, the materials being excavated (native versus artificial fill soils), and the depth of excavation, and if found, the abundance and type of paleontological resources and/or unique geological features encountered. Full-time monitoring can be reduced to part-time inspections if determined adequate by the qualified professional paleontologist.					
Adverse Change in the Significance of a Paleontological Resource.	GEO-3 Cease Ground-Disturbing Activities and Implement Treatment Plan if Paleontological Resources Are Encountered. If paleontological resources and or unique geological features are unearthed during ground-disturbing activities, ground-disturbing activities shall be halted or diverted away from the vicinity of the find so that the find can be evaluated. A buffer area of at least 50 feet shall be established around the find where construction activities shall not be allowed to continue until appropriate paleontological treatment plan has been approved by the applicant and the County. Work shall be allowed to continue outside of the buffer area. The applicant and County shall coordinate with a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology, to develop an appropriate treatment plan for the resources. Treatment may include implementation of paleontological salvage	Project Proponent	Community Development Department	Throughout grading/site disturbance activities.		

Mitigation Monitoring and Reporting Program

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	excavations to remove the resource along with subsequent laboratory processing and analysis or preservation in place. At the paleontologist's discretion and to reduce construction delay, the grading and excavation contractor shall assist in removing rock samples for initial processing.					
Adverse Change in the Significance of a Paleontological Resource.	GEO-4 Prepare Report Upon Completion of Paleontological Monitoring or Salvage Services. Upon completion of monitoring and/or salvage activities (if required by Mitigation Measures GEO-2 or GEO-3), the professional paleontologist shall prepare a report summarizing the results of the monitoring and salvaging efforts, the methodology used in these efforts, as well as a description of the fossils collected and their significance. The report shall be submitted to the applicant, the City, the Natural History Museum of Los Angeles County, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the project and required mitigation measures.	Project Proponent	Community Development Department	Upon completion of Paleontological monitoring and salvage services.		
NOISE						
Generation of Substantial Temporary Increase in Ambient Noise During Construction.	NOI-1 The following measures are required to ensure that project-related short-term construction noise levels are reduced to less-than-significant levels. Prior to issuance of demolition permits, a noise mitigation plan verifying that compliance with the following measures would reduce construction noise to within the allowable levels of 60 dBA for	Project Proponent	Community Development Department	Throughout construction activities.		

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	<p>residential uses. Should construction noise exceed allowable levels after implementation of the following measures, the use of sound curtains or other noise barriers shall be required. The noise mitigation plan shall identify the type and location of sound curtains or other noise barriers to be utilized to reduce construction noise to within allowable levels.</p> <ul style="list-style-type: none"> • Stationary construction noise sources such as generators or pumps must be located at least 100 feet from sensitive land uses, as feasible, or at maximum distance when necessary to complete work near sensitive land uses. This mitigation measure must be implemented throughout construction and may be periodically monitored by a contracted noise monitor. Datasheets completed by the contracted construction noise monitor may be submitted to the Planning Official, or designee during routine inspections. • Construction staging areas must be located as far from noise sensitive land uses as feasible. This mitigation measure must be implemented throughout construction and may be periodically monitored by a contracted construction noise monitor, by the Planning Official or designee during routine inspections. • Throughout construction, the contractor shall ensure all construction equipment is equipped 					

Mitigation Monitoring and Reporting Program

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	<p>with included noise attenuating devices and are properly maintained. This mitigation measure shall be periodically monitored by a contracted construction noise monitor, the Planning Official, or designee during routine inspections.</p> <ul style="list-style-type: none"> • Idling equipment must be turned off when not in use. This mitigation measure may be periodically monitored by a contracted construction noise monitor the Planning Official, or designee during routine inspections. • Equipment must be maintained so that vehicles and their loads are secured from rattling and banging. This mitigation measure may be periodically monitored by a contracted construction noise monitor, the Planning Official, or designee during routine inspections. 					
TRIBAL CULTURAL RESOURCES						
Adverse Change in the Significance of a Tribal Cultural Resource.	<p>CUL-1 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</p>	Project Proponent	Community Development Department	Prior to issuance of grading/site disturbance permits.		

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	<p>consultation pursuant to Assembly Bill 52 (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 California Public Resources Code Section 21080.3.2(b)(1) of AB52. Details in the CRMP shall include:</p> <ul style="list-style-type: none"> 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 for 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 					

Mitigation Monitoring and Reporting Program

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	<p>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;</p> <p>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.</p>					
Adverse Change in the Significance of a Tribal Cultural Resource.	<p>CUL-2 Prior to the issuance of a grading permit, the Developer shall secure agreements with the Rincon Band of Luiseño Indians, 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</p>	Project Proponent	Community Development Department	Prior to issuance of grading/site disturbance permits.		

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	<p>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.</p>					
<p>Adverse Change in the Significance of a Tribal Cultural Resource.</p>	<p>CUL-3 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:</p> <p>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 Department:</p> <p>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.</p> <p>ii. Onsite reburial of the discovered items as detailed in the treatment plan required</p>	<p>Project Proponent</p>	<p>Community Development Department</p>	<p>Throughout grading/site disturbance activities.</p>		

Mitigation Monitoring and Reporting Program

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	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.					
Adverse Change in the Significance of a Tribal Cultural Resource.	<p>CUL-4 The City shall verify that the following note is included on the Grading Plan:</p> <p>"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."</p>	Project Proponent	Community Development Department	Prior to issuance of grading/site disturbance permits.		
Adverse Change in the Significance of a Tribal Cultural Resource.	<p>CUL-5 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,</p>	Project Proponent	Community Development Department	Throughout grading/site disturbance activities.		

Attachment: Exhibit B to 2020-38 MMRP [Revision 1] (4089 : PEN19-0188 Tentative Tract Map 37725)

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	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.					

Attachment: Exhibit B to 2020-38 MMRP [Revision 1] (4089 : PEN19-0188 Tentative Tract Map 37725)

PLANNING COMMISSION RESOLUTION NO. 2020-32

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY APPROVING TENTATIVE TRACT MAP 37725 (PEN19-0188) TO SUBDIVIDE APPROXIMATELY 20.18 ACRES INTO SIXTY-SIX SINGLE-FAMILY RESIDENTIAL LOTS AND TWO LETTERED LOTS FOR WATER QUALITY PURPOSES, FOR PROPERTY LOCATED AT THE SOUTHWEST CORNER OF KRAMERIA AVENUE AND PERRIS BOULEVARD (ASSESSOR PARCEL NUMBERS 316-110-005, 006, 022, 023, AND 024)

WHEREAS, the Applicant, PI Properties No. 67 LLC, has filed an application for the approval of Tentative Tract Map 37725, PEN19-0188, for the subdivision of a 20.18-acre site into sixty-six single family lots and two lettered lots, as described in the title above; and

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

WHEREAS, the City, in conducting its own independent analysis of the Initial Study, 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, upon completion of a thorough development review process the project was appropriately agendized and noticed for a public hearing before the Planning Commission of the City of Moreno Valley (Planning Commission); and

WHEREAS, the public hearing notice for this project was published in the local newspaper on August 28, 2020. Public notice was sent to all property owners of record within 600 feet of the project site on August 27, 2020. The public hearing notice for this project was also posted on the project site on August 28, 2020;

WHEREAS, on September 10, 2020, the Planning Commission held a public hearing to consider the application; 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, it is hereby found, determined and resolved by the Planning Commission of the City of Moreno Valley as follows:

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

B. Based upon substantial evidence presented to this Planning Commission during the above-referenced meeting on September 10, 2020, 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 map is consistent with applicable general and specific plans and the zoning ordinance;

FACT: General Plan Objective 2.2 states that it is the intent of the City 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 proposed project has a Residential land use designation that would allow for development of single family residences consistent with this objective.

The project site is located on the south side of Krameria Avenue at Perris Boulevard and has a Residential 5 (R5) General Plan land use designation and is currently zoned Residential 5 (R5) District. The project site is surrounded by existing single-family subdivisions within the Residential 5 (R5) District and Residential Single-Family 10 (RS10) District, and to the north across Perris Boulevard is a developed commercial center with a Community Commercial (CC) District.

The project is designed in accordance with the provisions of Chapter 9.03 Residential Districts, Section 9.16.130 Design Guidelines and Section 9.14 Land Divisions of the City's Municipal Code. The project as designed and conditioned would comply with all applicable zoning and other regulations.

