



Draft Initial Study/Mitigated Negative  
Declaration for the Steeplechase and  
Kalmia Booster Pump Station  
Moreno Valley, California

Prepared for  
Eastern Municipal Water District  
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### APPENDICES (Under Separate Cover)

A:	Geotechnical Investigation Report – Booster Pump Station, Converse Consultants
B:	Air Quality CalEEMod Emission Calculation Output, RECON Environmental, Inc.
C:	Biological Resources Constraints Survey, RECON Environmental, Inc.
D:	Habitat Assessment and Burrowing Owl Focused Survey Results, RECON Environmental, Inc.
E:	Cultural Resources Constraints Survey, RECON Environmental, Inc.
F:	Geotechnical Investigation Report - Pipeline, Converse Consultants
G:	Noise CalEEMod Emission Calculation, RECON Environmental, Inc.

# 1.0 Introduction

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared in accordance with relevant provisions of the California Environmental Quality Act (CEQA) of 1970, as amended, and the CEQA Guidelines, as revised. This IS/MND evaluates the environmental effects of the proposed Steeplechase and Kalmia Booster Pump Station (BPS) Project (proposed project).

The IS/MND includes the following components:

- A Draft MND and the formal findings made by the Eastern Municipal Water District (District or EMWD) that the proposed project would not result in any significant effects on the environment, as identified in the CEQA IS Checklist.
- A detailed project description.
- The CEQA IS Checklist, which provides standards to evaluate the potential for significant environmental impacts from the proposed project, is adapted from Appendix G of the CEQA Guidelines. The proposed project is evaluated in 21 environmental issue categories to determine whether the proposed project's environmental impacts may be significant in any category. Brief discussions are provided that further substantiate the proposed project's anticipated environmental impacts in each category.

Because the proposed project fits into the definition of a "project" under Public Resources Code Section 21065 requiring discretionary approvals by the District, and because it could result in a significant effect on the environment, the proposed project is subject to CEQA review. The IS Checklist was prepared to determine the appropriate environmental document to satisfy CEQA requirements: an Environmental Impact Report (EIR), a Mitigated Negative Declaration (MND), or a Negative Declaration (ND). The analysis in this IS Checklist supports the conclusion that the proposed project may result in significant environmental impacts, but (1) revisions in the proposed project plans or proposals made by or agreed to by the applicant before a proposed MND and IS are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and (2) there is no substantial evidence, in light of the whole record before the District, that the proposed project as revised may have a significant effect on the environment; therefore, an MND has been prepared.

This IS/MND will be circulated for 30 days for public and agency review, during which time individuals and agencies may submit comments on the adequacy of the environmental review. Following the public review period, the District's Board will consider any comments received on the IS/MND when deciding whether to adopt the MND.



## 2.0 Project Description

### 1. Project Name:

Steeplechase and Kalmia Booster Pump Station Project (proposed project)

### 2. Lead Agency:

Eastern Municipal Water District  
2270 Trumble Road  
Perris, CA 92570

### 3. Contact Person and Phone Number:

Joseph Broadhead  
Principal Water Resource Specialist  
Eastern Municipal Water District  
2270 Trumble Road  
P.O. Box 8300  
Perris, CA 92572-8300  
T (951) 928-3777 ext. 4545  
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### 4. Project Location:

The project site is located within the city of Moreno Valley on District-owned property at the District's existing Kalmia Avenue tank site, south of Kalmia Avenue and west of Kayal Avenue; as well as within the Kalmia Avenue right-of-way (Figures 1 through 3). The northern portion of the project site supports an existing District water tank, paved access, and landscaped vegetation. The southern portion of the project site supports a graded and compacted dirt slope. Access to the project site is regionally provided by Interstate 215 (I-215) and State Route 60 (SR-60). The project site is located approximately 5.2 miles east of I-215 and 1.0 mile north of SR-60.

### 5. Project Applicant/Sponsor:

Eastern Municipal Water District  
2270 Trumble Road  
P.O. Box 8300  
Perris, CA 92572-8300

### 6. General Plan Designation:

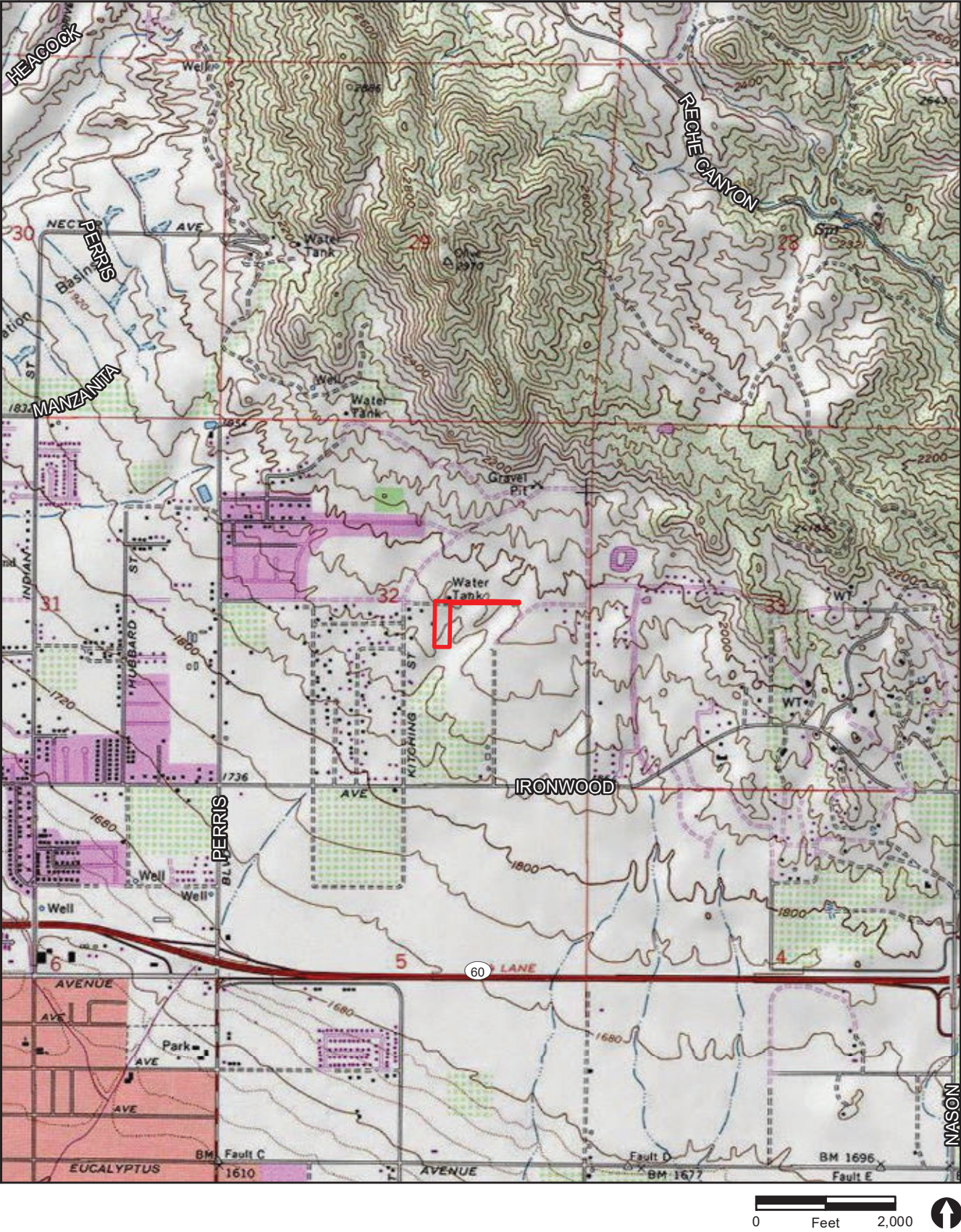
R5 (Residential with a density of five dwelling units per acre)

### 7. Zoning:

RA2 (Residential Agriculture, two dwelling units per acre)







 Project Boundary

FIGURE 2  
Project Location on USGS Map





FIGURE 3  
Project Location on Aerial Photograph

## **8. Surrounding Land Use(s) and Project Setting:**

The project site consists of the District-owned parcel and roadway right-of-way within Kalmia Avenue (see Figure 3). The northern portion of the District-owned site supports an existing water tank, paved access road, and landscaping. The southern portion of the project site is occupied by a graded and compacted dirt slope. The southern portion of the site has been graded to form a depression connecting to a storm drain to convey water south within a below-ground culvert. Single-family residential uses abut eastern, western, and southern borders of the District-owned parcel. Kalmia Avenue borders the northern portion of the parcel.

Kalmia Avenue is a paved, two-lane residential road with curb, gutter, and sidewalk on both sides until Slawson Avenue, where it only occurs on the south side of the road for the remainder of the alignment. Single-family residential uses and lighting/landscaping are adjacent to Kalmia Avenue for most of the alignment. There is a segment of vacant land north of Kalmia Avenue beginning near Slawson Avenue continuing to the eastern end of the alignment.

The project site is located within the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) plan area (County of Riverside 2003). However, no components of the proposed project are within or adjacent to criteria areas or reserves defined in the MSHCP.

## **9. Project Purpose**

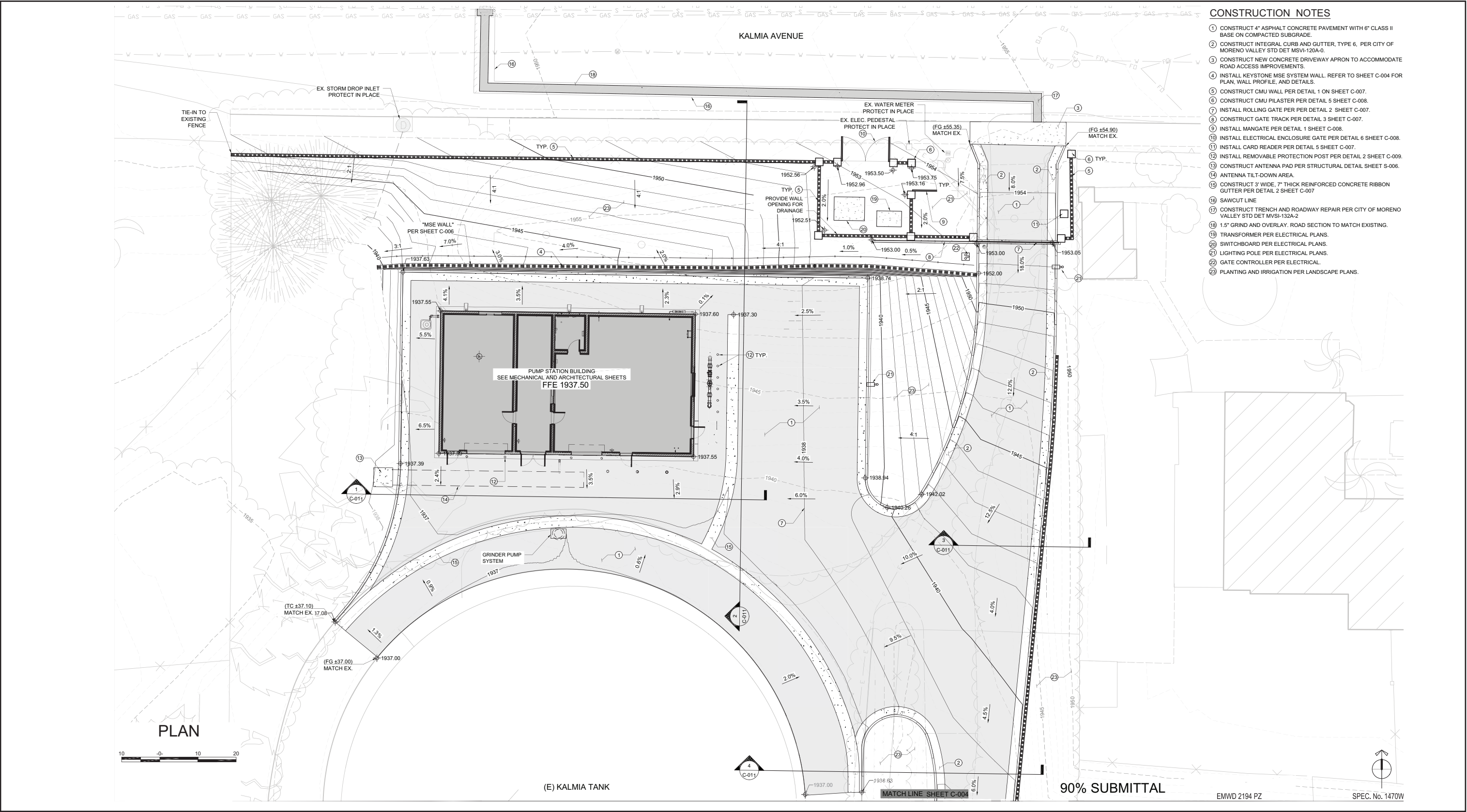
The purpose of the Steeplechase-Kalmia BPS is to replace the existing Steeplechase BPS with a new BPS to provide increased system capacity and reliability. The existing Steeplechase BPS, located at 11515 Steeplechase Drive, in the city of Moreno Valley, pumps in combination with the Steeplechase Ironwood BPS to supply the 2194 Dale Pressure Zone (PZ) in north Moreno Valley. The combined pumping capacity of these two pump stations isn't sufficient to meet the future needs of this pressure zone.

## **10. Project Description**

The proposed project would result in the construction of a new BPS on District-owned property (Assessor Parcel Number 474-170-009) enclosed within a masonry block wall building. Site improvements would also include a retaining wall with a maximum height of 15 feet, three access gates, site access, and landscaping of the area surrounding the BPS as well as the southern portion of the District-owned property (Figure 4). Figures 5a and 5b show the proposed 40-foot-by-18-foot 8-inch masonry block wall building elevations.

The proposed project also includes approximately 1,209 linear feet of 12-inch pipeline constructed via open trench method within the southern side of Kalmia Avenue from the District owned parcel heading eastward to the end of the paved surfaced located east of Slawson Avenue. Depth to pipe invert would be approximately 5 feet below the ground surface. This pipeline would connect to the yard piping and BPS (Figure 6).



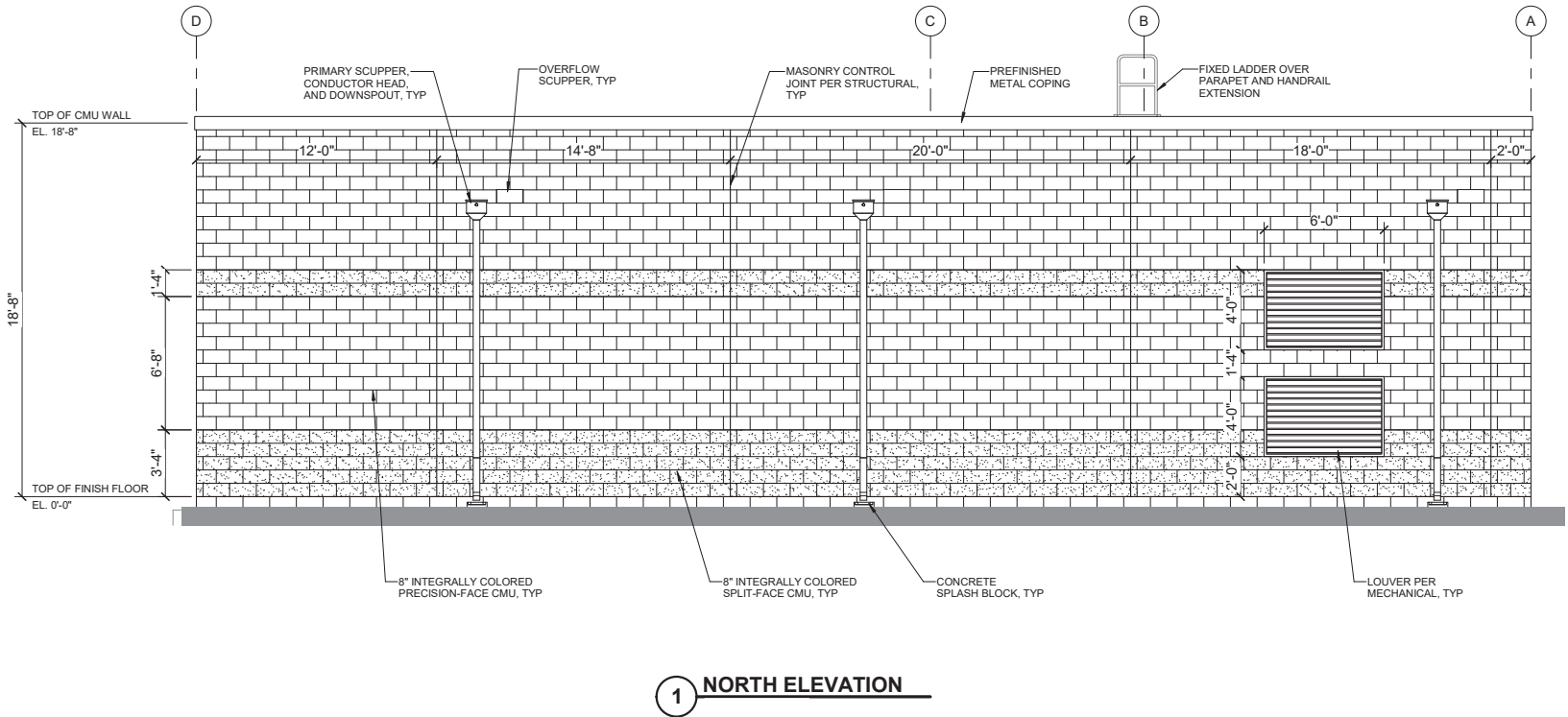


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FIGURE 4  
Proposed Grading Plan



EXTERIOR COLOR SCHEDULE						
SPLIT FACE BLOCK	PRECISION- FACE BLOCK	ROOF MEMBRANE	METAL FASCIA	DOOR & FRAMES, COILING DOORS	SCUPPERS AND DOWNSPOUTS	LOUVERS
A	B	C	D	D	D	D

- A. INTEGRAL COLOR 1 SHALL BE SELECTED BY THE CONSTRUCTION MANAGER AND AS APPROVED BY OWNER.  
B. INTEGRAL COLOR 2 SHALL BE SELECTED BY THE CONSTRUCTION MANAGER AND AS APPROVED BY OWNER.  
C. COLOR SHALL BE IN ACCORDANCE TO SPECIFICATION SECTION 07 51 00.  
D. MISCELLANEOUS METALS COLOR TO MATCH AND AS SELECTED BY THE CONSTRUCTION MANAGER AND APPROVED BY OWNER.

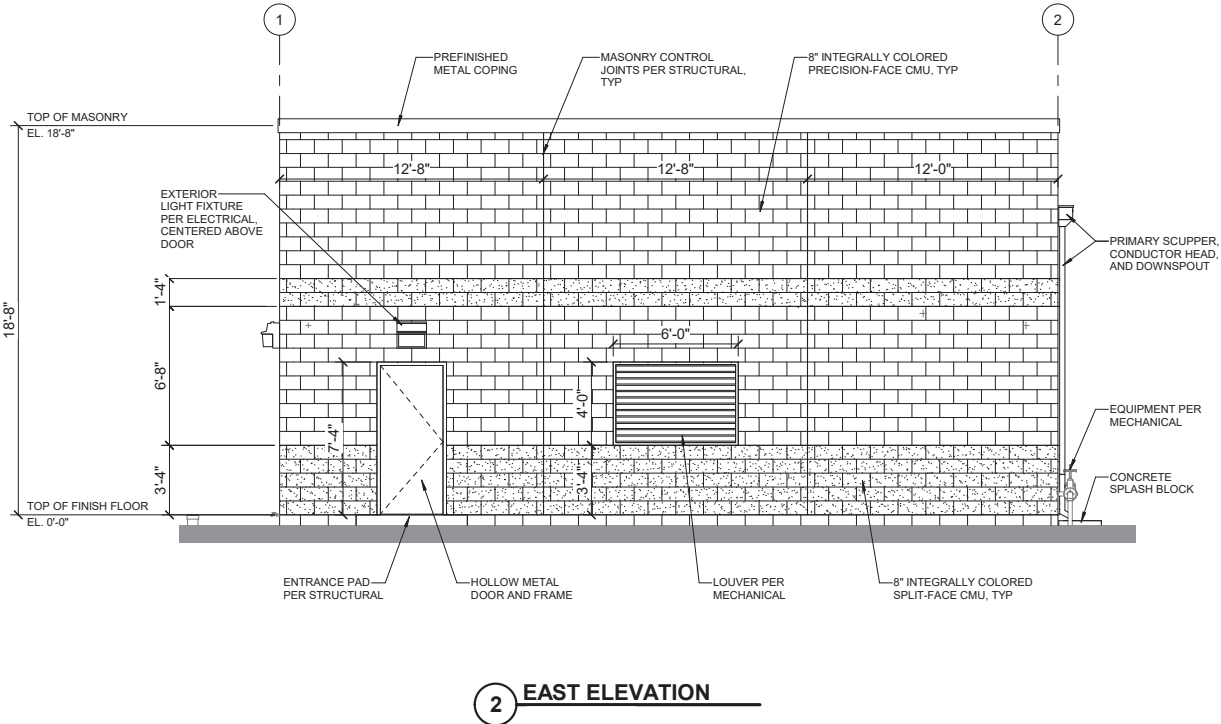


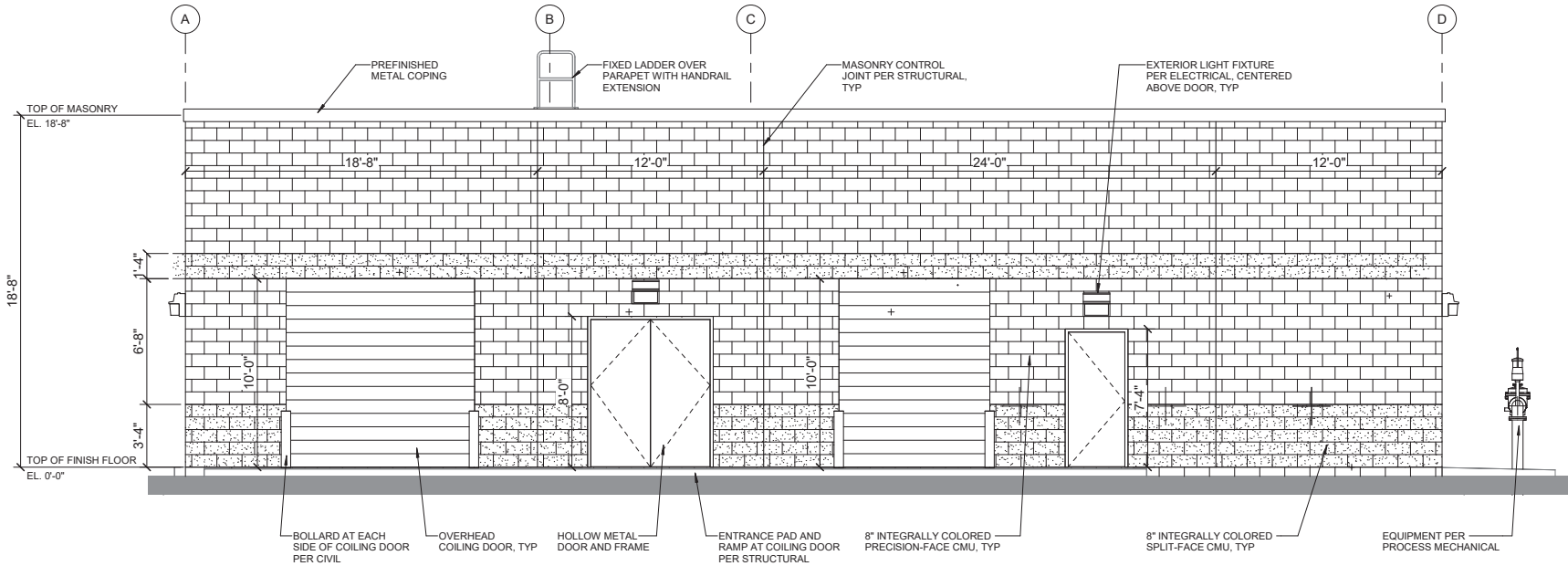
FIGURE 5a  
Building Elevations – North and East

SHEET NOTES

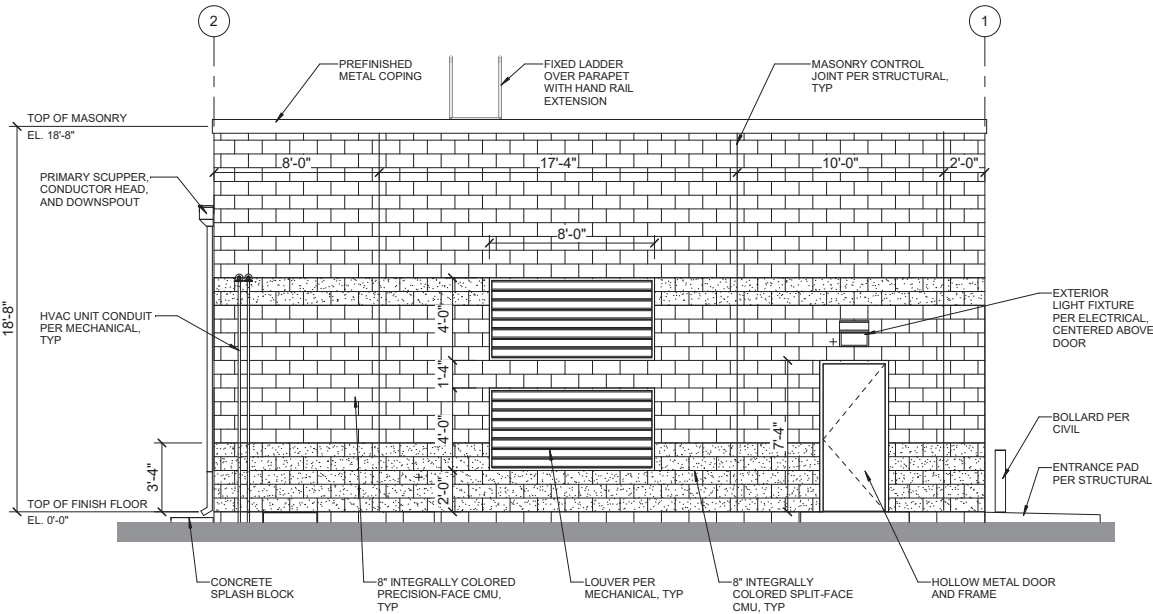
- 1. EXTERIOR FACE OF CONCRETE MASONRY UNITS SHALL BE COATED WITH ANTI-GRAFFITI RESISTANT FINISH.
- 2. MASONRY DIMENSIONS ARE NOMINAL UNLESS NOTED OTHERWISE.
- 3. DIMENSIONS AT CMU WALLS ARE TO THE FACE OF CMU UNLESS NOTED OTHERWISE.
- 4. PROVIDE LINTELS FOR OPENINGS IN MASONRY WALLS INCLUDING BUT NOT LIMITED TO OPENINGS FOR DOORS, WINDOWS, LOUVERS, MECHANICAL AND ELECTRICAL PENETRATIONS.
- 6. WALL PENETRATIONS SHALL BE SEALED WEATHERPROOF.
- 7. WALL PENETRATIONS AT FIRE RATED WALL SHALL BE SEALED WITH A FIRE RESISTANT SYSTEM.
- 8. REFERENCE TO STRUCTURAL DRAWINGS FOR ENTRANCE PADS AND RAMPS AT COILING DOORS.
- 9. REFERENCE CIVIL DRAWINGS FOR BOLLARDS.
- 10. REFERENCE DRAWING A-001 FOR FINISH SCHEDULE AND DOOR SCHEDULES.
- 11. REFERENCE TO CIVIL DRAWINGS FOR FINAL GRADE ELEVATION.

EXTERIOR COLOR SCHEDULE						
SPLIT FACE BLOCK	PRECISION-FACE BLOCK	ROOF MEMBRANE	METAL FASCIA	DOOR & FRAMES, COILING DOORS	SCUPPERS AND DOWNSPOUTS	LOUVERS
A	B	C	D	D	D	D

- A. INTEGRAL COLOR 1 SHALL BE SELECTED BY THE CONSTRUCTION MANAGER AND AS APPROVED BY OWNER.
- B. INTEGRAL COLOR 2 SHALL BE SELECTED BY THE CONSTRUCTION MANAGER AND AS APPROVED BY OWNER.
- C. COLOR SHALL BE IN ACCORDANCE TO SPECIFICATION SECTION 07 51 00.
- D. MISCELLANEOUS METALS COLOR TO MATCH AND AS SELECTED BY THE CONSTRUCTION MANAGER AND APPROVED BY OWNER.



1 SOUTH ELEVATION

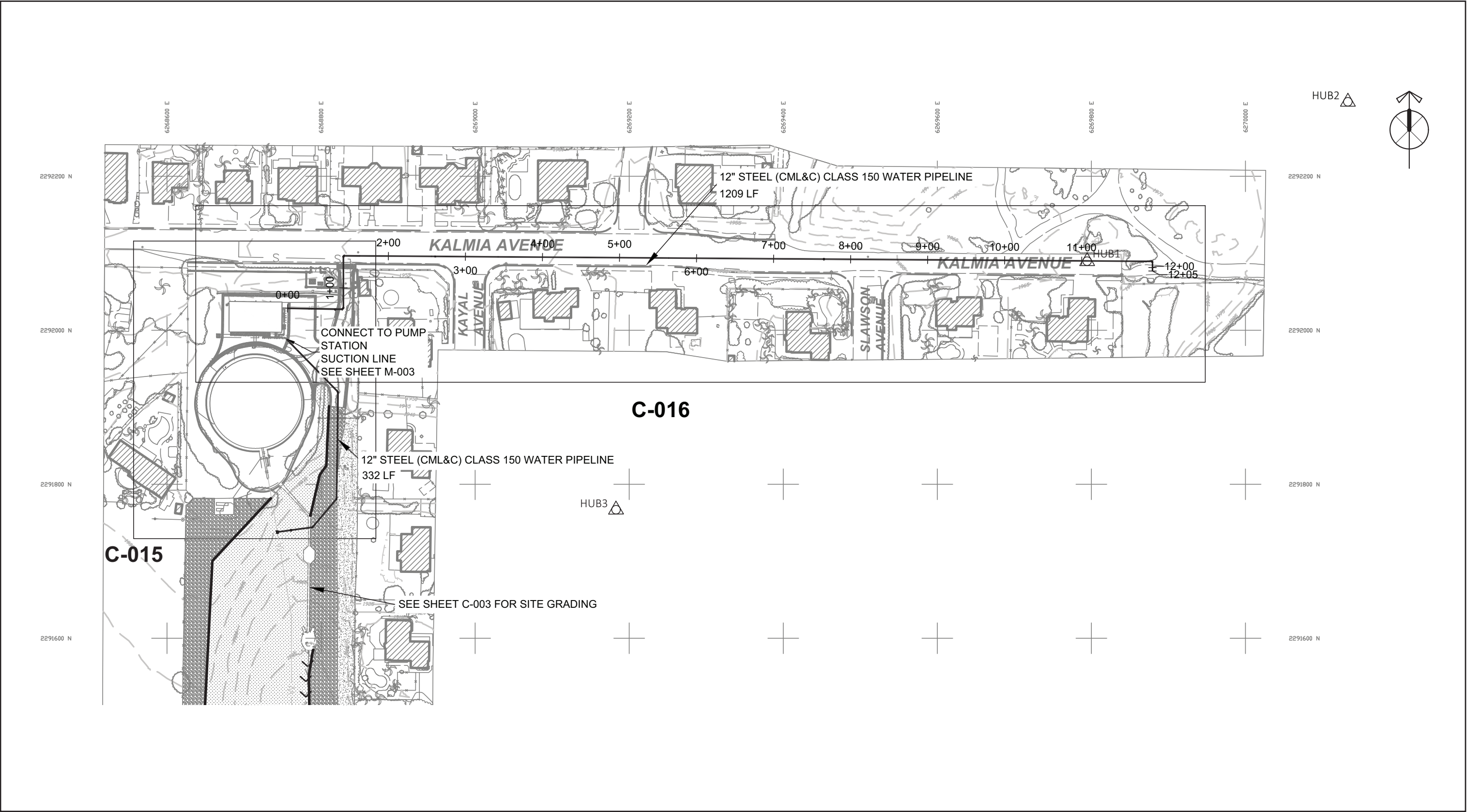


2 WEST ELEVATION



FIGURE 5b  
Building Elevations – South and West





## 11. Standard Construction Practices

The District promotes the following standard practices during construction through inclusion in construction contracts and would ensure implementation of these measures as part of the proposed project:

- **Drainage/Erosion Control** – During construction, existing storm water facilities including catch basins, manholes, and ditches would be protected using erosion control measures. Design standards outlined in the Riverside County Design Handbook for Low Impact Development (Riverside County Flood Control and Watershed Conservation District 2011) would be implemented by the construction contractor as applicable to the project site's stormwater drainage features. In addition, the project contractor would be required to obtain a Construction General Permit pursuant to the National Pollutant Discharge Elimination System (NPDES), which would require development of a construction Storm Water Pollution Prevention Plan (SWPPP) and implementation of best management practices (BMPs) to prevent polluted runoff from leaving the construction site.
- **Groundwater Dewatering** – The proposed project may involve excavation as deep as five feet below ground surface. Soil logs for the geotechnical investigation to a depth of 51.5 feet below ground surface did not encounter any groundwater (Appendix A). However, if encountered during excavation, groundwater would be controlled using standard methods including stone sumps wrapped in filter fabric and dewatering basins or baffled tanks if required.
- **Air Quality/Dust Suppression** – The construction contractor would be required to comply with South Coast Air Quality Management District (SCAQMD) Rule 403 to control dust during construction. The contractor is required to have an approved Fugitive Dust Control Plan prior to grading or excavation. The construction contractor is required to comply with the California Air Resources Board's (CARB) In-Use Off-Road Diesel-Fueled Fleets Regulations, which would limit vehicle idling time to five minutes, restrict adding vehicles to construction fleets that have lower than Tier 3 engines, and establish a schedule for retiring older, less fuel-efficient engines from the construction fleet.
- **Geotechnical Standards** – A design-phase geotechnical report has been prepared for the proposed project. The recommendations from the geotechnical report will be incorporated into the final design and construction of the proposed project.
- **Unanticipated Discovery of Archaeological Resources** – If archaeological resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology would be contacted immediately to evaluate the find. If the discovery proves to be eligible for the National Register of Historic Places and/or California Register of Historical Resources, additional work such as data recovery excavation and Native American consultation may be warranted.