The project as designed and conditioned will achieve the objectives of the City of Moreno Valley's General Plan. The proposed project is consistent with the General Plan and does not conflict with the goals, objectives, policies, and programs established within the Plan.

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

FACT: General Plan Objective 2.2 states that it is the intent of the City 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 proposed project has a residential land use designation that would allow for development of single family residences consistent with this objective.

The project as designed is consistent with City General Plan Policy 2.2.7, which states that 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 under this designation is 5.0 dwelling units per acre. The project proposes a density of 3.27 dwelling units per acre which is consistent with the site's General Plan land use designation. Therefore, the subdivision as designed and conditioned is consistent with existing goals, objectives, policies and programs of the General Plan.

3. That the site is physically suitable for the type of development;

FACT: The 20.18-acre project site has with fairly level topography and is vacant. The project site is well suited for the proposed subdivision.

4. That the site of the proposed land division is physically suitable for the proposed density of the development;

FACT: The project site is rectangular in shape and is comprised of fairly level topography, gently sloping to the south. The Tentative Tract Map is designed in accordance with the provisions of the City's Municipal Code Section 9.14 Land Divisions. The project site is physically suitable for the proposed density of the development.

5. That the design of the subdivision or the proposed improvements are not likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat;

FACT: An Initial Study was prepared for the project in compliance with the California Environmental Quality Act. Based on review of the project area, the site includes 0.118 acres of riparian and riverine resources which will be permanently impacted. To mitigate, the applicant will offset the impacts by purchasing 0.118 acres of credits at the Riverpark Mitigation Bank thereby re-establishing the biologically superior riparian/riverine resources. In addition, as a condition of approval, a preconstruction Burrowing Owl survey be conducted prior to any ground disturbance of the parcels created by this map. Based on the Initial Study, with mitigation, the Tentative Tract Map will not cause substantial impacts or environmental damage.

6. That the design of the subdivision or type of improvements is not likely to cause serious public health problems;

FACT: As conditioned, the proposed tract map would not cause public health problems. The Eastern Municipal Water District will provide water and sewer services to the project site. There are no known

hazardous conditions associated with the property, the design of the land division or the type of improvements.

The proposed tract map as designed and conditioned ensure acceptable levels of protection from natural and man-made hazards to life, health, and property and is therefore consistent with General Goal 9.6.1. The project site is located within approximately 2.0 miles from Fire Station No. 91, which is consistent with General Plan Goal 9.6.2 which requires emergency services that are adequate to meet minor emergency and major catastrophic situations.

The proposed tract map will not result in a development that would be inconsistent with General Plan Objective 6.1 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 secondary effects or General Plan Objective 6.2 to 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.

The tract map has been designed consistently with the City's Municipal Code Section 9.14 Land Divisions and meets all City requirements related to subdividing a property.

7. 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.

8. That the proposed land division is not subject the Williamson Act pursuant to the California Land Conservation Act of 1965.

FACT: The project site is not utilized for agricultural purposes and is not under Williamson Act Contract. Additionally, there are no existing surrounding agricultural use, or sites under Williamson Act contract within the City limits.

9. That the proposed land division and the associated design and improvements are not consistent with applicable ordinances of the city.

FACT: The land division proposed by Tentative Tract Map 37725 is consistent with the City's Municipal Code Section 9.14 Land Divisions. The subdivision as designed and conditioned is consistent with applicable ordinances of the city.

10. That the design of the land division provides, to the extent feasible, for future passive or natural heating and cooling opportunities in the subdivision.

FACT: The land division proposed by Tentative Tract Map 37725 is consistent with the City's Municipal Code Section 9.14 Land Divisions. The subdivision as designed allows for future building orientation to be such that passive or natural heating and cooling opportunities can be achieved.

11. That the effect of the proposed land division on the housing needs of the region were considered and balanced against the public service needs of the residents of Moreno Valley and available fiscal and environmental resources.

FACT: The project as designed is consistent with City General Plan Policy 2.2.7, which states that 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 under this designation is 5.0 dwelling units per acre. The project proposes a density of 3.27 dwelling units per acre which is consistent with the site's General Plan land use designation while providing additional housing which is needed both within the City of Moreno Valley and the region. Therefore, the subdivision as designed provides housing that is balance against public service needs consistent with existing goals, objectives, policies and programs of the General Plan.

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 Habitat Conservation 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 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 PEN19-0188, 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, reservations, 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, reservations, or other exactions of which a notice has been given similar to this, nor does it revive challenges to any fees for which the applicable statute of limitations has previously expired.

BE IT FURTHER RESOLVED that the Planning Commission **HEREBY APPROVES** Resolution No. 2020-32 and thereby:

1. **APPROVE** Tentative Tract Map 37725 (application PEN19-0188) based on the findings contained in this resolution, and subject to the attached conditions of approval included as Exhibit A.

APPROVED this 10th day of September 2020.

Patricia Korzec
Chairperson, Planning Commission

ATTEST:

APPROVED AS TO FORM:

Patty Nevins, Planning Official
Secretary to the Planning Commission

City Attorney

Attachments:

Exhibit A: Conditions of Approval

Attachment: Resolution 2020-32 Tentative Tract Map 37725 [Revision 2] (4089 : PEN19-0188 Tentative Tract Map 37725)

CONDITIONS OF APPROVAL

Tentative Tract Map (PEN19-0188)

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CITY OF MORENO VALLEY
 CONDITIONS OF APPROVAL
 Tentative Tract Map (PEN19-0188)

EFFECTIVE DATE:

EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT**Special Conditions**

1. Prior to building final, a basin maintained by an HOA or other private entity, landscape (trees, shrubs and groundcover) and irrigation shall be installed, and maintained by the HOA or other private entity with documentation provided to the Planning Division.
2. The site has been approved for Tentative Tract Map 37725, to subdivide approximately 20.18 acres into sixty-six (66) single-family residential lots and two (2) lettered lots for water quality treatment areas. Prior to issuance of a grading permit, a minor Variance shall be applied for and approved for the southerly perimeter wall, condition 31c. A change or modification shall require separate approval.
3. Prior to grading plan approval, Basin fencing shall include wrought iron fencing with pilasters
4. 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.
5. This approval shall comply with all applicable requirements of the City of Moreno Valley Municipal Code.
6. 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)
7. 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)
8. A drought tolerant landscape palette shall be utilized throughout the tract in compliance with the City's Landscape Requirements. (9.17)
9. Prior to the issuance of grading permits, final erosion control landscape and

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Tentative Tract Map (PEN19-0188)

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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)

10. Prior to recordation of the final map, final median enhancement/landscape/irrigation 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)
11. 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)
12. If potential historic, archaeological, Native American cultural resources, or paleontological 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 (36CFR61)) shall be consulted by the applicant to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, prehistoric, or paleontological 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 affected Native American Tribes before any further work commences in the affected area.

If human remains are discovered during grading and other construction excavation, no further disturbance shall occur 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 5-days 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).

13. All landscaped areas in perpetuity shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)

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14. 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.
15. 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)
16. 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.
17. 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)
18. 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.)
19. Prior to final map recordation, or building permit issuance, subdivision phasing (including any proposed common open space or improvement phasing, if applicable), shall be subject to a separate Phasing Plan submittal for Planning Division approval. Any proposed phasing shall provide for adequate vehicular access to all lots in each phase as determined by the City Transportation Engineer or designee and shall substantially conform to all intent and purpose of the subdivision approval. (MC 9.14.080)
20. 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.

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21. Prior to building final, all required and proposed fences and walls shall be constructed/installed per the approved plans on file in the Planning Division. (MC 9.080.070)
22. 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.
23. 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 37725.
24. Prior to approval of a precise grading plan, final front and street side yard landscape and irrigation plans shall be submitted to and approved by the Planning Division. The plans shall be prepared in accordance with the City's Municipal Code Landscape Requirements, and include required street trees.
25. Prior to issuance of grading permits, the developer shall pay the applicable Stephen's' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee.
26. Prior to building final, slope landscape and irrigation shall be installed, certified by the Landscape Architect with documentation provided to the Planning Division with an inspection performed and approved by the Planning Division. Landscaping on lots not yet having dwelling units shall be maintained by the developer weed and disease free. (MC 9.03.040)
27. 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

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Tentative Tract Map (PEN19-0188)

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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 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.