- Unanticipated Discovery of Human Remains – If human remains are found, regulations outlined in the State of California Health and Safety Code Section 7050.5 state no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant. The most likely descendant shall complete the inspection of the site within 48 hours of being granted access and provide recommendations as to the treatment of the remains.

### ***Project Characteristics***

The proposed BPS would be equipped with two vertical turbine pumps, with spare room for an additional turbine pump to be installed in the future. Each pump would be driven by a dedicated 75-horsepower electric motor. One pump would be active and one would be on standby. The active pump would discharge into a proposed 12-inch pipeline that feeds into the Dale 2194 PZ at the location of the check valve that separates the zone from the 2199C Covey PZ. Water supply to the BPS would be taken from the Kalmia Water Storage Tank, which is fed from the 1967 Kalmia PZ.

The pumps would operate in an auto mode based on a signal from the District's Telemetry System. A Remote Telemetry Unit would transmit alarm and status signals from the BPS to the existing Telemetry System and would receive control signals for pumping unit operation. The pumps would also be controlled manually and would be capable of a manual shutdown via a control panel in BPS. The operating set points would be determined during detailed project design. During detailed project design, a method to activate a pump during low pressure conditions when fire flows are needed would be investigated.

The BPS would have a diesel engine driven emergency standby power generator to supply power in the event of a utility outage. The generator would be sized for the full station load including motor starting capacity for pump motors with a maximum voltage dip of 20 percent. The generator would be located inside the BPS building in a separate room.

### ***Project Construction***

Construction activities would take approximately 20 months. Approximately 1,209 linear feet of 12-inch pipeline would be constructed via open trench method. The trench would have a maximum depth of 13 feet and width of 2.5 feet. Approximately 42 linear feet of pipeline would be constructed per day and no blasting would occur. Project site runoff would stay within the existing drainage paths, either on the existing swale located southwest of the proposed pump station, or on the existing swale located south of the tank. The overall earthwork balance would be approximately 6,200 cubic yards and would either be spread on the project site or exported off-site. Material spread on-site would be placed on the southern portion of the project site, outside of the existing drainage swale. This material would be placed and compacted to the same specifications as other fill material to minimize erosion and would be landscaped as part of the proposed project.

The proposed project would comply with the City of Moreno Valley Municipal Code, which limits construction activities in two parts of the code: Sections 8.14.040(E) and 11.80.030(D)(7). Section 8.14.040(E) states that construction within the city shall only occur from 7:00 a.m. to 7:00 p.m. from Monday through Friday, excluding holidays and from 8:00 a.m. to 4:00 p.m. on Saturdays. Section 11.80.030(D)(7) states that no person shall operate or cause the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between the hours of 8:00 p.m. and 7:00 a.m. such that the sound creates a noise disturbance. For power tools, specifically, Section 11.80.030(D)(9) states that no person shall operate or permit the operation of any mechanically, electrically or gasoline motor-driven tool during nighttime hours that causes a noise disturbance across a residential property line. A noise disturbance is defined as any sound that disturbs a reasonable person of normal sensitivities, exceeds the sound level limits set forth in the Noise Ordinance, or is plainly audible (as measured at a distance of 200 feet from the property line of the source of the sound) if the sound occurs on privately-owned property, or public right-of-way, public space, or other publicly owned property.

Due to construction being proposed within the right-of-way of Kalmia Avenue, a Traffic Control and Detour Plan would be required, in accordance with the City of Moreno Valley traffic control guidelines. The project would also implement BMPs during construction consistent with the requirements of the NPDES Construction General Permit and the City standards. Project excavation and pipeline construction would be conducted consistent with requirements of the 2022 California Building Code (CBC) regarding unstable soils. Furthermore, the project would not require blasting or pile driving.

### ***Project Access***

Regional access to the project site is provided by I-215 and SR-60. Local access is provided from I-215 traveling east on Ironwood Avenue, north on Kitching Street, then east on Kalmia Avenue. Local access from SR-60 is provided by traveling north on Perris Boulevard, then east on Kalmia Avenue. Project site access would consist of a 20-foot-wide access road with a 6-inch-high concrete curb from Kalmia Avenue to the new BPS and existing tank. Access to the project site would accommodate fire access and vehicle turning movement to meet the City's fire access equipment requirement. In addition, a 20-foot-wide gate would be installed at the northern limits of the property for security purposes.

### ***Appurtenances***

Exterior above-grade equipment would be required for proper facility operation (piping, valves, etc.). Safety bollards, painted safety yellow, would be provided around the equipment to reduce the potential of vehicular strikes. The following identifies pieces of exterior appurtenant equipment that would be constructed as part of the proposed project.

Within the District's Kalmia Tank Property:

- 40-foot-tall antenna tower (for communications)
- Roof penetrations – exhaust fans, hatches, etc.
- Exterior light fixtures attached to the building
- Ladder on middle separation wall on roof

- Pressure relief above-ground piping adjacent to the building
- Electrical rolling gate including card readers
- Enclosure area fronting Kalmia Avenue for Southern California Edison's transformer and service pedestal
- Pole-mounted light-emitting diode (LED) lights

Within Kalmia Avenue (for the pipeline):

- Fire hydrants/air valves

#### 10. Required Approvals:

Eastern Municipal Water District – Adoption of the MND and approval of the Steeplechase Booster Pump Station Project.

#### 11. Other Required Agency Approvals or Permits Required:

The required permits and approvals are shown in Table 1.

Table 1 Required Permits and Approvals		
Permit/Approval	Permitting/Approving Agency	Permit/Approval Trigger
Encroachment Permit	City of Moreno Valley	Required for any proposed pipeline in the public street
Construct/Operate Permit for Emergency Generator	South Coast Air Quality Management District	Emergency Generator
National Pollutant Discharge Elimination System (NPDES) Construction General Permit	California Regional Water Quality Control Board, Region 8	Required prior to construction activity, upon completion of Notice of Intent and Storm Water Pollution Prevention Program (SWPPP)
Drinking Water Supply Permit	California State Water Quality Control Board Division of Drinking Water	Required prior to the delivery of water for public consumption

#### 12. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

On October 7, 2022, the District initiated consultation with the following Native American tribes consistent with the requirements of Assembly Bill (AB) 52 who are traditionally and culturally affiliated with the geographic area of the proposed project to consult regarding potential impacts to tribal cultural resources:

- Agua Caliente Band of Cahuilla Indians
- Morongo Band of Mission Indians
- Rincon Band of Luiseño Indians

- San Manuel Band of Mission Indians
- Soboba Band of Luiseño Indians
- Pechanga Band of Luiseño Indians

To date, the District has conducted consultation with the Soboba Band of Luiseño Indians. As discussed in Section 4.18, the additional five Tribes included in the District's consultation efforts either declined consultation or did not respond.

### 13. Summary of Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this proposed 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 and Forestry Resources | <input type="checkbox"/> Air Quality                                   |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources      | <input type="checkbox"/> Energy  |
| <input checked="" 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 checked="" type="checkbox"/> Noise                | <input type="checkbox"/> Population/Housing                 | <input type="checkbox"/> Public Services                               |
| <input type="checkbox"/> Recreation                      | <input checked="" type="checkbox"/> Transportation          | <input checked="" type="checkbox"/> Tribal Cultural Resources          |
| <input type="checkbox"/> Utilities/Service Systems       | <input checked="" type="checkbox"/> Wildfire                | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

## 3.0 Draft Mitigated Negative Declaration

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION shall be prepared.
- ☒ I find that, although the proposed project might have a significant effect on the environment, there would not be a significant effect in this case because revisions in the project have been made, or agreed to, by the project proponent. A MITIGATED NEGATIVE DECLARATION shall be prepared.
- ☐ I find that the proposed project might have a significant effect on the environment and/or deficiencies exist relative to the City's General Plan Quality of Life Standards, and the extent of the deficiency exceeds the levels identified in the City's Environmental Quality Regulations pursuant to Zoning Code Article 47, Section 33-924 (b), and an ENVIRONMENTAL IMPACT REPORT shall be required.
- ☐ I find that the proposed project might have a "potentially significant impact" or "potentially significant unless mitigated impact" on the environment, but at least one effect: (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT shall be required, but it shall analyze only the effects that remain to be addressed.
- ☐ I find that, although the proposed project might have a significant effect on the environment, no further documentation is necessary 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.



Signature

Alfred Javier, Director of Env. & Regulatory Compliance

Eastern Municipal Water District

October 23, 2023

Date of Draft MND

Date of Final MND

## 4.0 Initial Study Checklist

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved. A “No Impact” answer should be explained where it is based on project specific factors as well as general standards.
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
4. “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or (mitigated) negative declaration. Section 15063(c)(3)(D).
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
  - a. The significance criteria or threshold, if any, used to evaluate each question; and
  - b. The mitigation measure identified, if any, to reduce the impact to less than significant.



## 4.1 Aesthetics

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless 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 type="checkbox"/>	<input checked="" type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>

### EXPLANATIONS:

#### a. Less Than Significant Impact

Topography and a lack of dense vegetation or urban development offer scenic views throughout the city of Moreno Valley, 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.

Many of the scenic resources are outside the city limits. Scenic views from the city in general include: the Badlands and the higher San Jacinto Mountains to the east; the San Bernardino Mountains (from higher elevations in the city) to the north-northeast; Mt. Russell and the uplands surrounding Lake Perris to the southeast; and the Box Springs Mountain area to the north and northwest.

The project site is located in an urban environment surrounded by residential uses and developed with an existing District tank and public roadway. No scenic views are observable from the project site. The proposed BPS would be fenced and enclosed by a 19-foot-high masonry block wall building with 8-inch-thick walls within a 70-foot-long by 40-foot-wide footprint. Therefore, the most dominant view of the project site would continue to be of the existing District tank behind site fencing. Views would not substantially change from existing conditions and no scenic views would be obstructed by the proposed project. The approximately 1,209-linear-foot, 12-inch pipeline on the south

side of Kalmia Avenue heading eastward to the end of the paved surfaced located east of Slawson Avenue would be located underground with only fire hydrants and air valves visible above ground. Due to the lack of scenic views in the project vicinity and the limited proposed change to the visual environment, the proposed project would not have a substantial adverse effect on a scenic vista, and impacts would be less than significant.

**b. No Impact**

There are no state-designated scenic highways in the city of Moreno Valley (MoVal 2021a). The project site does not possess any scenic resources such as trees and rock outcroppings and is unremarkable in character. As described in Section 4.5a below, no historic resources exist on the project site. The proposed project would not substantially damage scenic resources within a state scenic highway. No impact would occur.

**c. Less Than Significant Impact**

The project site is located in an urban environment surrounded by residential uses and developed with an existing District tank and public roadway. Project implementation would not conflict with applicable zoning and other regulations governing scenic quality due to the lack of scenic views and the minimal change to the visual character of the existing District tank site. Therefore, aesthetic impacts would be less than significant.

**d. Less Than Significant Impact**

Project construction would be limited to daytime hours Monday through Friday and is not anticipated to require lighting. No night work is proposed. Furthermore, the pipeline would be located underground and permanent aboveground components would be limited to fire hydrants and air vents, which would not be lighted.

Operational lighting would be installed for security purposes, both on the proposed BPS building and pole mounted. All new outdoor lighting would comply with applicable codes and would be shielded and projected downward to avoid spillover beyond the project site. Therefore, the proposed project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area, and impacts would be less than significant.

## 4.2 Agriculture and Forestry Resources

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless 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 type="checkbox"/>	<input checked="" 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 1220[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 the 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"/>

### EXPLANATIONS:

#### a. No Impact

The project site is located within a residential agriculture zone; however, it does not support agricultural activities. The proposed project consists of the construction of a new BPS within an existing developed District property, and approximately 1,209 linear feet of 12-inch pipeline within Kalmia Avenue. Therefore, the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses. No impact would occur.

**b. No Impact**

The project site is located within a residential agriculture zone; however, it does not support any agricultural activities. The proposed project consists of the construction of a new BPS within an existing developed District property, and approximately 1,209 linear feet of 12-inch pipeline within Kalmia Avenue. Therefore, the proposed project is not subject to a Williamson Act contract. No impact would occur.

**c. No Impact**

The project site does not contain any forest or timberland as defined by Public Resources Code Section 12220(g), Public Resources Code Section 4526, or Government Code Section 51104(g) and is not zoned as forest or timberland. No impact would occur.

**d. No Impact**

The project site does not contain any forest or timberland as defined by Public Resources Code Section 12220(g), Public Resources Code Section 4526, or Government Code Section 51104(g). No impact would occur.

**e. No Impact**

There are no agricultural uses or forestlands on-site or in the vicinity of the project site. Therefore, the proposed project would not result in conversion of farmland or forest land. No impact would occur.

## 4.3 Air Quality

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless 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 checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>

**EXPLANATIONS:****a. Less Than Significant Impact**

The proposed project is located within the South Coast Air Basin (Basin) under the jurisdiction of the SCAQMD. Air districts are tasked with regulating emissions to ensure that air quality in the basin does not exceed National or California Ambient Air Quality Standards (NAAQS and CAAQS). NAAQS and CAAQS represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. NAAQS and CAAQS have been established for six common pollutants of concern known as criteria pollutants, which include ozone, carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), NO<sub>2</sub>, lead, and respirable particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>).

The Basin is currently classified as a federal non-attainment area for ozone and PM<sub>2.5</sub> and a state non-attainment area for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. The regional air quality plan, the 2016 Air Quality Management Plan (AQMP), outlines measures to reduce emissions of ozone and PM<sub>2.5</sub>. Whereas reducing PM concentrations is achieved by reducing emissions of PM<sub>2.5</sub> to the atmosphere, such as dust control measures during construction, reducing ozone concentrations is achieved by reducing the precursors of photochemical formation of ozone, VOC, and NO<sub>x</sub>. Solutions for scrubbing ozone precursors from emissions have been implemented through government regulation and would apply to the vehicles and equipment used for project construction and operation. For example, the automotive industry in the U.S. has cut vehicle emissions of ozone-exacerbating pollutants more than 99 percent over the past few decades. This has been accomplished largely through regulations that have required changes to gasoline formulation as well as engine technology, including vehicle emissions components such as catalytic converters.

Growth forecasting for the 2016 AQMP was based in part on the land uses established by local general plans. Thus, if a project is consistent with land use as designated in the local general plan, it can be considered consistent with the AQMP. Projects that propose a different land use than is identified in the local general plan may also be considered consistent with the AQMP if the proposed land use is less intensive than buildout under the current designation. For projects that propose a land use that is more intensive than the current designation, analysis that is more detailed is required to assess conformance with the AQMP.

The project site is designated as Residential with a density of five dwelling units per acre (R5) and is zoned RA2 (Residential Agriculture, two dwelling units per acre). The proposed project would not be a significant source of operational emissions because operational emissions would be limited to minor vehicle/equipment use associated with routine inspection and maintenance – much less than would be experienced if the site built out with residential uses. This is because just two residential units would generate 20 average daily trips, which is much greater than the 2 average daily trips that would be associated with project operation. There are 4.5 residential lots located along the eastern property line of the project site, occupying a smaller footprint than the project site.

Project construction would not result in significant air quality impacts (see Section 4.3b below). The proposed project does not include growth-generating components, but rather would accommodate existing and planned growth through the continued safe and reliable pumping and distribution of potable water. As such, the proposed project would be consistent with growth projections contained

in the General Plan (or General Plan Update) and AQMP forecasts. Based on these considerations and pursuant to SCAQMD guidelines, project-related emissions are accounted for in the 2016 AQMP. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan, and impacts would be less than significant.

## b. Less Than Significant Impact

### *Regional Significance Thresholds*

NAAQS and CAAQS have been established for six criteria pollutants (ozone, CO, SO<sub>2</sub>, NO<sub>2</sub>, lead, and PM). As described in Section 4.3a above, the SCAQMD is the air pollution control agency responsible for protecting the people and the environment of the Basin from the effects of air pollution. Accordingly, the District evaluates project air quality emissions based on the quantitative emission thresholds originally established in the SCAQMD's CEQA Air Quality Handbook (SCAQMD 1993). SCAQMD's significance thresholds for impacts to regional air quality are shown in Table 2.

Table 2 SCAQMD Air Quality Significance Thresholds – Mass Daily Thresholds		
Pollutant	Emissions (pounds)	
	Construction	Operational
Oxides of Nitrogen (NO <sub>x</sub> )	100	55
Volatile Organic Compounds (VOC)	75	55
Coarse Particulate Matter (PM <sub>10</sub> )	150	150
Fine Particulate Matter (PM <sub>2.5</sub> )	55	55
Oxides of Sulfur (SO <sub>x</sub> )	150	150
Carbon Monoxide (CO)	550	550
Lead (Pb)*	3	3
SOURCE: SCAQMD Air Quality Significance Thresholds (SCAQMD 2015).		

The proposed project would result in short-term emissions associated with construction. Operation of the proposed project would result in emissions related to minor vehicle use associated with routine inspection and maintenance and routine emergency generator testing. The pumps would run on electricity which would not result in emissions of criteria pollutants. For modeling purposes, it was assumed that the generator would be tested for a maximum duration of one hour per day, up to 50 days per year. Mobile emissions were modeled using a standard trip generation rate for heavy industrial uses (1.5 trips per 1,000 square feet per day). This is conservative since the proposed project would only generate routine vehicle trips associated with periodic maintenance. Construction and operational emissions associated with the proposed project were modeled using the California Emissions Estimator Model (CalEEMod) Version 2020.4.0 (California Air Pollution Control Officers Association 2021). Construction activities are anticipated to last for 20 months and were modeled beginning in 2023. Default construction phases and equipment were modeled.

Table 3 shows the total projected construction maximum daily emission levels for each criteria pollutant, and Table 4 summarizes the total operational maximum daily emissions. The CalEEMod output files are contained in Appendix B.

To assess the significance of the air quality emissions resulting from construction of the proposed project, construction emissions were compared to the significance thresholds shown in Table 2. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality.

As shown in Tables 3 and 4, maximum daily construction and operational emissions associated with the proposed project are projected to be less than the applicable thresholds for all criteria pollutants, including emissions for ozone precursors (reactive organic gases [ROG] and NO<sub>x</sub>), PM<sub>10</sub>, and PM<sub>2.5</sub>. Therefore, the proposed project would not result in a cumulatively considerable net increase in emissions of ozone, PM<sub>10</sub>, or PM<sub>2.5</sub>, and impacts would be less than significant.

Table 3 Summary of Maximum Buildout Construction Emissions (pounds per day)						
Construction Activities	Pollutant					
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Site Preparation	1	6	4	<1	1	<1
Grading	1	10	6	<1	3	1
Building Construction	1	6	7	<1	<1	<1
Paving	1	5	8	<1	<1	<1
Architectural Coatings	1	1	2	<1	<1	<1
<b>Maximum Daily Total</b>	<b>1</b>	<b>10</b>	<b>8</b>	<b>&lt;1</b>	<b>3</b>	<b>1</b>
<i>Significance Threshold</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>150</i>	<i>55</i>
SOURCE: Appendix B.						

Table 4 Summary of Maximum Buildout Operational Emissions (pounds per day)						
Source	Pollutant					
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Area	<1	<1	<1	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile	<1	<1	<1	<1	<1	<1
Stationary	1	2	2	<1	<1	<1
<b>Maximum Daily Total</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;1</b>
<i>Significance Threshold</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>150</i>	<i>55</i>
SOURCE: Appendix B.						

### Localized Significance Thresholds

In addition to these regional significance thresholds, the SCAQMD utilizes Localized Significance Thresholds (LSTs) to evaluate localized air quality impact to sensitive receptors in the vicinity of the proposed project (SCAQMD 2008). LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient

air quality standard at the nearest residence or sensitive receptor. Localized air quality impacts would occur if pollutant concentrations at sensitive receptors exceeded applicable NAAQS or CAAQS.

The project site is located within Moreno Valley Source Receptor Area 24. LSTs apply to on-site air emissions of CO, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The LST Methodology states that only on-site emissions should be compared to LSTs. Therefore, off-site emissions associated with worker travel, materials deliveries, and other mobile sources are not evaluated against LSTs.

The maximum on-site daily emissions for CO, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> for construction and operational activity are compared to the applicable screening thresholds based on total emissions calculated using CalEEMod, acreage disturbed per day, and the distance to the closest sensitive receptor. The LSTs for a 1-acre site located in Source Receptor Area 24, Moreno Valley, with receptors at a distance of 25 meters, were used. The results of the LST analysis are provided in Table 5.

Table 5 LST Analysis – Construction and Operation				
	Pollutant			
	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Maximum Daily Construction Emission	10.20	7.53	2.58	1.41
<i>LST – Construction</i>	<i>118</i>	<i>602</i>	<i>4</i>	<i>3</i>
Maximum Daily Operational Emission	1.96	1.90	0.14	0.11
<i>LST – Operation</i>	<i>118</i>	<i>602</i>	<i>1</i>	<i>1</i>
Threshold Exceeded?	No	No	No	No

As shown in Table 5, maximum localized construction emissions would not exceed any of the SCAQMD recommended localized screening thresholds. Therefore, the proposed project would not exceed the LST thresholds for CO, NO<sub>x</sub>, PM<sub>10</sub>, or PM<sub>2.5</sub>, and impacts would be less than significant.

### c. Less Than Significant Impact

A sensitive receptor is a person in the population who is more susceptible to health effects due to exposure to an air contaminant than is the population at large. Examples of sensitive receptor locations in the community include residences, schools, playgrounds, childcare centers, churches, athletic facilities, retirement homes, and long-term health care facilities. The sensitive receptors located closest to the proposed construction activities are the single-family residential uses surrounding the project site. Pollutants that have the potential to affect sensitive receptors include criteria pollutants, diesel particulate matter (DPM), and CO hotspots. Impacts to sensitive receptors from criteria pollutants are discussed above in Section 4.3b, Localized Construction Impacts. DPM and CO hotspots are discussed below.

#### *Diesel Particulate Matter*

Construction-related activities would result in short-term emissions of DPM exhaust emissions from off-road, heavy-duty diesel equipment. Diesel PM has been identified by the CARB as a carcinogen. Cancer risk is dependent on the exposure concentration (dose) and duration of exposure. Generation of DPM from construction projects typically occurs in a single area for a short period. The risks associated with exposure to DPM is typically evaluated based on a lifetime of chronic exposure, which



is defined as 24 hours per day, 7 days per week, 365 days per year, for 70 years. The proposed project's generation of DPM would be limited to the 20-month construction period. Operational sources of DPM would be limited to periodic testing of the emergency generator, which would be tested monthly for a maximum of one hour per day and no more than 50 hours per year. As shown in Table 5, on-site PM<sub>10</sub> and PM<sub>2.5</sub> emissions, which include DPM, would be less than the applicable LSTs. Additionally, the emergency generator would be subject to the SCAQMD permitting process. As a part of the final permitting process, the SCAQMD will review the emissions and emission rates for permitted equipment (including the emergency generators and boilers) and ensure that health risks are minimized. Therefore, the proposed project would not result in short-term or long-term exposure of sensitive receptors to DPM, and potential impacts would be less than significant.

#### *Carbon Monoxide Hot Spots*

A CO hot spot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near congested intersections where idling and queuing occurs. Due to increased requirements for cleaner vehicles, equipment, and fuels, CO levels in the state have dropped substantially. All air basins are attainment or maintenance areas for CO. In 2007, the South Coast Air Basin was designated in attainment for CO under both the CAAQS and NAAQS. The CO hotspot analysis conducted by the SCAQMD for the CO attainment did not predict a violation of CO standards at the busiest intersections in Los Angeles during the peak morning and afternoon periods. The SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for CO indicate that peak CO concentrations in the years before the attainment redesignation were a result of unusual meteorological and topographical conditions and not of congestion at a particular intersection (SCAQMD 1993 and 2003). Under existing and future vehicle emission rates, the Bay Area Air Quality Management District found that a proposed project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—to generate a significant CO impact (Bay Area Air Quality Management District 2017). The proposed project vehicle trips would be limited to routine maintenance and inspection. The proposed project would not result in an increase in traffic at any intersection that would exceed the volumes described above. Therefore, the proposed project would not expose sensitive receptors to substantial pollutant concentrations associated with CO hot spots, and impacts would be less than significant.

#### **d. Less Than Significant Impact**

During construction, diesel equipment may generate some nuisance odors. Sensitive receptors near the project site include residential uses; however, exposure to odors associated with project construction would be short term and temporary in nature and would not affect a substantial number of people. Once the proposed project is in operation, the pump station would require regular operational and maintenance work to ensure its proper function and would not be a source of odors. For this reason, odors are not expected to be perceptible off-site and would be less than significant.

## 4.4 Biological Resources

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have substantial adverse effects, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS)?	<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, and regulations or by the CDFW or USFWS?	<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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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"/>

**EXPLANATIONS:****a. Potentially Significant Unless Mitigation Incorporated**

This section is based on the Biological Resources Constraints Survey (Appendix C) and the Habitat Assessment and Burrowing Owl Focused Survey (Appendix D) prepared by RECON. RECON biologist Alex Fromer conducted a general biological survey on February 4, 2022 to evaluate the resources within the project site. A 77.3-acre survey area, including all areas to be potentially impacted (3.93 acres) and a 500-foot buffer, were evaluated to determine the current condition of the biological resources present within and adjacent to the proposed project (Figure 7).

**Vegetation Communities/Land Cover Types**

The biological survey identified two vegetation communities/land cover types within the biological survey area: disturbed habitat and urban/developed (see Figure 7). The acreage of these vegetation communities/land cover types are presented in Table 6.

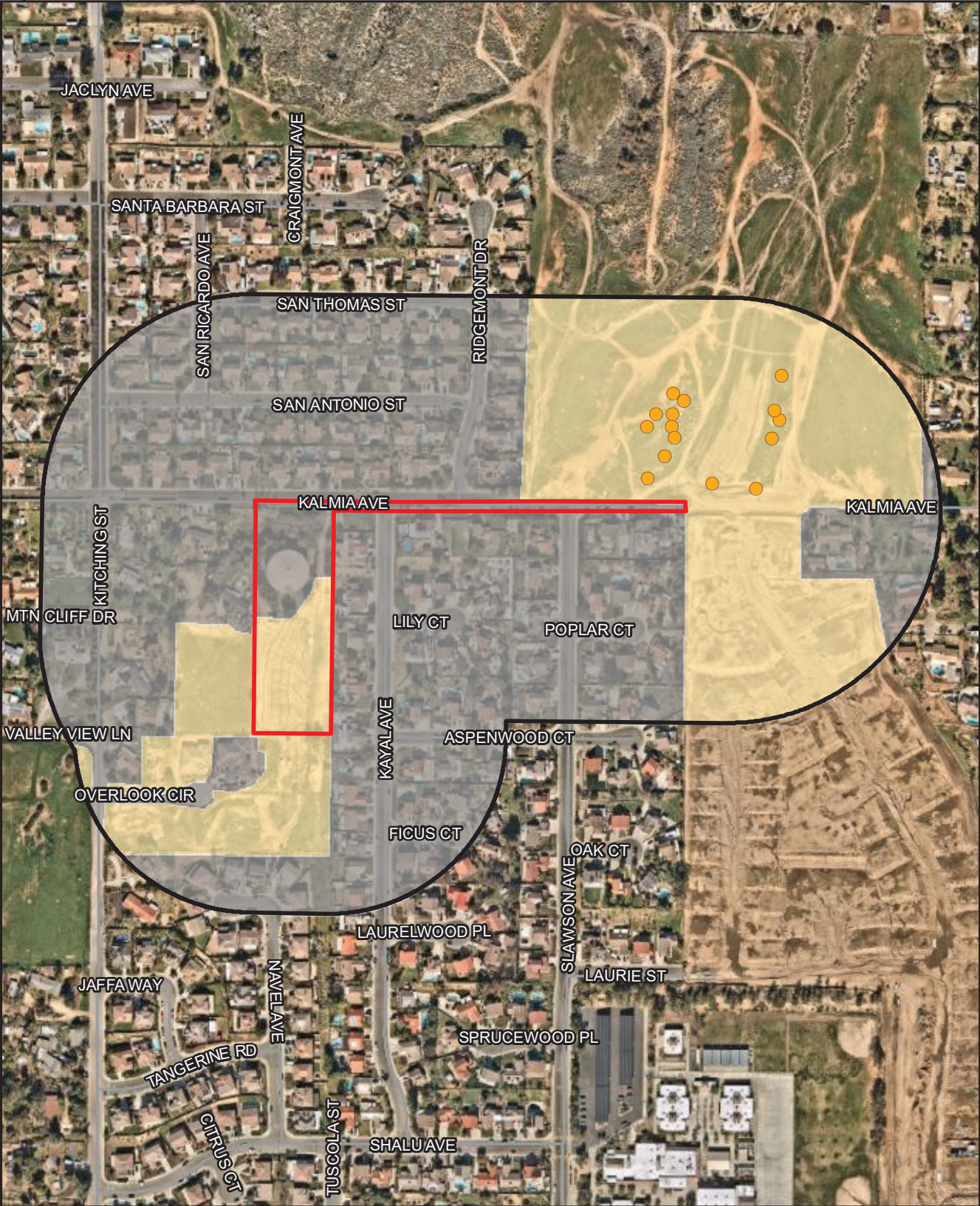
The urban/developed consists of paved roads and residential development including ornamental vegetation.

The disturbed habitat is comprised of undeveloped land in the northwestern portion of the survey area and undeveloped lots or portions of private properties in the southwestern and southeastern portions of the survey area. The disturbed land in the northwestern portion of the survey area is dominated by common fiddleneck (*Amsinckia menziesii*) and appears to see frequent disturbance. Brome (*Bromus* sp.) and barley (*Hordeum* sp.) are also found throughout, with redstem filaree (*Erodium cicutarium*) also present. Small, sparse patches of brittlebush (*Encelia farinosa*) also exist within the central portion of this area that is predominantly comprised of open ground, with scattered to dense non-native weeds, native wildflowers, and low-lying annual grasses. This area of disturbed land also includes open areas created by off-road vehicles and access roads and a few soil and debris piles. The disturbed land in the southwestern and southeastern portions of the survey area are primarily comprised of open ground, with moderate to dense non-native weeds and low-lying annual grasses in addition to a large patch of bare ground with erosion within the southern portion of the proposed project boundary. The eastern portion of the project site contains a small patch of dense deerweed (*Acmispon glaber*) with an understory of non-native ruderal vegetation.