28. 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)
29. 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)
30. 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.
31. 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

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Tentative Tract Map (PEN19-0188)

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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 solid wall combined with view fencing will be required along the southerly property lines of the tract at the rear yard of lots 32-34 to address the grade change. Walls will be approximately nine (9') feet in height from the southerly side due to grade changes to include a four foot (4') retaining wall, with a maximum five foot (5') solid block wall topped by a one foot (1') tubular steel fence on top not to exceed nine feet (9') solid and ten feet (10') feet in overall height.

d. 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.

e. 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.)

f. All walls are subject to the approval of the Planning Official. (DC 9.08.070).

32. Parkway landscaping including street trees, site trees, shrubs and ground cover design and installation shall take into consideration the line-of site along Perris Boulevard for existing driveways to the south (west side of Perris Boulevard).
33. All site plans, grading plans, landscape and irrigation plans, and street improvement plans shall be coordinated for consistency with this approval.

Building Division

34. 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.
35. Contact the Building Safety Division for permit application submittal requirements.
36. Any construction within the city shall only be as follows: Monday through Friday seven a.m. to seven p.m.(except for holidays which occur on weekdays), eight a.m. to four p.m.; weekends and holidays (as observed by the city and described in the Moreno Valley Municipal Code Chapter 2.55), unless written approval is first obtained from the Building Official or City Engineer.
37. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.
38. The proposed development shall be subject to the payment of required development fees as required by the City's current Fee Ordinance at the time a building application is submitted or prior to the issuance of permits as determined by the City.
39. The proposed project will be subject to approval by the Eastern Municipal Water

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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.

40. 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.
41. 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.
42. 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).
43. 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**Fire Prevention Bureau**

44. 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)
45. 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 specifications. (CFC 509.1 and MVLT 440A-0 through MVLT 440C-0)
46. 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])
47. 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)

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48. 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)
49. Prior to issuance of Certificate of Occupancy or Building Final, all residential dwellings shall display street numbers in a prominent location on the street side of the residence in such a position that the numbers are easily visible to approaching emergency vehicles. The numbers shall be located consistently on each dwelling throughout the development. The numerals shall be no less than four (4) inches in height and shall be low voltage lighted fixtures. (CFC 505.1, MVMC 8.36.060[1])
50. Single Family Dwellings. Schedule "A" fire prevention approved standard fire hydrants (6" x 4" x 2 1/2") shall be located at each intersection of all residential streets. Hydrants shall be spaced no more than 500 feet apart in any direction so that no point on the street is more than 250 feet from a hydrant. Minimum fire flow shall be 1000 GPM for 1 hour duration of 20 PSI. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, serving one and two-family residential developments, standard fire hydrants shall be provided at spacing not to exceed 1000 feet along the tract boundary for transportation hazards. (CFC 507.3, Appendix B, MVMC 8.36.060).

FINANCIAL & MANAGEMENT SERVICES DEPARTMENT**Moreno Valley Utility**

51. 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.
52. 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

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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.

53. 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.
54. This project is subject to a Reimbursement Agreement. The Developer is responsible for a proportionate share of costs associated with electrical distribution infrastructure previously installed that directly benefits the project. Payment shall be required prior to issuance of building permits.

PUBLIC WORKS DEPARTMENT**Land Development**

55. Aggregate slurry, as defined in Section 203-5 of Standard Specifications for Public Works Construction, shall be required prior to 90% security reduction or the end of the one-year warranty period of the public streets as approved by 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.

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- Any existing striping shall be removed prior to slurry application and replaced per City standards.
56. 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]
 57. The final approved conditions of approval (COAs) issued and any applicable Mitigation Measures by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.
 58. 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.
 59. 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.
 60. 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)]
 61. 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,

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but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]

62. For single family residential subdivisions, all lots shall drain to the street at a minimum surface grade of 2.0% and on-site drainage shall be conveyed onto the street with subsurface drains at a minimum grade of 0.5% per current City Standards MVSI-152 and MVSI-153A. No cross-lot or over the sidewalk drainage shall be allowed.
63. 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, sewer/water, etc.) (prior to Map approval);
 - 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), etc.) (prior to Building Permit Issuance);
 - h. As-Built revision for all plans (prior to Occupancy release);
64. 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

65. Resolution of all drainage issues shall be as approved by the City Engineer.
66. 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

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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.

67. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity.
68. The final project-specific Water Quality Management Plan (WQMP) shall be consistent with the approved P-WQMP, as well as in full conformance with the document: "Water Quality Management Plan - A Guidance Document for the Santa Ana Region of Riverside County" dated October 22, 2012. The F-WQMP shall be submitted and approved prior to application for and issuance of grading permits. At a minimum, the F-WQMP shall include the following: Site Design BMPs; Source Control BMPs, Treatment Control BMPs, Operation and Maintenance requirements for BMPs and sources of funding for BMP implementation.
- a. The Applicant has proposed to incorporate the use of Bioretention. Final design and sizing details of all BMPs must be provided in the first submittal of the F-WQMP. The Applicant acknowledges that more area than currently shown on the plans may be required to treat site runoff as required by the WQMP guidance document.
- b. The Applicant shall substantiate the applicable Hydrologic Condition of Concerns (HCOC) in Section F of the F-WQMP, if applicable.
- c. All proposed LID BMP's shall be designed in accordance with the RCFC&WCD's Design Handbook for Low Impact Development Best Management Practices, dated September 2011.
- d. The proposed LID BMP's as identified in the project-specific P-WQMP shall be incorporated into the Final WQMP.
- e. The NPDES notes per City Standard Drawing No. MVFE-350-0 shall be included in the grading plans.
- f. Post-construction treatment control BMPs, once placed into operation for post-construction water quality control, shall not be used to treat runoff from construction sites or unstabilized areas of the site.
69. 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

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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.

70. 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.
71. The developer shall pay all remaining plan check fees.
72. Landscape & Irrigation plans (prepared by a registered/licensed landscape architect) for water quality BMPs shall be submitted for review and approved by the City Engineer per the current submittal requirements, if applicable.
73. 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.
74. 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.

Prior to Grading Permit

75. 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)]
76. 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.
77. Prior to the payment of the Development Impact Fee (DIF), the developer may enter into a DIF Improvement Credit Agreement to secure credit for the construction of applicable improvements. If the developer fails to complete this agreement prior to the timing specified above, credits may not be given. The developer shall pay current DIF fees adopted by the City Council. [Ord. 695 § 1.1 (part), 2005] [MC 3.38.030, 040, 050]

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78. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.
79. Security, in the form of a cash deposit (preferable), bond 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)]
80. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]
81. The developer shall pay all applicable inspection fees.

Prior to Map Approval

82. All proposed street names shall be submitted for review and approved by the City Engineer, if applicable. [MC 9.14.090(E.2.k)]
83. 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.
84. After recordation, a digital (pdf) copy of the recorded map shall be submitted to the Land Development Division.
85. Resolution of all drainage issues shall be as approved by the City Engineer.
86. 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]

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87. 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.
88. 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. Select one of the following options to 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.
 - i. Participate 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, or
 - ii. Establish an endowment to cover future maintenance costs for the Residential NPDES Regulatory Rate Schedule.
 - 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]
89. 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]
90. All public improvement plans required for this project shall be approved by the City Engineer in order to execute the Public Improvement Agreement (PIA).
91. 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.
92. Prior to map approval, the developer shall dedicate 30' of right-of-way on the easterly side of Tarano Lane along the project's frontage. In addition, dedicate 44' of right-of-way on the southerly side of Krameria Avenue along the project's

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frontage.

Prior to Improvement Plan Approval

93. 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.
94. The developer shall submit clearances from all applicable agencies, and pay all applicable plan check fees.
95. The street improvement plans shall comply with current City policies, plans and applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.
96. 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.
97. 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.
98. 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]
99. 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.
100. 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.

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101. 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 may be allowed for emergency repairs or as specifically approved in writing by the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.
102. 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.
103. The developer shall be required to construct a curb inlet catch basin at the southeast corner of Street 'E' and Krameria Avenue. The catch basin shall connect to the existing storm drain in Krameria Avenue.

Prior to Encroachment Permit

104. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.
105. All applicable inspection fees shall be paid.
106. 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 may be allowed for emergency repairs or as specifically approved in writing by the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.
107. Any work performed within public right-of-way requires an encroachment permit.
108. The developer shall coordinate and obtain an encroachment permit from the Riverside County Flood Control District for connection of the project's storm drain into their MDP line A-1 located in Northern Dancer Drive.

Prior to Building Permit

109. 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

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by the setting of “blue-top” markers installed by a registered land surveyor or licensed civil engineer.

110. For all subdivision projects, the map shall be recorded (excluding model homes). [MC 9.14.190]
111. 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 ADA 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.
112. 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).