Table 6 Vegetation Communities within Survey Area (acres)		
Vegetation Communities	Proposed Project Site	Survey Area
Disturbed Habitat	1.82	27.22
Urban/Developed	2.11	50.10
<b>TOTAL</b>	<b>3.93</b>	<b>77.32</b>

The proposed project would result in a total of up to 1.82 acres of direct impacts to disturbed habitat and 2.11 acres of urban/developed land (see Figure 7). Impacts to disturbed habitat and urban/developed land are not considered significant as these land cover types are not considered sensitive. Therefore, impacts would be less than significant.





- Project Boundary
- Survey Area
- Burrows

- Vegetation Community**
- Disturbed Habitat
  - Urban/Developed

0      Feet      400



FIGURE 7  
Existing Biological Resources

## Plant Species

No sensitive plants were detected at the time of the biological survey and none are expected to occur given the disturbed nature of the project site and soils. The project site also occurs outside of any MSHCP Narrow Endemic Plant Species Survey Area or Criteria Area Plant Species Survey Area. A record of Parry's spineflower (*Chorizanthe parryi* var. *parryi*) is found in the California Natural Diversity Database within two miles of the survey area; however, it is not expected to occur within the project site due to the age of the single observation (1950s) of this species, lack of suitable coastal sage scrub, chaparral, cismontane woodland, or grassland habitat, and disturbed nature of the site and soils. Therefore, impacts would be less than significant.

## Wildlife

There are no state or federally state listed species that occur in the project site.

### *Western Burrowing Owl*

No burrowing owl individuals or any sign of burrowing owl activity were detected on the project site or within the 500-foot burrowing owl assessment buffer (survey area). However, the disturbed land in the northeastern portion of the survey area supported several squirrel burrows that were large enough to potentially support burrowing owl. The remaining disturbed habitat in the southwestern and southeastern portions of the survey area contains open areas within the 500-foot burrowing owl assessment buffer; however, the potential for this species to occur is low to moderate given the level of dense residential development in the immediate vicinity to these areas and lack of potentially suitable burrows. While no burrowing owl or burrowing owl sign were detected, the disturbed habitat within and adjacent to the project area has potential to support burrowing owl. Mitigation measures BIO-1 and BIO-2 would require a pre-construction special-status species sensitivity training and pre-construction survey prior to the commencement of construction to ensure no burrowing owls have entered the area to avoid direct or indirect impacts to the species or any active nests, if present. Therefore, implementation of mitigation measures BIO-1 and BIO-2 would reduce potential impacts to burrowing owls to a level less than significant.

### *Stephens' Kangaroo Rat*

This species has low potential to occur due to the high level of soil disturbance and lack of suitable grassland habitat within the survey area. The survey area is located outside the core areas for this species identified within the MSHCP (County of Riverside 2003). Additionally, this species is not known to occur within one mile of the survey area. Therefore, impacts would be less than significant.

### *Coastal California Gnatcatcher*

This species is not expected to occur due to a lack of suitable coastal sage scrub habitat. While some small patches of native shrubs (e.g., brittlebush, deerweed) exist within the survey area, none of the patches are large enough or provide the appropriate vegetation structure to support breeding coastal California gnatcatcher. Therefore, impacts would be less than significant.

*Least Bell's Vireo*

This species is not expected to occur due to a lack of riparian vegetation within the survey area. In addition, none of the ornamental vegetation found throughout the survey area contains the appropriate vegetation structure or density to support breeding least Bell's vireo. Therefore, impacts would be less than significant.

*Migratory and Nesting Birds*

The majority of the survey area, including the man-made structures and ornamental vegetation found within the urban/developed lands and disturbed habitat, has potential to support migratory and nesting bird species. Urban adapted species in particular have been known to nest within ornamental vegetation or the eaves of houses or openings in structures. In addition, several ground nesting species have the potential to nest within the open areas found within the disturbed habitat and urban/developed lands within the survey area. The proposed project has the potential to result in direct impacts to nesting and migratory birds should vegetation removal or grading within the proposed project impact footprint occur during the general avian breeding season (January 15 to August 31). Direct impacts to nesting and migratory birds if present at the time of project construction would be considered significant and require mitigation. If vegetation clearing must take place during the nesting season, mitigation measure BIO-3 would require a qualified biologist to perform a pre-construction survey for nesting birds. Implementation of mitigation measure BIO-3 would reduce impacts on nesting and migratory birds to a level less than significant.

**b. No Impact**

Direct impacts associated with the proposed project would be limited to disturbed habitat and urban/developed land. None of these vegetation communities qualify as sensitive riparian habitats. Therefore, no impact would occur.

**c. No Impact**

No potential jurisdictional wetlands or waters, including riparian/riverine areas or vernal pools, were observed within or adjacent to the project site. Therefore, no impact would occur.

**d. Less Than Significant Impact**

The project site is located on partially unimproved lots and roadways that are primarily surrounded by residential development. No components of the proposed project are within existing or proposed criteria areas or reserves defined by the MSHCP. Though the project site likely provides habitat for urban-adapted species, the project site does not provide a throughway for wildlife movement due to the site's location in a developed area and lack of connectivity to off-site areas of open space. Also, the project site is unlikely to support wildlife nursery sites or large roosting or breeding colonies due to the disturbed nature of the site. Therefore, the project site would not be considered part of a wildlife corridor, and impacts would be less than significant.

**e. Less Than Significant Impact**

The City's General Plan (Open Space & Resource Conservation) provides policies related to protecting biological resources and implementing the MSHCP. As discussed in further detail below,



the proposed project is consistent with the MSHCP, and therefore would not conflict within any City General Plan policies pertaining to the protection of biological resources. In addition, the City's Development Code (Chapter 9.17.030.F Tree Preservation and Maintenance and Chapter 9.17.030.G Heritage Trees) provides regulations and guidelines for the protection of existing trees. Removal of existing trees on the project site would be in conformance with these regulations. Therefore, the proposed project would not conflict with any local policies or ordinances protecting biological resources, and impacts would be less than significant.

#### **f. Potentially Significant Unless Mitigation Incorporated**

The project site is located within the boundaries of the Western Riverside MSHCP (County of Riverside 2003). The MSHCP allocates responsibility for assembly and management of its Conservation Areas to local, state, and federal governments, as well as private and public entities engaged in construction that may impact MSHCP covered species. As lead agency, the District is not a participant in the MSHCP; however, the proposed project must still demonstrate it would not prevent implementation of the conservation goals and objectives of the MSHCP. The project is not located within a designated criteria cell, so no mitigation for impacts to vegetation communities would be required by the MSHCP. No riparian/riverine areas, vernal pools, or narrow endemic plant species are present. As portions of the proposed project are located within the MSHCP-designated burrowing owl survey area, mitigation measure BIO-2 would be required, as addressed in Section 4.4a. Implementation of mitigation measure BIO-2 requires focused surveys to occur prior to construction. Implementation of mitigation measure BIO-2 would reduce impacts on burrowing owls to a level less than significant and ensure consistency with the MSHCP.

#### **Mitigation Measures**

##### **BIO-1: Pre-Construction Special-Status Species Sensitivity Training**

Prior to the start of construction activities, a qualified biologist shall prepare a Worker Environmental Awareness Program (WEAP) that provides a description of the potentially occurring special-status species that could be affected by the proposed project. The WEAP training shall:

- Include information on identifying special-status species.
- Include measures to avoid special-status species during construction activities.
- Be provided to all construction personnel by a qualified biologist.
- Be documented for all construction personnel on a sign-in sheet maintained on-site at all times during construction activities.

When applicable, the qualified biologist shall also verify fencing or marking limits of disturbance (marking habitat suitable to support special-status species and sensitive vegetation communities) prior to the start of construction activities.

##### **BIO-2: Western Burrowing Owl**

A pre-construction take avoidance survey for this species would be required within all suitable habitat located inside the burrowing owl survey area (suitable habitat within the project footprint, plus a 500-foot buffer). Per the Staff Report on Burrowing Owl Mitigation (CDFW 2012), take avoidance surveys require an initial survey no less than 14 days prior to the start of ground disturbance activities

and a final survey conducted within 24 hours of ground disturbance. If burrowing owls are detected, the CDFW must be notified within 48 hours and avoidance measures and/or mitigation would be required.

If active burrowing owl burrows are identified within or adjacent to the impact area, the project shall avoid disturbing active burrowing owl burrows (nesting sites) and burrowing owl individuals. The following measures would be implemented and incorporated into the WEAP, upon authorization from CDFW:

- Buffers shall be established around occupied burrows in accordance with guidance provided in the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) based on the proposed level of disturbance. For low disturbance projects, initial setback distances for avoidance of active burrows shall be 200 meters (approximately 656 feet) from April 1 to October 15 and 50 meters (164 feet) from October 16 to March 31. Exceptions can be made to the avoidance distance for areas with natural (hills, trees) or artificial (buildings, walls) barriers in place. The final avoidance buffer shall be at the discretion of the biologist.
- If, after consideration of a reduced buffer, an adequate avoidance buffer cannot be provided between an occupied burrow and required ground-disturbing activities, then passive relocation activities during the non-breeding season (September 1 through January 31) may be authorized in consultation with CDFW, which would include preparation, approval, and implementation of a Burrowing Owl Exclusion Plan in accordance with protocol described in the CDFW Staff Report on Burrowing Owl Mitigation.

### **BIO-3: Migratory and Nesting Birds**

If construction activities occur during the nesting season (January 15 through August 31), pre-construction surveys for breeding and nesting birds and raptors shall be required. Beginning 14 days prior to construction activities, a qualified biologist shall conduct weekly surveys within 500 feet of the construction limits to determine and map the location and extent of breeding birds that could be affected by the project. Surveys shall include the following:

- Conduct surveys at appropriate nesting times.
- Concentrate on potential roosting or perch sites.
- Conduct surveys on a weekly basis with the last survey conducted not more than three days prior to the start of construction activities.

When an active nest is located, the following shall be implemented to minimize potential impacts:

- Clearing and construction activities, within appropriate buffers as determined by a qualified biologist, shall be postponed until the nest is vacated, the juveniles have fledged, and there is no evidence of a second attempt at nesting.
- The buffer zone will be established in the field with flagging and stakes.
- Temporary fencing and signage shall be maintained during the duration of the project.



- Construction personnel shall be instructed on the sensitivity of the area and be advised not to work, trespass, or engage in activities that would disturb nesting birds near or inside the buffer.
- On-site monitoring may be required to ensure that no direct or indirect impacts occur to the active nests.
- Project activities may encroach into the buffer only at the discretion of the qualified biologist.

## 4.5 Cultural Resources

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of an 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 human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### EXPLANATIONS:

#### a. No Impact

A Cultural Resources Survey Report was prepared by RECON on January 6, 2023 (Appendix E). In order to determine if the proposed project would adversely impact significant cultural resources, background research, review of historic aerial photographs and an on-foot survey of the proposed project was completed. On May 3, 2021, RECON archaeologist Carmen Zepeda-Herman conducted a pedestrian survey of the project site and no cultural resources were identified. The project site is developed with an existing District tank and covered in what appears to be imported fill and road gravel. The earliest photograph of the project site dates to 1966. In 1966, the project site was not developed and looked to be in an alluvial area. Similar conditions were noted until the 1997 photograph when the existing development pad had been graded and the tank installed. The next change was the installation of the existing concrete pad in the 2012 photograph.

The records search, historic aerial photographs, and on-foot survey did not identify any historic structures or resources. Therefore, the proposed project would not cause a substantial adverse change in the significance of an historical resource pursuant to §15064.5. No impact would occur.

**b. Potentially Significant Unless Mitigation Incorporated**

The records search results and the pedestrian survey indicated that there are no previously recorded cultural resources within the project's area of potential effect (APE; see Appendix E). Additionally, the Sacred Lands File search results were negative. However, due to the project site being within Traditional Use Areas and being considered sensitive because there are existing cultural resource sites known in the surrounding areas, construction activities would have the potential to unearth previously unknown tribal cultural resources, the discovery of which would be considered a significant impact. Implementation of mitigation measures CUL-1 through CUL-7 would reduce impacts related to archaeological resources to a level less than significant.

**c. Potentially Significant Unless Mitigation Incorporated**

There are no formal cemeteries or recorded burials in the vicinity of the project site. Therefore, the potential for encountering human remains during construction is very low. In accordance with Health and Safety Code Section 7050.5, CEQA Section 15064.5(e), and Public Resources Code Section 5097.98, if any human remains are discovered, all work would be halted in the vicinity of the discovery, the appropriate authorities would be notified, and standard procedures for the respectful handling of human remains would be adhered to. Implementation of mitigation measures CUL-5 through CUL-7 would reduce impacts regarding the disturbance of human remains to a level less than significant.

**Mitigation Measures****CUL-1: Cultural Resources Treatment and Monitoring Agreement**

At least 30 days prior to the start of ground-disturbing activities, EMWD shall contact the Consulting Tribe(s) to develop Cultural Resources Treatment Monitoring Agreement(s) (Agreement). The Agreement(s) shall address the treatment of archaeological resources inadvertently discovered on the project site; project grading; ground disturbance and development scheduling; the designation, responsibilities, and participation of tribal monitor(s) during grading, excavation, and ground disturbing activities; and compensation for the tribal monitors, including overtime, weekend rates, and mileage reimbursement.

**CUL-2: Cultural Resources Monitoring and Plan Development**

Prior to grading activities, a Cultural Resources Monitoring Plan (plan) shall be prepared by a qualified archaeologist in consultation with the Consulting Tribe(s). The plan shall also identify the location and timing of cultural resources monitoring. The plan shall contain an allowance for the qualified archaeologist, based on observations of subsurface soil stratigraphy or other factors during initial grading, and in consultation with the Native American monitor and the lead agency, may reduce or discontinue monitoring as warranted if the archaeologist determines that the possibility of encountering archaeological deposits is low. The plan shall outline the appropriate measures to be followed in the event of unanticipated discovery of cultural resources during project implementation (including the survey to occur following vegetation removal and monitoring during ground-disturbing activities). The plan shall identify avoidance as the preferred manner of mitigation impacts to cultural resources. The plan shall establish the criteria utilized to evaluate the historic

significance (per CEQA) of the discoveries, methods of avoidance consistent with CEQA Guidelines Section 15126.4(b)(3), as well as identify the appropriate data recovery methods and procedures to mitigate the effect of the project if avoidance of significant historical or unique archaeological resources is determined to be infeasible. The plan shall also include reporting of monitoring results within a timely manner, disposition of artifacts, curation of data, and dissemination of reports to local and state repositories, libraries, and interested professionals. A qualified archaeologist and Consulting Tribe(s) tribal monitor shall attend a pre-grade meeting with District staff, the contractor, and appropriate subcontractors to discuss the monitoring program, including protocols to be followed in the event that cultural material is encountered.

### **CUL-3: Tribal Monitoring Agreements**

A qualified archaeological monitor and Consulting Tribe(s) tribal monitor shall be present for ground-disturbing activities associated with the project, and both the project archaeologist and tribal monitor(s) will determine the areas with a potential for encountering cultural material. At least seven business days prior to ground-disturbing activities, District shall notify the Tribe(s) of the grading/excavation and monitoring program/schedule, to coordinate the tribal monitoring schedule. Both the archaeologist and the tribal monitor shall have the authority to stop and redirect grading activities in order to evaluate the nature and significance of any archaeological resources discovered within the project limits. Such evaluation shall include culturally appropriate temporary and permanent treatment pursuant to the Cultural Resources Treatment and Monitoring Agreement, which may include avoidance of cultural resources, in-place preservation, data recovery, and/or reburial so the resources are not subject to further disturbance in perpetuity. Any reburial shall occur at a location determined between the District and the Consulting Tribe(s), details of which shall be addressed in the Cultural Resources Treatment and Monitoring Agreement in mitigation measure CUL-1. Treatment may also include curation of the cultural resources at a tribal curation facility, as determined in discussion among the District, the project archaeologist and tribal representatives as addressed in the Cultural Resources Treatment and Monitoring Agreement referenced in mitigation measure CUL-1.

### **CUL-4: Evaluation of Discovered Artifacts**

Artifacts discovered at the development site shall be inventoried and analyzed by the project archaeologist and tribal monitor(s). A monitoring report will be prepared, detailing the methods and results of the monitoring program, as well as the disposition of cultural material encountered. If no cultural material is encountered, a brief letter report will be sufficient to document monitoring activities.

### **CUL-5: Disposition of Inadvertent Discoveries**

In the event that Native American cultural resources are recovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries with the Tribe(s). The District shall relinquish ownership of all cultural resources, including sacred items, burial goods, and all archaeological artifacts and non-human remains as part of the required mitigation for impacts to cultural resources, and adhere to the following:

- 1) Preservation-in-place is the preferred option; preservation-in-place means avoiding the resources and leaving them in the place where they were found with no development affecting the integrity of the resource.
- 2) If preservation-in-place is not feasible, on-site reburial of the discovered items as detailed in the plan required pursuant to mitigation measure CUL-2 is the next preferable treatment measure. This shall include measures and provisions to protect the future reburial area from further impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items shall be permitted without the written consent of all Consulting Native American Tribal Governments.
- 3) In the event that on-site reburial is not feasible, the District will enter into a curation agreement with an appropriate qualified repository with Riverside County that meets federal standards per 36 Code of Federal Regulations 800 Part 79 and therefore would be curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within Riverside County, to be accompanied by payment of the fees necessary for permanent curation.

#### **CUL-6: Non-Disclosure of Reburial Locations**

It is understood by all parties that unless otherwise required by law, the site of any reburial of culturally sensitive resources shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The coroner, pursuant to the specific exemption set forth in California Government Code 6254(r), parties, and Lead Agencies will be asked to withhold public disclosure information related to such reburial.

#### **CUL-7: Procedure for Discover of Human Remains**

If Native American human remains are encountered, Public Resources Code Section 5097.98 and California Health and Safety Code Section 7050.5 will be followed. If human remains are encountered, no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to the origin. Further, pursuant to California Public Resources Code Section 5097.98(b), the remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the coroner shall contact the Native American Heritage Commission within 24 hours. Subsequently, the Native American Heritage Commission shall identify the person or persons it believes to be the "most likely descendant." The most likely descendant shall then make recommendations and engage in consultations concerning the treatment of the remains as provided in Public Resources Code Section 5097.98.

## 4.6 Energy

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of 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"/>

### EXPLANATIONS:

#### a. Less Than Significant Impact

Energy use during construction would occur within two general categories: vehicle fuel used by workers commuting to and from the construction site, and fuel use by vehicles and other equipment to conduct construction activities. While construction activities would consume fuels, project-related consumption of such resources would be temporary and would cease upon the completion of construction. In addition, mobile equipment energy usage during construction would be minimized as the proposed project would comply with CARB's idling regulations, which restrict idling diesel vehicles and equipment to five minutes. Additionally, consistent with state requirements, all construction equipment would meet CARB Tier 3 In-Use Off-Road Diesel Engine Standards. Engines are required to meet certain emission standards, and groups of standards are referred to as Tiers. A Tier 0 engine is unregulated with no emission controls, and each progression of standard level (i.e., Tier 1, Tier 2, Tier 3, etc.) generate lower emissions, use less energy, and are more advanced technologically than the previous tier. CARB's Tier 3 In-Use Off-Road Diesel Engine Standards requires that construction equipment fleets become cleaner and use less energy over time. The fuel consumed during construction would also be typical of similar construction projects and would not require the use of new energy resources beyond what are typically consumed in California. Therefore, construction of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources, and impacts would be less than significant.

Operational energy usage would be minimal and would consist of occasional maintenance worker vehicle trips and electricity usage. The BPS would be equipped with two vertical pumps rated at 900 gallons per minute into a pressure head of 275 feet. Each pump would be driven by a dedicated 75-horsepower electric motor. One pump would be active, and one would be a standby. The pumps would utilize the latest in booster pump technology and efficiency. The proposed project would not use energy in a wasteful, inefficient, or unnecessary manner. Therefore, operation of the proposed

project would not result in a wasteful, inefficient, or unnecessary consumption of energy resources, and impacts would be less than significant.

#### b. Less Than Significant Impact

Construction equipment would be subject to CARB's idling regulations and Tier 3 In-Use Off-Road Diesel Engine Standards. Operation of the proposed project would not require ongoing or regular use of energy. Therefore, the proposed project would not conflict with any state or local plans for renewable energy or energy efficiency, and impacts would be less than significant.

## 4.7 Geology and Soils

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless 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?	<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"/>

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), 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 wastewater disposal systems where sewers are not available for the disposal of wastewater?	<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"/>

**EXPLANATIONS:**

Converse Consultants prepared two Geotechnical Reports for the proposed project: Steeplechase and Kalmia BPS Replacement (see Appendix A) and Approximately 1,209 Linear Feet of Pipeline (Appendix F).

**a.i. Less Than Significant Impact**

Review of Map S-1 of the MoVal 2040 General Plan determined that there are no known Alquist-Priolo fault zones and no known active faults traversing the project site (MoVal 2022a). The nearest active fault zone is a Riverside County Fault Zone located approximately 1.5 miles northeast of the project site and the San Jacinto Fault Zone located approximately 2.3 miles northeast of Kalmia Avenue. Therefore, the risk of earthquake ground rupture is low, and impacts related to the exposure of people or structures to rupture of a known earthquake fault would be less than significant.

**a.ii. Less Than Significant Impact**

The project site is located in a seismically active southern California region. However, the proposed project is limited to constructing a BPS and an approximately 1,209-linear-foot pipeline and would not introduce any residential, commercial, or other uses that could expose people to strong ground shaking. Therefore, impacts related to strong seismic shaking would be less than significant.

**a.iii. Less Than Significant Impact**

Liquefaction is a phenomenon where water-saturated granular soil loses shear strength during strong ground shaking produced by earthquakes. The loss of soil strength occurs when cyclic pore water pressure increases below the groundwater surface. Potential hazards due to liquefaction include the loss of bearing strength beneath structures; feasibly causing foundation failure or significant settlements and differential settlements. Review of Map S-2 of the MoVal 2040 General

Plan determined that the project site is located within a low liquefaction hazard zone (MoVal 2021a). Therefore, impacts related to liquefaction would be less than significant.

**a.iv. Less Than Significant Impact**

The project site and surrounding area are relatively flat and do not possess any slopes that could generate a landslide. Furthermore, the proposed project would not introduce any residential, commercial, or other uses that could expose people to landslides. Therefore, the proposed project would not cause or increase the potential for landslides, and impacts would be less than significant.

**b. Less Than Significant Impact**

The proposed project would implement BMPs during construction consistent with the requirements of the NPDES Construction General Permit and the City standards that are designed to minimize erosion potential by controlling storm water flows and minimization of topsoil loss. Therefore, compliance with the requirements of the NPDES Construction General Permit would prevent substantial soil erosion or the loss of topsoil, and impacts would be less than significant.

**c. Less Than Significant Impact**

As described in the Section 4.6aiii above, the project site is located within a low liquefaction hazard zone. No portion of the project site is located within a currently designated State of California or Riverside County Landslide Zone (see Appendix A). Seismically induced lateral spreading involves primarily lateral movement of earth materials due to ground shaking. Therefore, the potential for landslides or lateral spreading the project site is considered low. Furthermore, project excavation and pipeline construction would be conducted consistent with requirements of the 2022 CBC regarding unstable soils. Adherence to these guidelines would ensure that impacts associated with unstable soils would be less than significant.

**d. Less Than Significant Impact**

The geotechnical report for the BPS (see Appendix A) found that the subsurface soils at the project site consist of a mixture of sand, silt, trace clay, and gravel. Based on the soil type, the expansion index of site soil would be less than 20, which corresponds to very low expansion potential. Furthermore, project construction would be conducted consistent with requirements of the 2022 CBC regarding expansive soils. Adherence to these guidelines would ensure that impacts associated with expansive soils would be less than significant.

**e. No Impact**

The proposed project does not propose the use of septic tanks or alternative wastewater disposal systems. No impact would occur.

**f. Potentially Significant Unless Mitigation Incorporated**

The proposed project site has been previously graded and is developed with the District's existing Kalmia Avenue water tank. However, excavation will extend below the existing graded pad at the BPS site and below the graded roadbed within the southern side of Kalmia Avenue from the District-owned parcel heading eastward to the end of the paved surfaced located east of Slawson Avenue. Therefore, the proposed construction would impact native soils that could contain paleontological resources.



The degree of paleontological sensitivity of any particular area is based on a number of factors, including the documented presence of fossiliferous resources on a site or in nearby areas, the presence of documented fossils within a particular geologic formation or lithostratigraphic unit, and whether or not the original depositional environment of the sediments is one that might have been conducive to the accumulation of organic remains that might have become fossilized over time. Late Quaternary (Holocene, or “modern”) alluvium is generally considered to be geologically too young to contain significant, nonrenewable paleontological resources (i.e., fossils), and is thus typically assigned a Low paleontological sensitivity. Older Pleistocene (greater than 11,700 years old) alluvial and alluvial fan deposits in the Inland Empire, however, often yield important Ice Age terrestrial vertebrate fossils, such as extinct mammoths, mastodons, giant ground sloths, extinct species of horse, bison, and camel, saber-toothed cats, and others (Scott 2015). These Pleistocene sediments are thus accorded a High paleontological resource sensitivity.

A geotechnical report prepared for the proposed project (Converse Consultants 2022) states that the project site and pipeline alignment are underlain by early to middle Pleistocene, very old alluvial fan deposits (Qvof). Therefore, the paleontological sensitivity of the native soils is high and mitigation would be required in the form of a paleontological monitor during construction.

### **Mitigation Measures**

#### **GEO-1: Paleontological Resources Mitigation and Monitoring Plan**

A Paleontological Resources Mitigation and Monitoring Plan shall be prepared prior to commencing construction activities that would exceed four feet in depth that could directly affect geologic formations with high paleontological resource sensitivity. A qualified paleontologist shall be retained to carry out and manage the plan. Fieldwork may be carried out by a qualified paleontological monitor working under the direction of the paleontologist.

Components of the Paleontological Resources Mitigation and Monitoring Plan shall include, but not be limited to the following:

- The paleontologist shall attend all pre-grading meetings to inform the grading and excavation contractors of the paleontological resource mitigation program and shall consult with them with respect to its implementation.
- The paleontological monitor shall be on-site at all times during the original cutting of previously undisturbed sediments of high resource sensitivity formation at a subsurface depth of four feet or greater to inspect cuts for contained fossils.
- If fossils are discovered, the paleontologist or monitor shall recover them. In instances where recovery requires an extended salvage time, the paleontologist or monitor shall be allowed to temporarily direct, divert, or halt ground-disturbing activities to allow recovery of fossil remains in a timely manner. Where deemed appropriate by the paleontologist or monitor, a screen-washing operation for small fossil remains shall be set up.
- Recovered fossils, along with copies of pertinent field notes, photographs, and maps, shall be deposited in a scientific institution with paleontological collections. A final summary report that outlines the results of the mitigation program shall be completed. This report shall

include discussion of the methods used, stratigraphy exposed, fossils collected, and significance of recovered fossils.

## 4.8 Greenhouse Gas Emissions

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless 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"/>

### EXPLANATIONS:

#### a. Less Than Significant Impact

The District has not adopted its own greenhouse gas (GHG) thresholds of significance for CEQA. The SCAQMD published its Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans in 2008 (SCAQMD 2008). The interim thresholds are a tiered approach: projects may be determined to be less than significant under each tier or require further analysis under subsequent tiers. For the proposed project, the most appropriate screening threshold for determining GHG emissions is the SCAQMD proposed Tier 3 screening threshold (SCAQMD 2010); therefore, a significant impact would occur if the proposed project would exceed the SCAQMD proposed Tier 3 screening threshold of 3,000 metric tons carbon dioxide equivalent (MT CO<sub>2</sub>E) per year. Based on guidance from the SCAQMD, total construction GHG emissions resulting from a project should be amortized over the lifetime of a project, which is defined as 30 years (SCAQMD 2009).

GHG emissions would result from construction and operation of the proposed project. Construction activities emit GHGs primarily through combustion of fuels (mostly diesel) in the engines of off-road construction equipment and through combustion of diesel and gasoline in on-road construction vehicles and the commute vehicles of the construction workers. Operational emissions would result from routine vehicle trips associated with inspection and maintenance, energy use (electric pumps, lighting, and other equipment), area sources (landscape equipment), water use, and waste generation. GHG emissions associated with the proposed project were calculated using the default parameters for a heavy industrial use. This is conservative since heavy industrial uses generally generate greater emissions than a pump station. Additionally, emissions associated with the

emergency generator were calculated assuming it would be tested for a maximum of 50 hours per year. Total GHG emissions are summarized in Table 7.

Table 7 Summary of Total GHG Emissions	
Source	GHG Emissions (MT CO <sub>2</sub> E)
Mobile	6
Energy	9
Stationary	8
Area	<1
Water	2
Waste	2
Construction	7
<b>TOTAL</b>	<b>33</b>
SOURCE: Appendix A.	
MT CO <sub>2</sub> E = metric tons carbon dioxide equivalent	

As shown in Table 7, the proposed project would result in a total of 33 MT CO<sub>2</sub>E annually. This would be less than the 3,000 MT CO<sub>2</sub>E per year screening threshold. Therefore, impacts from construction and operation of the proposed project would be less than significant.

#### b. Less Than Significant Impact

Applicable plans, policies, or regulations include statewide GHG emission targets established by AB 32 and Senate Bill (SB) 32; a longer-term statewide policy goal established by Executive Order S-3-05; the 2017 Scoping Plan (which establishes a specific statewide plan to achieve the 2030 target); Southern California Association of Governments' (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS); regulations regarding increased use renewables for electricity production (RPS); and the California Energy Code. Additionally, the City of Moreno Valley (City) is in the process of adopting a Climate Action Plan (CAP) that outlines how the City will achieve GHG reductions in line with state goals.

The proposed project would result in construction GHG emissions below the SCAQMD proposed Tier 3 screening threshold of 3,000 MT CO<sub>2</sub>E per year and negligible operational GHG emissions. The proposed project would not result in emissions that would adversely affect state-wide attainment of GHG emission reduction goals as described in AB 32, Executive Order S-21-09, and SB 32. Project emissions would therefore have a less than cumulatively considerable contribution to global climate change impacts.

The 2017 Scoping Plan identifies state strategies for achieving the state's 2030 interim GHG emissions reduction target codified by SB 32. Measures under the 2017 Scoping Plan scenario build on existing programs such as the Low Carbon Fuel Standard, Advanced Clean Cars Program, RPS, Sustainable Communities Strategy, Short-Lived Climate Pollutant Reduction Strategy, and the Cap-and-Trade Program. Project emissions would be limited to construction activities. Operational emissions would be limited to minor vehicle/equipment use associated with routine inspection and maintenance, and routine emergency generator testing. The proposed project would not conflict 2017 Scoping Plan reduction measures related to vehicles, energy, or large stationary emitters. Likewise, the proposed

project would not conflict with utility providers' implementation of RPS or with SCAG's RTP/SCS goals of reducing mobile sources of emissions. In regard to the Moreno Valley CAP, the only measure applicable to the proposed project is *Off-Road Equipment OR-2: Reduce emissions from heavy-duty construction equipment by limiting idling based on South Coast Air Quality Management District (SCAQMD) requirements and utilizing cleaner fuels, equipment, and vehicles*. All construction equipment used for the proposed project would comply with all SCAQMD requirements. Additionally, all construction equipment is subject to the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation, which limits unnecessary idling to 5 minutes, requires all construction fleets to be labeled and reported to CARB, bans Tier 0 equipment and phases out Tier 1 and 2 equipment (thereby replacing fleets with cleaner equipment), and requires that fleets comply with Best Available Control Technology requirements.

Therefore, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and impacts would be less than significant.

## 4.9 Hazards and Hazardous Materials

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through 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 checked="" type="checkbox"/>	<input type="checkbox"/>

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

**EXPLANATIONS:****a. Less Than Significant Impact**

The proposed project would not involve routine transport, use, or disposal of significant hazardous materials. Project construction may involve the use of small amounts of solvents, cleaners, paint, oils and fuel for equipment. However, these materials are not acutely hazardous, and use of these common hazardous materials in small quantities would not represent a significant hazard to the public or environment. Additionally, project construction would be required to be undertaken in compliance with applicable federal, state, and local regulations pertaining to the proper use of these common hazardous materials. Compliance with these regulations is mandatory per standard permitting conditions. Therefore, the proposed project would not create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials, and impacts would be less than significant.