Prior to Occupancy

113. All outstanding fees shall be paid.
114. 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.
115. The final/precise grade certification shall be submitted for review and approved by the City Engineer.
116. 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 (MVU: SL-2), 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]

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- f. Relocation of overhead electrical utility lines including, but not limited to: electrical, cable and telephone.
117. 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.
118. 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

119. NEW STREET LIGHT INSTALLATION FEES. Prior to the issuance of the first building permit for this project, the Developer shall pay New Street Light Installation 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.
120. Parkway, open space, and/or median landscaping specified in the project's Conditions of Approval shall be constructed in compliance with the City of Moreno Valley Public Works Design Guidelines and completed prior to the issuance of 25%

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- (or 16) of the dwelling permits for this tract or 12 months from the issuance of the first dwelling permit, whichever comes first. In cases where a phasing plan is submitted, the actual percentage of dwelling permits issued prior to the completion of the landscaping shall be subject to the review of the construction phasing plan.
121. For those areas to be maintained by the City and prior to the issuance of the first Building Permit, Planning Division (Community Development Department), Special Districts Division (the Public Works Department) and Transportation Division (the Public Works Department) shall review and approve the final median, parkway, slope, and/or open space landscape/irrigation plans as designated on the tentative map or in these Conditions of Approval prior to the issuance of the first Building Permit.
 122. The Developer, or the Developer's successors or assignees shall be responsible for all parkway and/or median landscape maintenance for a period of one (1) year commencing from the time all items of work have been completed to the satisfaction of Special Districts staff as per the City of Moreno Valley Public Works Department Landscape Design Guidelines, or until such time as the District accepts maintenance responsibilities.
 123. Parkway, median, slope and/or open space landscape areas maintained as part of the City of Moreno Valley Community Facilities District 2014-01 shall be required to have independent utility systems, including but not limited to water, electric, and telephone services. An independent irrigation controller and pedestal will also be required. Combining utility systems with existing or future landscape areas not associated with the City of Moreno Valley Community Facilities District (CFD) landscaping will not be permitted.
 124. 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)
 125. Plans for parkway, median, slope, and/or open space landscape areas designated in the project's Conditions of Approval for incorporation into a City Coordinated landscape maintenance program, shall be prepared and submitted in accordance with the City of Moreno Valley Public Works Department Landscape Design Guidelines. The guidelines are available on the City's website at www.moval.org/sd or from the Special Districts Division (951.413.3480 or specialdistricts@moval.org). *Note: Property owner to the south on Perris is concerned about Line of Sight. Take into consideration during design.
 126. In the event the City of Moreno Valley determines that funds authorized by any Proposition 218 mail ballot proceeding are insufficient to meet the costs for parkway, slope, and/or open space maintenance and utility charges, the City shall have the right, at its option, to terminate the grant of any or all parkway, slope, and/or

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open space maintenance easements. This power of termination, should it be exercised, shall be exercised in the manner provided by law to quit claim and abandon the property so conveyed to the District, and to revert to the Developer or the Developer's successors in interest, all rights, title, and interest in said parkway, slope, and/or open space areas, including but not limited to responsibility for perpetual maintenance of said areas.

127. Plan check fees for review of parkway/median landscape plans for improvements that shall be maintained by the City of Moreno Valley are due upon the first plan submittal. (MC 3.32.040)
128. 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.
129. 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.
130. 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.
131. 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

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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.

132. 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 Perris Blvd. and/or Krameria Ave.

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.

133. 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

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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 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.

134. Prior to the recordation of the final map, the Developer shall provide all necessary documents to convey to the City the required easements for parkway and/or slope maintenance as specified on the tentative map or in these Conditions of Approval.
135. Easements for reverse frontage parkway and slope landscape areas abutting Krameria Ave. shall be 6 ft. and areas abutting Perris Blvd. shall be 10 ft. or to top of parkway facing slope or to face of perimeter tract wall, whichever is greater. Easements shall be dedicated to the City of Moreno Valley for landscape maintenance purposes, and shall be depicted on the final map, and an offer of their dedication made thereon.
136. 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.)

CONDITIONS OF APPROVAL

Tentative Tract Map (PEN19-0188)

Page 24

137. 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.)
138. Landscape and irrigation plans for parkway, median, slope, and/or open space landscape areas designated to be maintained by the City shall be placed on compact disk (CD) in pdf format. The CD shall include "As Built" plans, revisions, and changes. The CD will become the property of the City of Moreno Valley and the Moreno Valley Community Services District.
139. MAJOR INFRASTRUCTURE FINANCING DISTRICT. This project has been identified to potentially be included in the formation of a special financing district for the construction and maintenance of major infrastructure improvements which may include but are not limited to thoroughfares, bridges, and certain flood control 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 or annexation into the district, the qualified elector(s) will not protest the formation or annexation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed and/or maintained. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org 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 minimum 90 day process in compliance with the provisions of Article 13C of the California Constitution.

Transportation Engineering Division

CONDITIONS OF APPROVAL

Tentative Tract Map (PEN19-0188)

Page 25

140. Perris Boulevard is designated as a 6-Lane Divided Arterial (110'RW/86'CC) per City Standard Plan No. MVSI-103C-0.
Per the General Plan, a raised landscaped median is planned along the project frontage on Perris Boulevard and this project will be required to construct the raised median. 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. During construction activity, developer is responsible for regularly scheduled street sweeping per approved street sweeping schedule. Failure to provide regularly scheduled street sweeping during construction activity at the approved times shall result in re inspection fees (amounts to be determined by City Engineer) and/or project suspension until street sweeping is provided.
142. Prior to the commencement of construction activity, construction traffic control plans prepared by a Registered Civil or Traffic Engineer may be required for plan approval or as required by the City Traffic Engineer.
143. Prior to final approval of any landscaping or monument sign plans, the project plans shall demonstrate that sight distance at the project driveways conforms to City Standard Plan No. MVSI-164A, B, C-0.
144. 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. Line of Sight shall be clearly identified for the following intersections: Krameria Avenue and Perris Boulevard, Krameria Avenue and Street "E", and Krameria Avenue and Tarano/Emma Lane.
145. 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 Krameria Avenue and Perris Boulevard.
146. Prior to the final approval of the street improvement plans, a traffic signal modification plan shall be prepared for the intersection of Krameria Avenue and Perris Boulevard. 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.
Signal modifications may include, but is not limited to, signal pole replacement or relocation, traffic loop detector relocation, new video detector installation, controller cabinet relocation, controller replacement, signing & striping, curb and gutter replacement, and ADA access ramp replacement. Specific modifications shall be determined during plan check review.
147. The 40-foot curb-to-curb width of Tarano Lane should be maintained along the project frontage to be consistent with the existing street cross section.

CONDITIONS OF APPROVAL

Tentative Tract Map (PEN19-0188)

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148. Prior to final inspection, a bus turnout shall be installed on the west side of Perris Boulevard, along the property frontage, in accordance with current City Standard Plan MVS1-161-0.
149. Prior to final inspection, the traffic signal modification at Krameria Avenue and Perris Boulevard shall be implemented and traffic signal shall be fully operational per the approved plans.
150. 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.
151. 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. MVS1-111A-0 for residential driveway approaches.
152. Tarano Lane shall be improved to provide a total of 40 feet from curb to curb, 20 feet from centerline to easterly curb face.