**b. Less Than Significant Impact**

As described in Section 4.9a above, operation of the BPS and pipeline would not involve the routine transport, use, or disposal of significant hazardous materials. Furthermore, project construction would be conducted consistent with all applicable safety regulations and would not be expected to introduce accident conditions that could result in the release of hazardous materials into the environment. Roadways would be restored to pre-existing conditions once construction is completed. Therefore, the proposed project would not create upset and accident conditions that could result in the release of hazardous materials, and impacts would be less than significant.

**c. No Impact**

The proposed project is not located within 0.25 mile of an existing or proposed school. The closest school is Sunnymead Elementary School, located approximately 3.4 miles southwest of the project site. Project construction would not require the use of acutely hazardous materials and would be limited to the use of small amounts of solvents, cleaners, paint, oils, and fuel for equipment. Use of these common hazardous materials in small quantities would not represent a significant hazard to the public or environment, and the use and handling of hazardous materials during construction would be conducted consistent with all applicable regulations (see Section 4.8a, above). Therefore, no impacts related to hazardous emissions within 0.25 mile of a school would occur.

**d. Less Than Significant Impact**

Record searches of the GeoTracker and EnviroStor databases determined that the project site and surrounding sites are not identified as hazardous materials sites within either database (SWRCB 2022a and 2022b). Therefore, there are no hazardous materials located on the project site or surrounding area that would create a significant hazard to the public or the environment, and impacts would be less than significant.

**e. No Impact**

As shown in Map MA-1 in the March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, the project site is located within the Federal Air Regulations (FAR) Part 77 Military Outer Horizontal Surface Limits of the March Air Reserve Base/Inland Port Airport. FAR Part 77 is defined as the outer limits of the civilian airport conical surface. The proposed project is limited to construction of a BPS and water pipeline and would not exceed 19 feet in height. Therefore, the proposed project would not result in a safety hazard or excessive noise. No impact would occur.

**f. Less Than Significant Impact**

The proposed project is limited to construction of a BPS and water pipeline and would not result in any permanent changes to the existing circulation network. Construction within the right-of-way for Kalmia Avenue would be temporary and include traffic control measures to allow continued access. Roadways would be restored to pre-existing conditions once construction is completed. As described in Section 4.17a below, vehicle trips generated during construction and operation would not affect intersection and roadway operation. Therefore, the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant.

**g. No Impact**

The proposed project is not located in a High Fire Hazard Severity Zone on the California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone Map (CAL FIRE 2022). The proposed project does not include habitable structures that could expose people to a significant risk of loss, injury, or death involving wildland fires. Human presence would be limited to temporary construction and periodic maintenance. Therefore, no impacts associated with the exposure of people or structures to significant risk of loss, injury, or death would occur.

## 4.10 Hydrology and Water Quality

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless 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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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"/>

**EXPLANATIONS:****a. Less Than Significant Impact**

Project construction would have the potential to generate erosion/sedimentation and pollutants that could impact water quality. However, the proposed project is subject to the NPDES permit requirements overseen by the District which includes preparation and implementation of a SWPPP for the prevention of polluted runoff during construction. The proposed project would be required to prepare and implement a SWPPP with BMPs prior to the commencement of construction activities, and to incorporate water quality design features to address potential erosion and siltation impacts. A BMP is a method used to prevent or control stormwater runoff and the discharge of pollutants, including sediment, into local waterbodies. Silt fences, inlet protection, and site-stabilization techniques are typical BMPs on a construction site. Implementation of the BMPs identified in the SWPPP would ensure that construction activities would not degrade water quality. Impacts would be less than significant.

Post-construction, the proposed project would mimic the site's existing drainage patterns and construct gravel surfacing, turf reinforcement, and grade to drain to the existing on-site depression. The drainage pattern of undeveloped portions of the project site would be restored to its pre-existing conditions. Therefore, the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, and impacts would be less than significant.

**b. Less Than Significant Impact**

According to the General Plan EIR (MoVal 2021b), the City lies within the San Jacinto groundwater basin. The Groundwater Sustainability Plan for the San Jacinto Groundwater Basin (EMWD 2021) indicates that, overall, the basin shows groundwater levels that continue to exhibit a stable or upward trend.

Increased runoff from the proposed project would flow to an existing depression on the southern portion of the project site where it would infiltrate into the subsurface. No deficit to groundwater or lowering of the groundwater table would occur. The proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the proposed project may impede sustainable groundwater management of the basin. Further, as discussed in Section 4.10a, above, the proposed project would not violate water quality standards. Thus, the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, impacts would be less than significant.



Therefore, the proposed project would not significantly decrease groundwater supplies or interfere with groundwater recharge or obstruct sustainable groundwater management, and impacts would be less than significant.

**c.i. Less Than Significant Impact**

The proposed project would implement construction BMPs consistent with the NPDES Construction General Permit and related requirements that would prevent erosion. Post-construction project runoff would mimic existing drainage patterns. Therefore, the proposed project would not substantially alter the drainage pattern of the project site or the surrounding area in a manner that could result in substantial erosion, runoff, impediment or redirection of flood flows, and impacts would be less than significant.

**c.ii. Less Than Significant Impact**

The proposed project would implement construction BMPs consistent with the NPDES Construction General Permit. Construction of the proposed project would result in an increase of impervious surfaces. The project site design includes turf reinforcement and gravel surfacing, which would attenuate runoff prior to being conveyed to the existing depression. Therefore, the proposed project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, and impacts would be less than significant.

**c.iii. Less Than Significant Impact**

The proposed project would implement construction BMPs consistent with the NPDES Construction General Permit and related requirements that would minimize erosion and prevent pollution from affecting water quality. Therefore, the proposed project would not 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, and impacts would be less than significant.

**c.iv. Less Than Significant Impact**

Review of Figure 4.10-3 of the General Plan EIR determined that the project site is not located within a Federal Emergency Management Agency (FEMA) floodplain or floodway (MoVal 2021b). Post-construction, the proposed project would mimic the site's existing drainage patterns. Therefore, the proposed project would not impede or redirect flood flows, and impacts would be less than significant.

**d. Less Than Significant Impact**

Review of Figure 4.10-3 of the General Plan EIR determined that the project site is not located within a FEMA floodplain or floodway (MoVal 2021b). The project site is located approximately 65 miles inland from the Pacific Ocean and, therefore, is not subject to risk associated with tsunamis. The nearest body of water is the Perris Reservoir, located approximately 10.5 miles south of the project site. Given this distance, the project site would not be affected by a seiche. Therefore, the proposed project would not result in impacts associated with flood hazard, tsunamis, or seiche zones. Impacts would be less than significant.

**e. Less Than Significant Impact**

As described in Section 4.10a above, the proposed project would implement construction BMPs consistent with the NPDES Construction General Permit and related requirements that would prevent erosion and pollution from affecting water quality. As described in Section 4.10b above, the proposed project would not decrease groundwater supplies or interfere with groundwater recharge. Therefore, the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and impacts would be less than significant.

**4.11 Land Use and Planning**

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless 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 checked="" type="checkbox"/>	<input type="checkbox"/>

**EXPLANATIONS:****a. No Impact**

The proposed project would not result in any permanent changes to the existing land use plan or circulation network. Construction within the right-of-way for Kalmia Avenue would be temporary and include traffic control measures to allow for continued access. Roadways would be restored to pre-existing conditions once construction is completed. The pipeline would be located below ground and would not result in any permanent changes above ground. Therefore, the proposed project would not physically divide an established community, and no impact would occur.

**b. Less Than Significant Impact**

Construction of the proposed project would not conflict with applicable land use/zoning designations within the project site. As described in Section 4.4f above, the proposed project would mitigate all potential impacts to biological resources to a level less than significant. Therefore, the proposed project would comply with the Western Riverside MSHCP and would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and impacts would be less than significant.

## 4.12 Mineral Resources

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless 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"/>

### EXPLANATIONS:

#### a. No Impact

There are no active mineral resource extraction facilities within the city of Moreno Valley. Review of Exhibit 4.12-1 of the MoVal 2040 Project EIR determined the project site is designated as MRZ-3, land for which the significance of mineral resources cannot be determined (MoVal 2021). The MRZ-3 zone is not considered a significant mineral resource zone. The proposed project consists of the construction of a new BPS and approximately 1,209 linear feet of 12-inch pipeline within Kalmia Avenue. Therefore, the proposed project would not result in the loss of availability of known mineral resources that would be of value to the region and the residents of the state or of a locally important mineral resource recovery site. No impact would occur.

#### b. No Impact

The City's General Plan does not identify the project site as an existing or former mineral resource site. No impact would occur.

## 4.13 Noise

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless 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 ground borne vibration or ground borne 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 area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### EXPLANATIONS:

#### a. Potentially Significant Unless Mitigation Incorporated

Noise is defined as sound that is loud, unpleasant, unexpected, or undesired, and therefore, may cause general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment. Decibels (dB) are the standard unit of measurement of the sound pressure generated by noise sources and are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale for earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the noise energy would result in a 3 dB decrease.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-weighted scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. Noise levels using A-weighted measurements are written as dB(A). It is widely accepted that the average healthy ear can barely perceive changes of 3 dB(A) (increase or decrease) and that a change of 5 dB(A) is

readily perceptible. An increase of 10 dB(A) is perceived as twice as loud, and a decrease of 10 dB(A) is perceived as half as loud (California Department of Transportation [Caltrans] 2013).

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this study are the equivalent noise level ( $L_{eq}$ ) and the maximum noise level. The  $L_{eq}$  is the equivalent steady-state noise level in a stated period of time that is calculated by averaging the acoustic energy over a time period; when no period is specified, a 1-hour period is assumed. The maximum noise level is the highest sound level occurring during a specific period.

### ***Construction Noise***

The City regulates noise through the Municipal Code under Title 11 Peace, Morals and Safety, Chapter 11.80, Noise Regulation. The Municipal Code limits construction activities in two parts of the code: Sections 8.14.040(E) and 11.80.030(D)(7). Section 8.14.040(E) states that construction within the city shall only occur from 7:00 a.m. to 7:00 p.m. from Monday through Friday excluding holidays and from 8:00 a.m. to 4:00 p.m. on Saturdays. Section 11.80.030(D)(7) states that no person shall operate or cause the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between the hours of 8:00 p.m. and 7:00 a.m. such that the sound creates a noise disturbance. For power tools, specifically, 11.80.030(D)(9) states that no person shall operate or permit the operation of any mechanically, electrically or gasoline motor-driven tool during nighttime hours that causes a noise disturbance across a residential property line. A noise disturbance is defined as any sound that disturbs a reasonable person of normal sensitivities, exceeds the sound level limits set forth in the Noise Ordinance, or is plainly audible (as measured at a distance of 200 feet from the property line of the source of the sound if the sound occurs on privately owned property, or public right-of-way, public space, or other publicly owned property).

The Municipal Code does not establish maximum daytime noise level limits on construction noise. The Federal Transit Authority's (FTA) Transit Noise and Vibration Impact Assessment manual indicates that 80 dB(A)  $L_{eq}$  is reasonable criteria for assessing construction noise levels at residential uses (FTA 2018).

Construction of the pump station would require the use of construction equipment. Noise impacts from construction are a function of the noise generated by equipment, the location and sensitivity of nearby land uses, and the timing and duration of the noise generating activities. Construction noise levels were modeled using the SoundPLAN program assuming the simultaneous operation of a backhoe and a loader. Together, this construction equipment generates an average hourly noise level of 79 dB(A)  $L_{eq}$  at 50 feet (Federal Highway Administration 2006). Construction noise was modeled as an area source distributed over the footprint of the project site. Ground-level noise contours were developed, and noise levels were modeled at specific receivers located at the sensitive receptors adjacent to the project site. Construction noise contours and modeled receivers are shown in Figure 8 and the results are summarized in Table 8.

Table 8 Construction Noise Levels	
Site/Receiver	Construction Noise Level [dB(A) $L_{eq}$ ]
1	61
2	69
3	75
4	67
5	68
6	67
7	64
8	70
9	68
10	64
SOURCE: Appendix G. dB(A) $L_{eq}$ = A-weighted decibel equivalent noise level	

As shown, construction noise levels are not anticipated to exceed 80 dB(A)  $L_{eq}$  at the adjacent residential uses. In addition, the project would be required to implement mitigation measures NOI-1 and NOI-2 which would reduce temporary impacts from construction noise to a level less than significant.

### *Operational Noise*

Operational noise would result from the pumps, heating, ventilation, and air conditioning (HVAC) equipment and periodic emergency generator testing. The City regulates noise through the Municipal Code under Title 11 Peace, Morals and Safety, Chapter 11.80, Noise Regulation. Section 11.80.030(C) provides noise level limits for non-impulsive noise. EMWD, as a public agency, is not subject to other jurisdictional agencies' established noise standards. Likewise, as a public agency, EMWD is not subject to the City's ordinances. EMWD has not established an applicable noise standard of its own for permanent or temporary ambient noise levels. The noise standards of the Municipal Code are provided for reference and context and are used as significance thresholds for the purposes of this analysis.

Section 11.80.030(C) states,

No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any non-impulsive sound which exceeds the limits set forth for the source land use category in Table 11.80.030-2 when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right-of-way, public space or other publicly owned property.

The sound level limits for residential uses provided in Table 11.80.030-2 of the Municipal Code are 55 dB(A)  $L_{eq}$  during the daytime hours and 60 dB(A)  $L_{eq}$  during the nighttime hours.



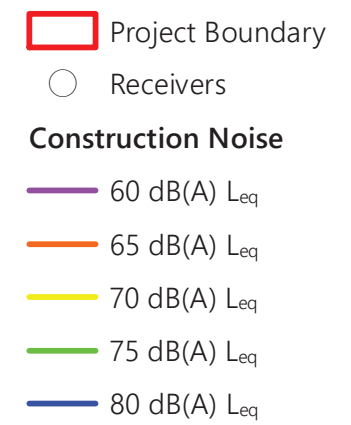
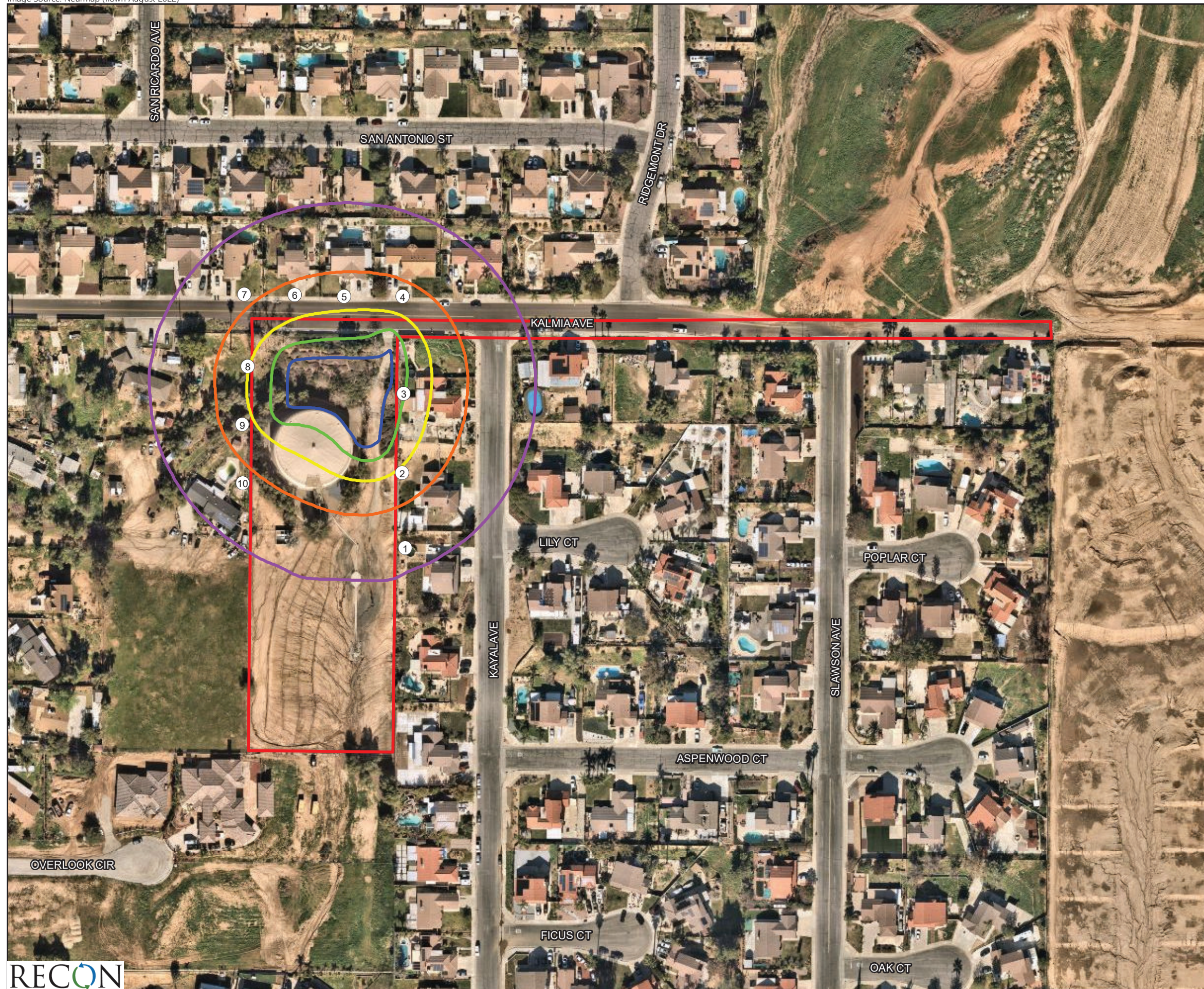