PARKS & COMMUNITY SERVICES DEPARTMENT

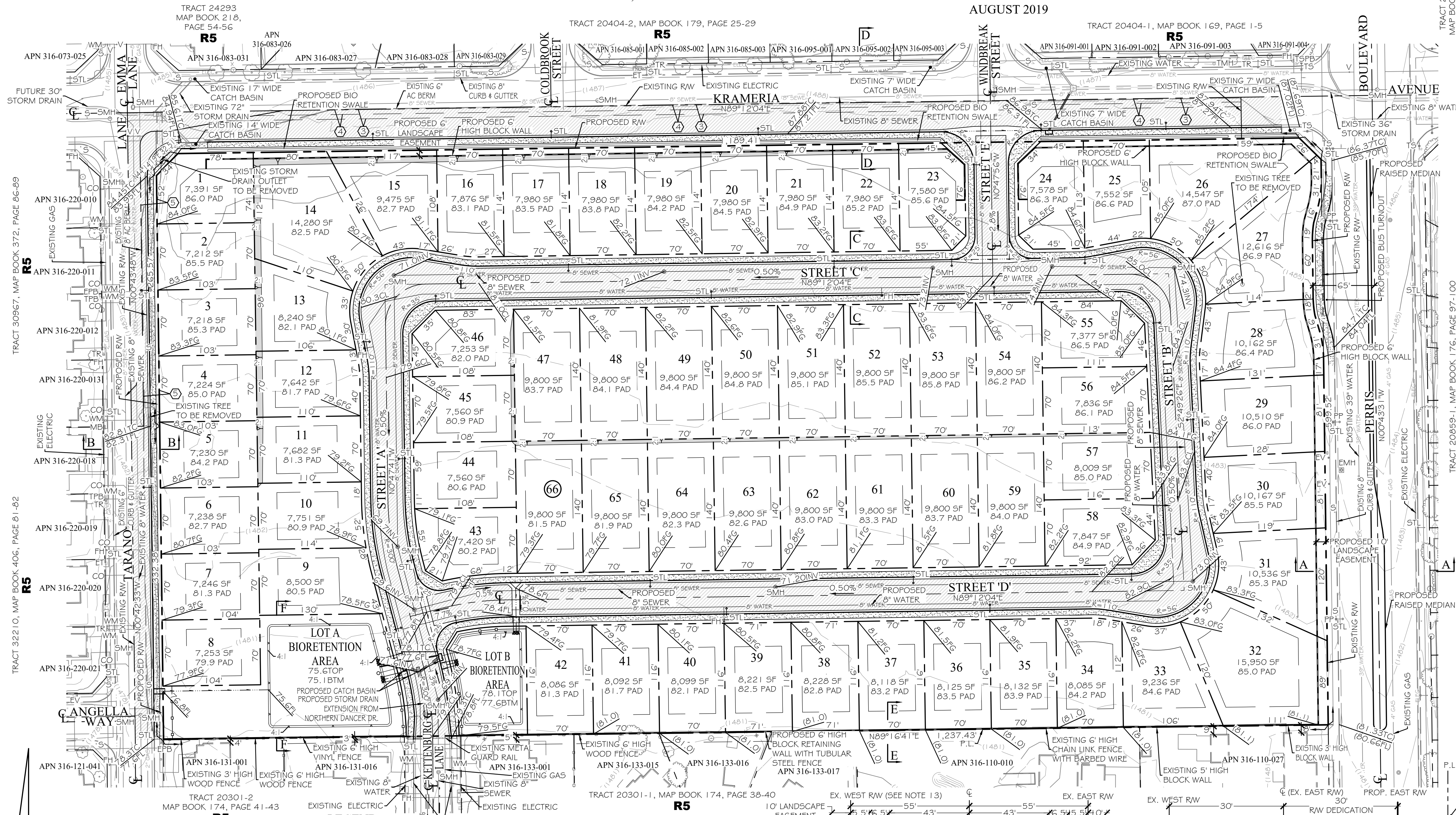
153. This project is subject to current Quimby Fees.

IN THE CITY OF MORENO VALLEY

TENTATIVE TRACT MAP NO. 37725

BEING A SUBDIVISION OF A PORTION OF LOT 17, IN BLOCKS 2 OF RIVERSIDE ALFALFA ACRES, AS SHOWN BY MAP ON FILE IN BOOK 8 PAGE 21 OF MAPS, RECORDS OF RIVERSIDE COUNTY CALIFORNIA

AUGUST 2019



LEGAL DESCRIPTION

THE LAND HEREINAFTER REFERRED TO IS SITUATED IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CA, AND IS DESCRIBED AS FOLLOWS:

PARCEL 1:
THE NORTH HALF OF THE NORTH HALF OF LOT 17 IN BLOCK 2 OF RIVERSIDE ALFALFA ACRES, AS SHOWN BY MAP ON FILE IN BOOK 8 PAGE 21 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 2:
THE SOUTH ONE HALF OF THE NORTH ONE HALF OF LOT 17, BLOCK 2 OF RIVERSIDE ALFALFA ACRES, AS SHOWN BY MAP ON FILE IN BOOK 8 PAGE 21 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 3:
THE SOUTH HALF OF LOT 17 IN BLOCK 2 OF RIVERSIDE ALFALFA ACRES, AS SHOWN BY MAP ON FILE IN BOOK 8 PAGE 21 OF MAPS, RECORDS OF RIVERSIDE COUNTY CALIFORNIA;

EXCEPTING THAT PORTION OF LAND CONVEYED TO THE CITY OF MORENO VALLEY BY DEED RECORDED AUGUST 24, 1992 AS INSTRUMENT NO. 315033.

EASEMENTS

- AN EASEMENT FOR ELECTRICAL SUPPLY SYSTEMS IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY, RECORDED APRIL 9, 1974, AS INSTRUMENT NO. 41210, OF OFFICIAL RECORDS.
THE LOCATION OF SAID EASEMENT LIES WITHIN PERRIS BOULEVARD RIGHT-OF-WAY.
- AN EASEMENT FOR ACCEPTANCE OF DRAINAGE WATER DISCHARGED FROM PERRIS BOULEVARD IN FAVOR OF THE CITY OF MORENO VALLEY, RECORDED MAY 19, 1987 AS INSTRUMENT NO. 140504, OF OFFICIAL RECORDS.
THE LOCATION OF SAID EASEMENT LIES WITHIN PERRIS BOULEVARD RIGHT-OF-WAY.
- AN EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SHOULDER AND SLOPE BANKS IN FAVOR OF OVERSEAS REALTY ENTERPRISES, INC. AND CITY OF MORENO VALLEY, RECORDED MAY 19, 1987 AS INSTRUMENT NO. 140505, OF OFFICIAL RECORDS.
- AN EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF SLOPE BANKS IN FAVOR OF OVERSEAS REALTY ENTERPRISES, INC. AND CITY OF MORENO VALLEY, RECORDED SEPTEMBER 29, 1987 AS INSTRUMENT NO. 281832, OF OFFICIAL RECORDS.
- AN EASEMENT FOR DRAINAGE IN FAVOR OF THE CITY OF MORENO VALLEY, RECORDED SEPTEMBER 29, 1987 AS INSTRUMENT NO. 281833, OF OFFICIAL RECORDS.
- AN EASEMENT FOR PUBLIC HIGHWAY PURPOSES, INCLUDING PUBLIC UTILITY AND PUBLIC SERVICE FACILITIES OVER, UNDER, UPON, AND ACROSS IN FAVOR OF THE CITY OF MORENO VALLEY, A MUNICIPAL CORPORATION, RECORDED AUGUST 24, 1992 AS INSTRUMENT NO. 315033, OF OFFICIAL RECORDS.
THE LOCATION OF SAID EASEMENT LIES WITHIN PERRIS BOULEVARD RIGHT-OF-WAY.

PROJECT NOTES

- ASSESSORS PARCEL NUMBERS: 316-110-005, 006, 022, 023, # 024
- GROSS AREA: 20.18 AC
EXISTING NET AREA: 19.08 AC
PROPOSED NET AREA: 17.59 AC
AREA OF DEDICATION: 1.49 AC
- EXISTING NUMBER OF LOTS: 5
- PROPOSED NUMBER OF LOTS: 66 SINGLE FAMILY LOTS, # 2 COMMON LETTERED LOTS
- DRAINAGE AND GRADING SHOWN ON THIS PLAN IS CONCEPTUAL ONLY.
- EXISTING/PROPOSED ZONING DESIGNATION: RS, SUBURBAN RESIDENTIAL.
- EXISTING USE: VACANT
- PROPOSED USE: SINGLE FAMILY RESIDENTIAL
- PROJECT SITE IS LOCATED WITHIN FEMA ZONE X: AREA OF MINIMAL FLOOD HAZARD PER MAP PANEL NO. 06065C075G, DATED AUGUST 28, 2008
- THE TENTATIVE TRACT MAP INCLUDES THE ENTIRE CONTIGUOUS OWNERSHIP OF THE LAND DIVIDER.
- NO EXISTING STRUCTURES ON SITE
- SLOPES GREATER THAN 2 FEET IN HEIGHT ARE SHOWN ON THIS PLAN.
- ADDITIONAL RW WILL BE DEDICATED ALONG PERRIS BOULEVARD TO ACCOMMODATE NEW BUS TURNOUT.
- ALL EXISTING FENCING ON ADJACENT PROPERTY TO REMAIN.
- ALL OVERHEAD UTILITIES SHALL BE UNDERGROUNDED PER CITY MUNICIPAL CODE.

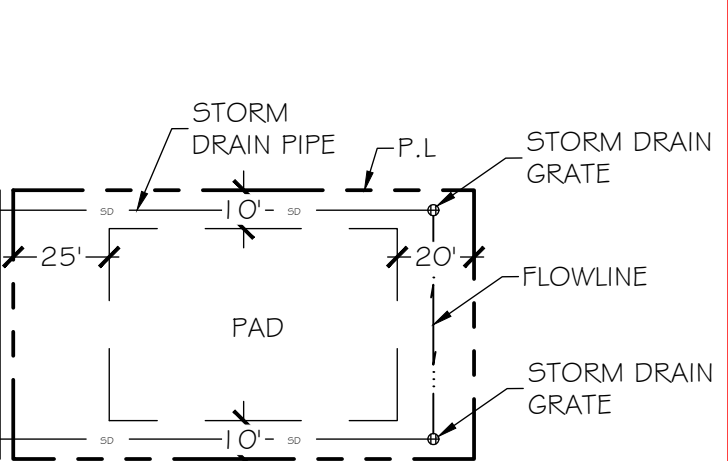
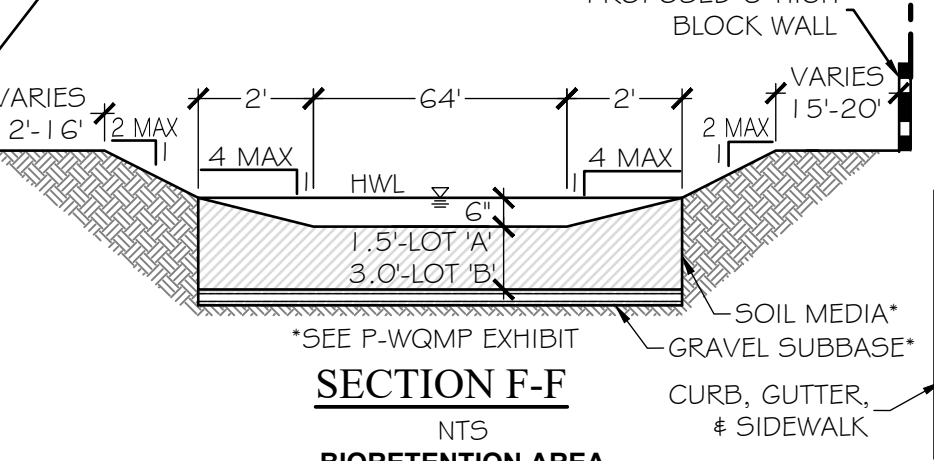
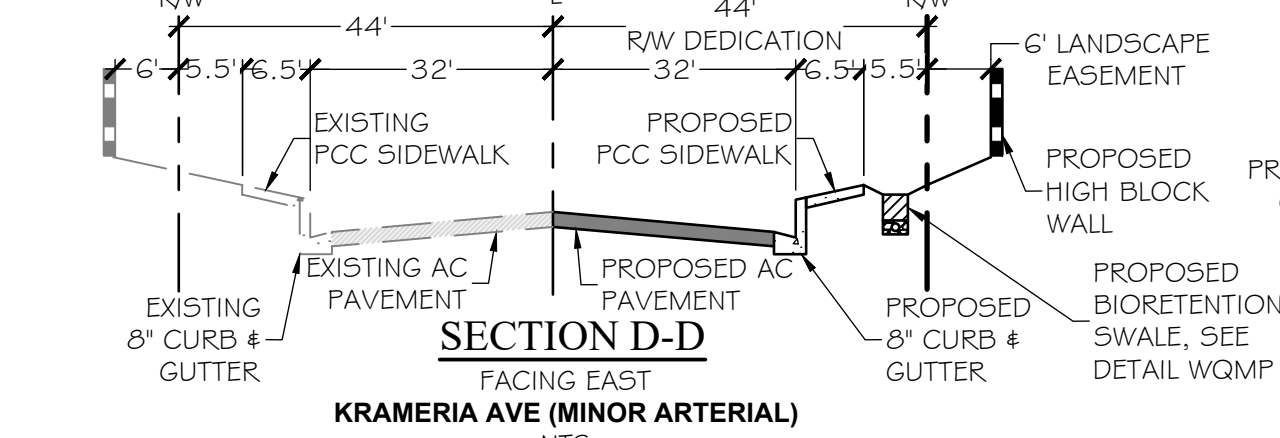
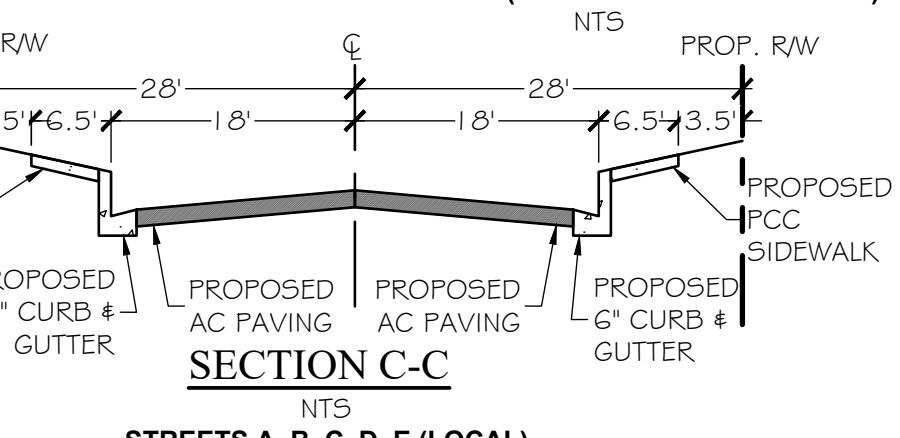
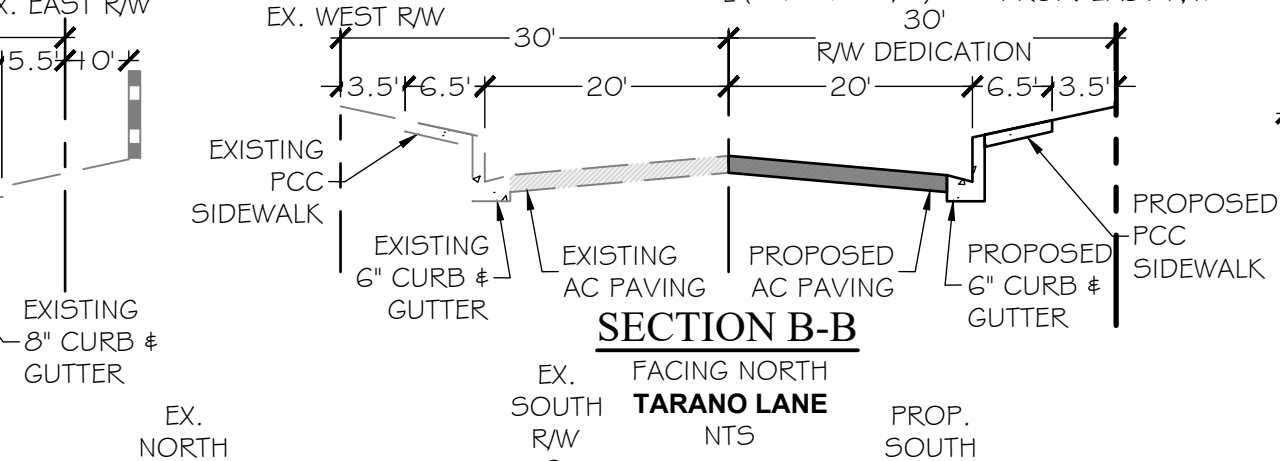
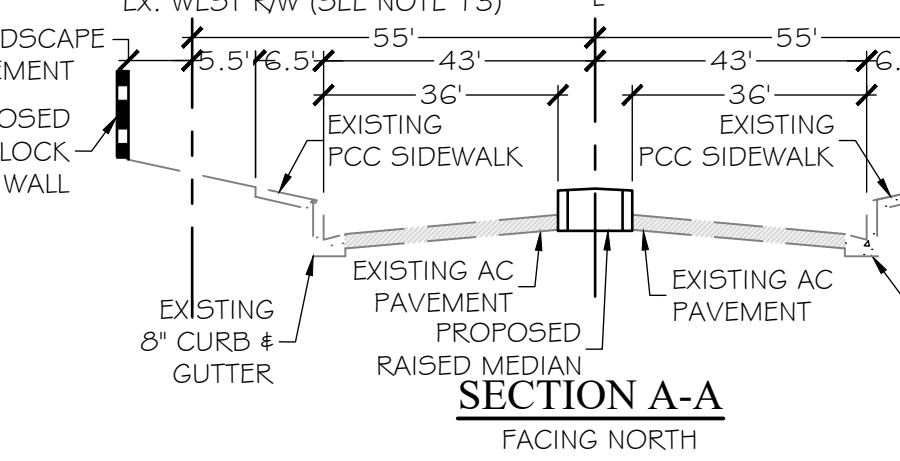
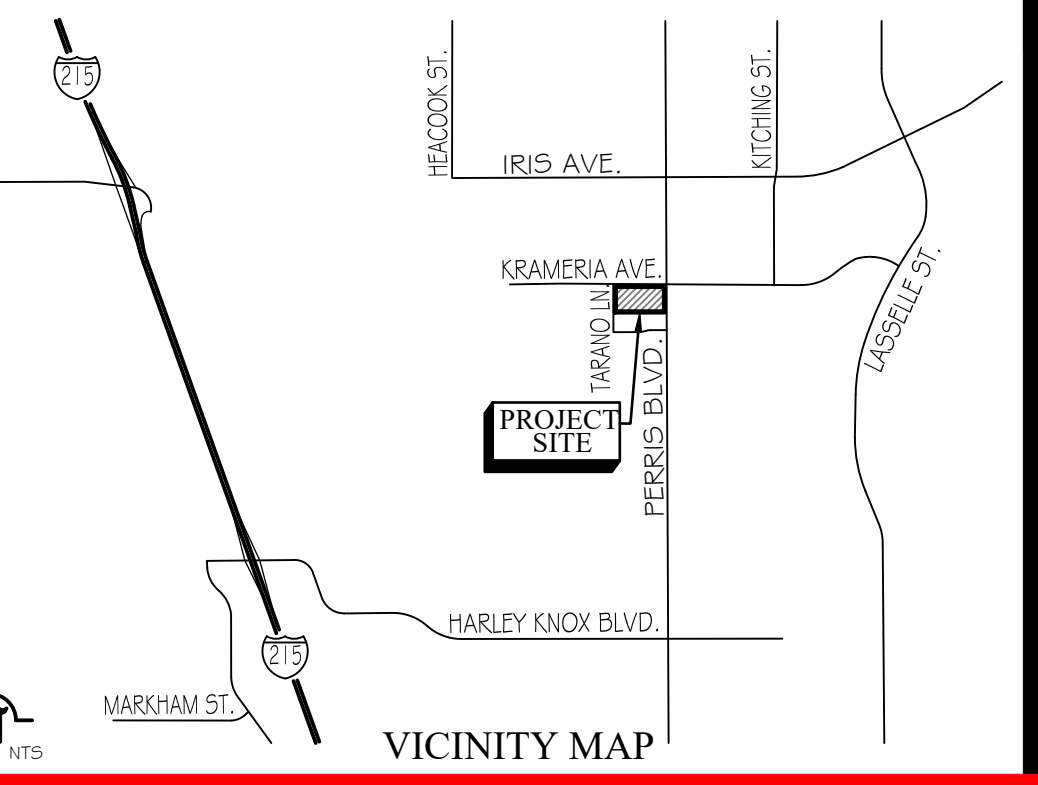
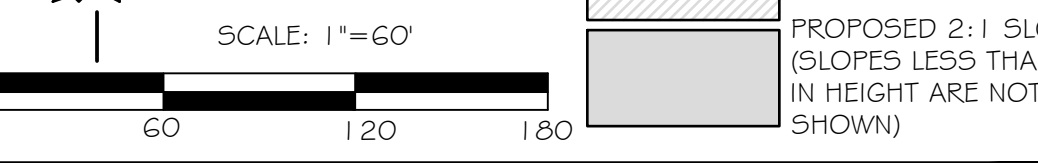
Project Description
The project proposes to subdivide 20.18 gross acres (19.08 net acres) into sixty-six (66) single-family residential lots ranging in size from 7,212 SF to 15,950 SF, and two lettered lots.

PRELIMINARY EARTHWORK QUANTITIES

CUT	20,800 CY (RAW/UNADJUSTED)
FILL	24,700 CY (ANTICIPATED IMPORT IS 9,000 CY AFTER LOSSES)

NOTE: THE PROPOSED GRADING ON THIS PLAN IS STRICTLY CONCEPTUAL AND SHOULD ONLY BE USED FOR PLANNING PURPOSES.

- LEGEND**
- CC COMMERCIAL
 - CO C/PB
 - ECAB ELECTRIC CABINET
 - EPB ELECTRIC PULL BOX
 - EMH ELECTRIC MANHOLE
 - ET ELECTRIC TRANSFORMER
 - EV ELECTRIC VENT
 - FH FIRE HYDRANT
 - MB MANHOLE
 - PCC PORTLAND CEMENT CONCRETE
 - P.L. PROPERTY LINE
 - R/W RIGHT-OF-WAY
 - RS SUBURBAN RESIDENTIAL
 - SD SIGN
 - SDM STORM DRAIN MANHOLE
 - SMH SEWER MANHOLE
 - STL STREET LIGHT
 - TMH TELEPHONE MANHOLE
 - TPB TELEPHONE PULL BOX
 - TR TELEPHONE RISER
 - TSPB TELEPHONE SIGNAL PULL BOX
 - TV TYPICAL
 - W VALVE
 - WM WATER METER
 - EXISTING PALM TREE
 - EXISTING TREE
 - EXISTING WALL
 - EXISTING CURB/GUTTER
 - EXISTING CONTOURS
 - EXISTING FLOWLINES
 - EXISTING CENTERLINE
 - EXISTING RW
 - EXISTING PROPERTY LINES
 - EXISTING BUILDING FOOTPRINT
 - EXISTING UTILITY LINE
 - EXISTING GAS
 - PROPOSED WALL
 - PROPOSED TUBULAR STEEL FENCE



SOIL ENGINEER
LOR GEOTECHNICAL GROUP, INC.
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507
AS CONDUCTED BY:
ONPOINT LAND SURVEYING, INC.
1910 ORANGE TREE LANE, SUITE 344
REDLANDS, CALIFORNIA 92374
PHONE: (951) 653-1760
FAX: (951) 653-1741

SOURCE OF SURVEY
TOPOGRAPHIC SURVEY
DATED DECEMBER 2018
AS CONDUCTED BY:
ONPOINT LAND SURVEYING, INC.
1910 ORANGE TREE LANE, SUITE 344
REDLANDS, CALIFORNIA 92374
PHONE: (909) 792-2221

BENCHMARK
CITY OF MORENO VALLEY M-31 SET 3-1/4" ALUMINUM DISK, STAMPED RIV.
GO SURVEYOR M-31 RESET APRIL 1996, FLUSH AT THE SW COR. OF
BRIDGE ON TOP OF SIDEWALK NEAR FACE OF CURB LOCATED AT THE
CROSSING OF PERRIS BLVD. AND RIV. CO. FLOOD CONTROL CHANNEL
(PERRIS LATERAL "A"), 43' W OF THE CENTERLINE OF PERRIS BLVD. & 4.5' E
OF CONCRETE BRIDGE BARRIER. (EDGE OF BRIDGE)
ELEVATION = 1474.674'

BASIS OF BEARING
CENTERLINE OF KRAMERIA STREET BETWEEN TARANO LN. AND PERRIS
BLVD. BEARING BEING N89°12'04"E PER TRACT NO. 20404-1 MB 1639/1-5.

OWNER/DEVELOPER/APPLICANT:
PI PROPERTIES NO. 67 LLC
CO: POSITIVE INVESTMENTS
ATTN: MR. MOHAN KONDRAGUNTA
610 NORTH SANTA ANITA AVENUE
ARCADIA, CA 91006
PHONE: (626) 321-4185

PLAN PREPARER:
thatcher engineering & associates, inc.
1461 Jrd Street, suite 105, redlands, ca 92373
• land planning
• civil engineering
• landscape architecture
phone 909.748.7777
fax 909.748.7776
EXP. 09/30/2020
REG. CIVIL ENGINEER
STATE OF CALIFORNIA

Patrick C. Flanagan, Jr., R.C.E. 06046 Exp. Sep 30, 2020
Job Number: 169801 Date Prepared: 5/13/20 Drawn By: RL Reference Number: 169801TTM4

Location Map



Legend

- Master Plan of Trails
- Bridge
 - Improved
 - Multiuse
 - Proposed
 - Regional
 - State
- Road Labels
- Parcels
 - City Boundary
 - Sphere of Influence

Image Source: Nearmap

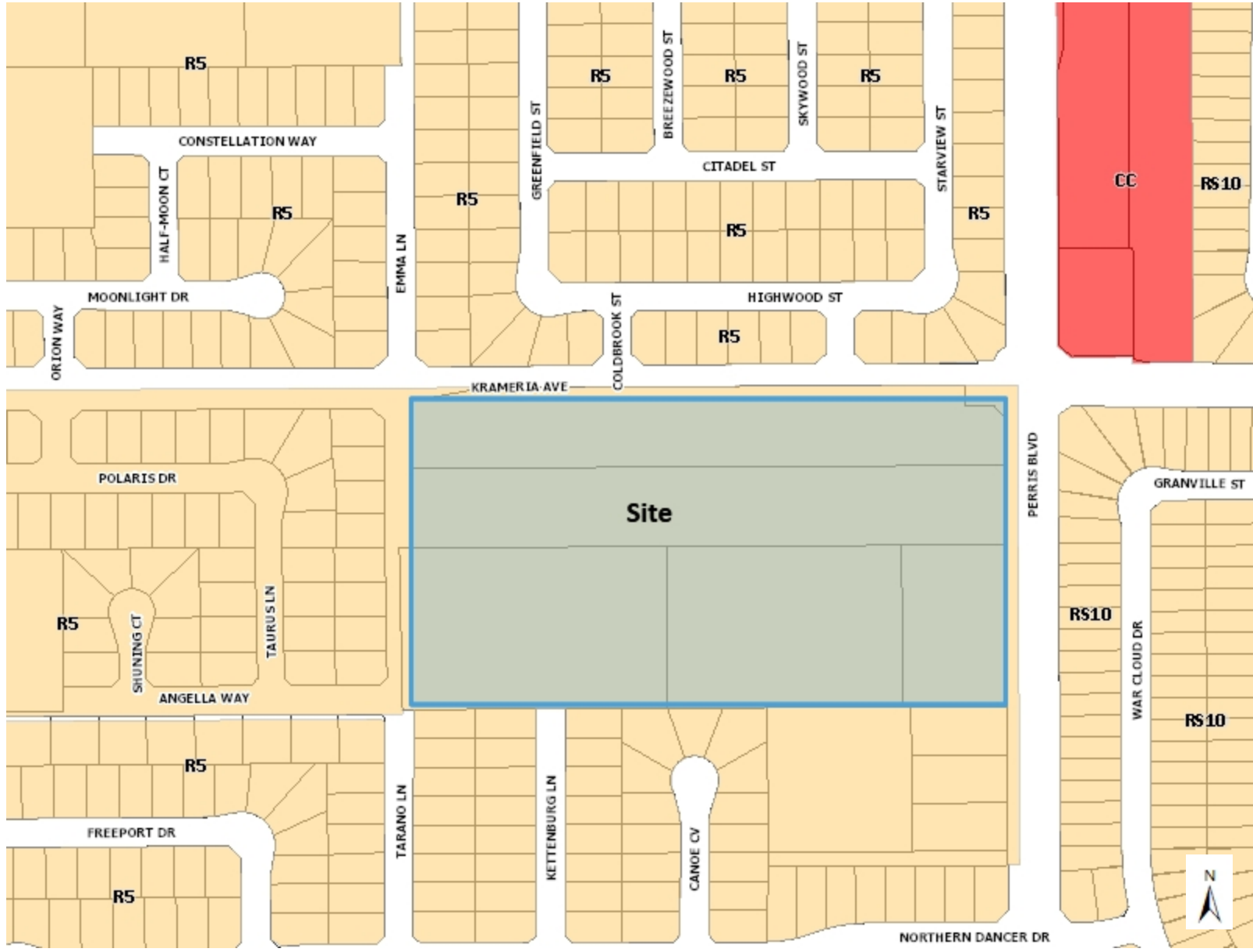
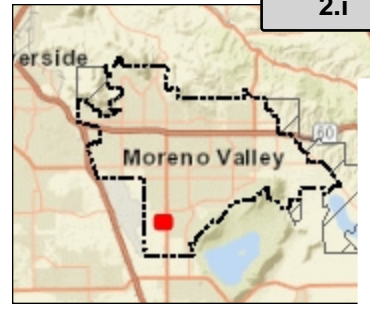
Notes:

631.0 0 315.48 631.0 Feet

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: Location Map (4089 : PEN19-0188 Tentative Tract Map 37725)

Zoning District R5



Legend

Zoning

- Commercial
- Industrial/Business Park
- Public Facilities
- Office
- Planned Development
- Large Lot Residential
- Residential Agriculture 2 DU/AC
- Residential 2 DU/AC
- Suburban Residential
- Multi-family
- Open Space/Park

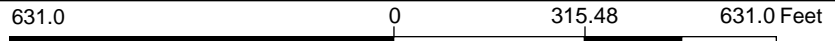
Master Plan of Trails

- Bridge
- Improved
- Multiuse
- Proposed
- Regional
- State

Road Labels

- Parcels
- City Boundary
- Sphere of Influence

Attachment: Zoning Map (4089 : PEN19-0188 Tentative Tract Map 37725)



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Notes:



City of Moreno Valley
Community Development Department
Planning Division
City Hall Council Chamber
14177 Frederick Street
Moreno Valley, CA 92553

NOTICE OF PUBLIC HEARING (VIA TELECONFERENCE ONLY)

PURSUANT TO COVID-19 GOVERNOR EXECUTIVE ORDER N-29-20



Notice of Teleconferenced Public Hearing before the Planning Commission of the City of Moreno Valley:

DATE & TIME: September 10, 2020 at 7:00 P.M. **VIA TELECONFERENCE ONLY**

COVID-19 TELECONFERENCE INSTRUCTIONS:

For Teleconference Meeting public participation instructions, please agenda at <http://morenovalleyca.ig2.com/Citizens/default.aspx>

PROJECT LOCATION: Southwest corner of Perris Boulevard and Krameria Avenue. APN's 316-110-005, 006, 022, 023, & 024

CASE NUMBER(s): PEN19-0188

CASE PLANNER: Julia Descoteaux, Associate Planner (951) 413 3209
juliad@moval.org

- <APN>
- <Property Owner>
- <Street Address>
- <City, State, Zip>

Attachment: Hearing Notice (4089 : PEN19-0188 Tentative

NOTICE OF PUBLIC HEARING

2.j

PROPOSAL: Tentative Tract Map 37725 subdividing 20.18 acres into sixty-six single-family residential lots and two (2) lettered lots for water quality treatment facilities. The project is in the Residential 5 (R5) zoning district.

ENVIRONMENTAL DETERMINATION: The project has been evaluated against criteria set forth in the California Environmental Quality Act (CEQA) Guidelines Section 15070 and has determined that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because mitigation measures have been required of the project that will reduce potential impacts to a less than significant level. A Draft Initial Study was circulated to the public (including interested parties/responsible agencies) for review from June 3, 2020 ending July 2, 2020. The final document is available online at www.moval.org. Therefore, a Mitigated Negative Declaration is recommended for the project.

PUBLIC HEARING: All interested parties will be provided an opportunity to submit oral testimony during the teleconferenced Public Hearing and/or provide written testimony during or prior to the teleconferenced Public Hearing. The application file and related environmental documents may be inspected by appointment at the Community Development Department at 14177 Frederick Street, Moreno Valley, California by calling (951) 413-3206 during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday and 7:30 a.m. to 4:30 p.m. on Fridays).

COVID-19 – IMPORTANT NOTICES: Please note that due to the COVID-19 pandemic situation, staff will attempt to make reasonable arrangements to ensure accessibility to inspect the aforementioned records. **In addition, special instructions on how to effectively participate in the teleconferenced Public Hearing, as approved by Governor Executive Order N-25-20, will be posted at <http://morenovalleyca.igm2.com/Citizens/default.aspx> and will be described in the Planning Commission agenda.**

PLEASE NOTE: The Planning Commission may consider and approve changes to the proposed items under consideration during the teleconferenced Public Hearing.

GOVERNMENT CODE § 65009 NOTICE: If you challenge any of the proposed actions taken by the Planning Commission in court, you may be limited to raising only those issues you or someone else raised during the teleconferenced Public Hearing described in this notice, or in written correspondence delivered to the Planning Division of the City of Moreno Valley during or prior to, the teleconferenced Public Hearing.

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.