FIGURE 8  
Construction Noise Contours



Operational noise levels were modeled using the SoundPLAN program. The pump station would include enclosed electric pumps, a ground-mounted HVAC unit and an enclosed emergency generator. The exact pump, HVAC, and generator models and specifications are not known at this time. Operational noise levels were modeled for a sample Trane 5-ton HVAC unit that generates a sound power level of 80 dB(A), and a Kohler generator that generates a sound pressure level of 75 dB(A)  $L_{eq}$  at 23 feet. Pump noise was not modeled as the pumps would be enclosed in a concrete block building. The emergency generator would also be enclosed in a concrete block building; however, it was included in the noise analysis since it generates louder noise levels that may be audible outside the building. Sample specifications are provided in Appendix G. It was assumed that the HVAC unit would run continuously, and that the emergency generator would be tested for 15 minutes during the daytime hours. Ground-level noise contours were developed, and noise levels were modeled at specific receivers located at the sensitive receptors adjacent to the project site. Operational noise contours and modeled receivers are shown in Figures 9a and 9b. The noise contours represent the simultaneous operation of the HVAC unit and the emergency generator. Table 9 summarizes the modeled noise levels due to the simultaneous operation of the HVAC unit and the emergency generator, and due to operation of the HVAC unit only.

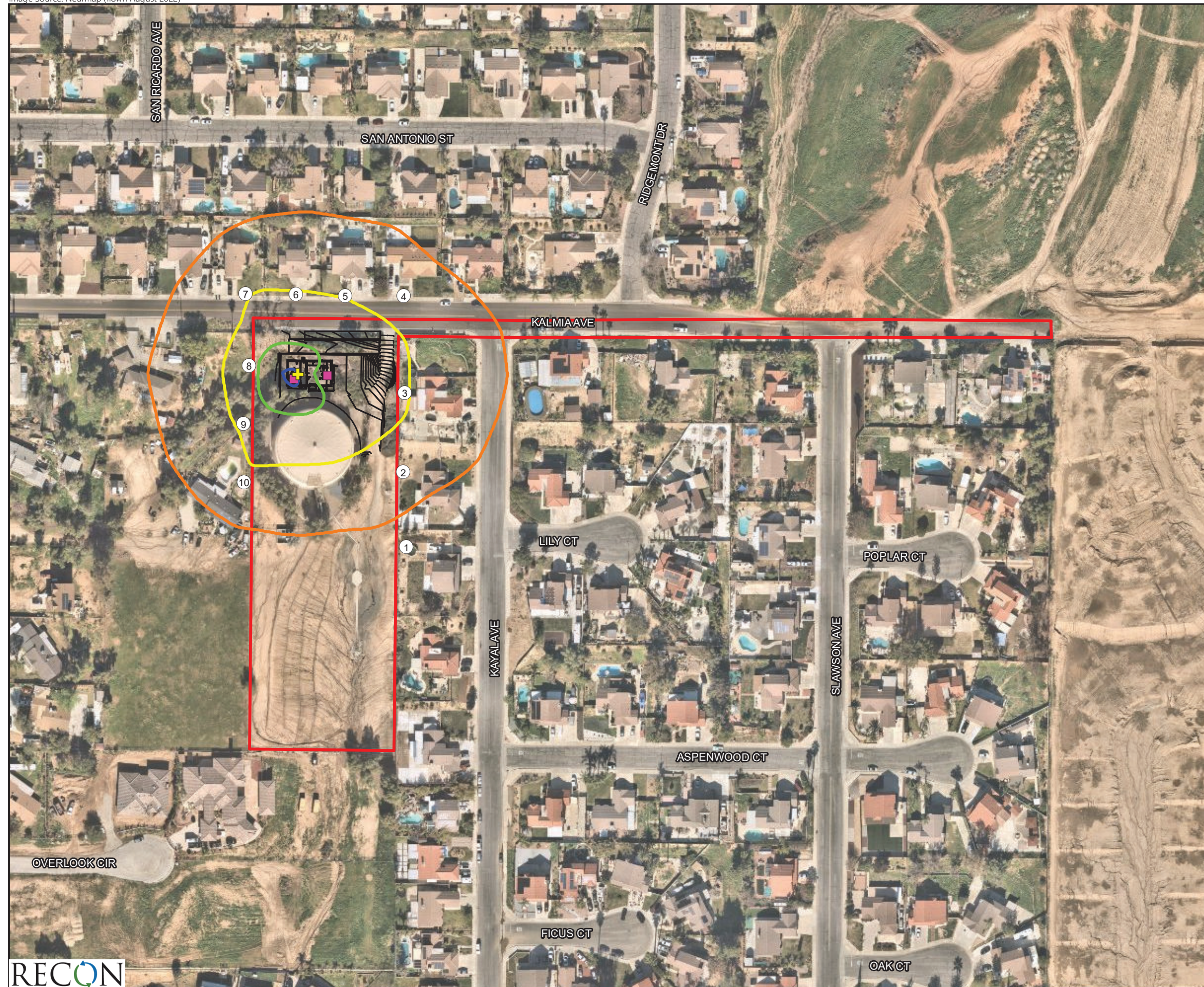
Table 9 Operational Noise Levels		
Site/Receiver	HVAC Unit and Emergency Generator [dB(A) $L_{eq}$ ]	HVAC Unit Only [dB(A) $L_{eq}$ ]
1	33	31
2	38	36
3	40	37
4	38	36
5	40	37
6	40	38
7	39	36
8	44	43
9	41	39
10	37	35
SOURCE: Appendix G. HVAC = heating, ventilation and air conditioning dB(A) $L_{eq}$ = A-weighted decibel equivalent noise level		

As shown, noise levels due to operation of the HVAC unit and emergency generator would be less than the daytime noise level limit of 60 dB(A)  $L_{eq}$ , and operation of the HVAC unit only would be less than the nighttime noise level limit of 55 dB(A)  $L_{eq}$ . The emergency generator shall only be tested during the daytime hours. Potential operational noise impacts would be less than significant.

#### b. Less Than Significant Impact

Human reaction to vibration is dependent on the environment the receiver is in as well as individual sensitivity. Outdoor vibration is rarely noticeable and generally not considered annoying. Typically, humans must be inside a structure for vibrations to become noticeable and/or annoying. FTA's *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) establishes construction vibration levels damage criteria. Vibrations with a PPV of 0.2 inches per second (in/sec) or greater have the potential to cause damage to non-engineered timber and masonry buildings (FTA 2018).



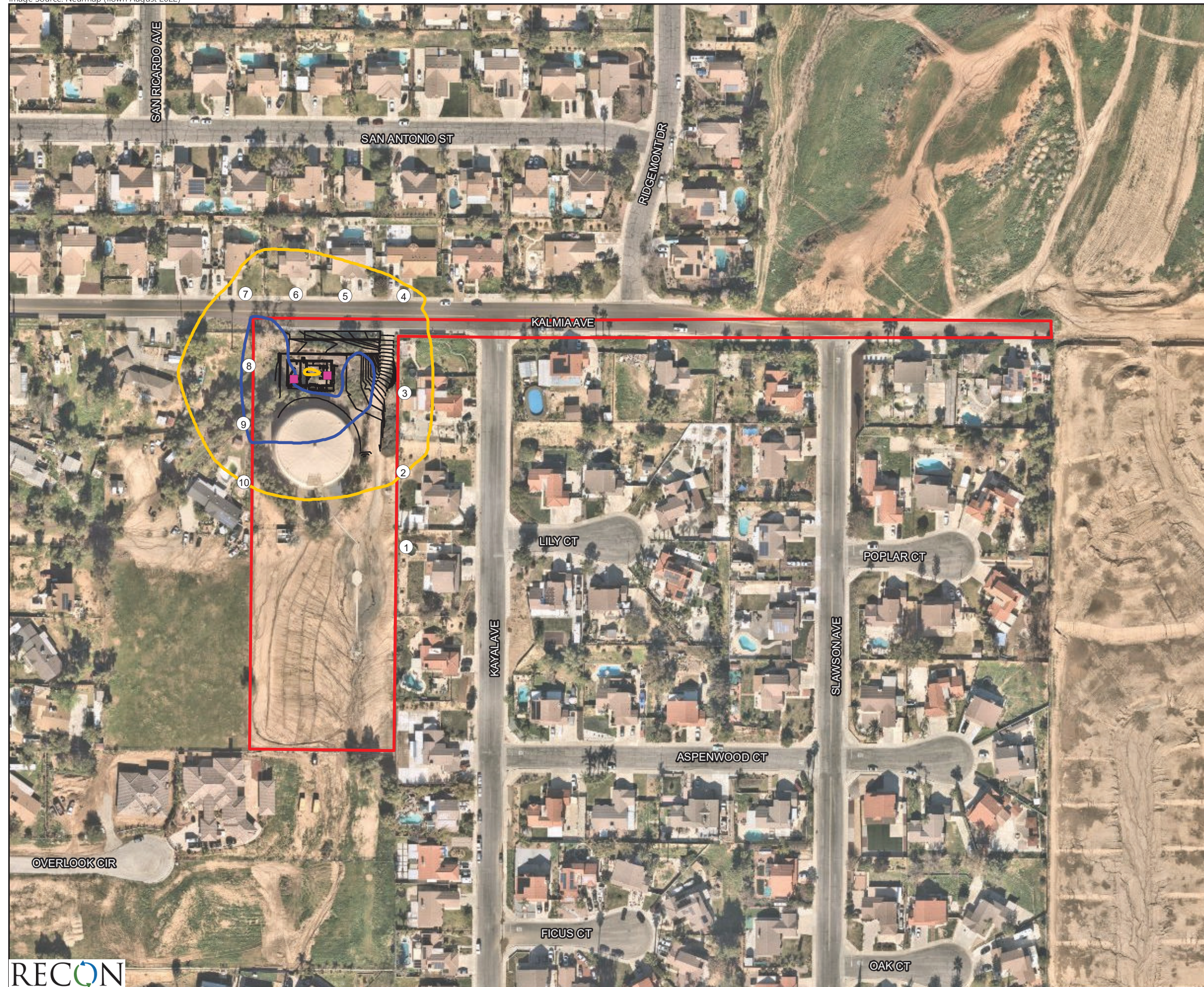


- Project Boundary
- Receivers
- + Emergency Generator
- HVAC
- Site Plan
- Operational Noise**
- 35 dB(A)  $L_{eq}$
- 40 dB(A)  $L_{eq}$
- 45 dB(A)  $L_{eq}$
- 50 dB(A)  $L_{eq}$



FIGURE 9a  
Operational Noise Contours -  
HVAC and Emergency Generator





- Project Boundary
- Receivers
- HVAC
- Site Plan
- Operational Noise**
  - 35 dB(A)  $L_{eq}$
  - 40 dB(A)  $L_{eq}$



FIGURE 9b  
Operational Noise Contours -  
HVAC Only



Construction activities produce varying degrees of ground vibration, depending on the equipment and methods employed. While ground vibrations from typical construction activities very rarely reach levels high enough to cause damage to structures, special consideration must be made when sensitive or historic land uses are near the construction site. The construction activities that typically generate the highest levels of vibration are blasting and impact pile driving. However, the proposed project would not require blasting or pile driving.

Vibration perception would occur at structures, as people do not perceive vibrations without vibrating structures. According to the FTA, loaded trucks generate vibration levels of 0.076 in/sec PPV at 25 feet. The nearest structures are located 50 feet or more from the project boundary. At 50 feet, vibration levels would attenuate to 0.035 in/sec PPV. Therefore, construction vibration levels would be below the damage criteria level of 0.2 in/sec PPV, and impacts would be less than significant.

Operation of the proposed project would not generate groundborne noise or vibration. Impacts would be less than significant.

### **c. No Impact**

The nearest airport to the project site is the March Inland Port located at the March Air Reserve Base, which is located south and west of the city limits. Therefore, the project site is not located within an airport land use plan or within two miles of a public airport and would not expose people to excessive noise levels. No impact would occur.

## **Mitigation Measures**

### **NOI-1: Construction Noise**

To reduce noise impacts due to construction, EMWD shall require construction contractors to implement the following BMP measures:

- During construction, the contractor shall outfit all equipment, fixed or mobile, with properly operating and maintained exhaust and intake mufflers, consistent with manufacturers' standards. All documentation demonstrating equipment has been maintained in accordance with manufactures' specification shall be maintained on-site.
- Impact tools (e.g., jackhammers, pavement breakers) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. When use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used. External jackets on the tools themselves shall be used where feasible.
- Stationary noise sources that could affect adjacent receptors shall be located as far from adjacent receptors as possible.

**NOI-2: Sensitive Receptors**

Prior to project construction, EMWD shall notify sensitive receptors (residents, residential areas, schools and hospitals) within 500 feet of project construction activities of the construction methods and schedule and provide a point of contact for local residences to report excessive noise.

**4.14 Population and Housing**

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless 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"/>

**EXPLANATIONS:****a. No Impact**

The proposed project would not construct any residential, commercial, or other uses that would induce growth. The proposed project would meet the improvements originally identified in the 2015 Water Facilities Master Plan, and further refined in the 2018 Water Booster Station Improvement Study and subsequent evaluations by the District. The project was also included in the District's 10-Year Capital Improvement Program for implementation by 2025. Therefore, the project would serve existing development and planned growth already anticipated and the project would not directly or indirectly result in substantial population growth within the city. No impact would occur.

**b. No Impact**

The project site consists of an existing District water tank, paved access, and landscaped vegetation. Therefore, the proposed project would not displace any existing people or housing. No impact would occur.

## 4.15 Public Services

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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:				
i. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### EXPLANATIONS:

#### a.i. No Impact

The proposed project would not construct any residential, commercial, or other uses that would require fire protection services. Any other facilities that would be served by the proposed project consist of existing development and planned growth that is already anticipated in the General Plan. Therefore, the proposed project would not require new or expanded fire protection facilities. No impact would occur.

#### a.ii. No Impact

The proposed project would not construct any residential, commercial, or other uses that would require police protection services. Any other facilities that would be served by the proposed project consist of existing development and planned growth that is already anticipated in the General Plan. Therefore, the proposed project would not require new or expanded police protection facilities. No impact would occur.

**a.iii. No Impact**

The proposed project would not construct any residential uses that would generate any new student enrollment that would increase demand for school services. Any other facilities that would be served by the proposed project consist of existing development and planned growth that is already anticipated in the General Plan. Therefore, the proposed project would not require new or expanded school facilities. No impact would occur.

**a.iv. No Impact**

The proposed project would not construct any residential uses that would increase demand for school services. Any other facilities that would be served by the proposed project consist of existing development and planned growth that is already anticipated in the General Plan. Therefore, the proposed project would not require new or expanded park facilities. No impact would occur.

**a.v. No Impact**

The proposed project would not construct any residential, commercial, or other uses that would require additional public services. No impact would occur.

## 4.16 Recreation

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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 type="checkbox"/>	<input checked="" type="checkbox"/>
b. 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 type="checkbox"/>	<input checked="" type="checkbox"/>

**EXPLANATIONS:****a. No Impact**

The proposed project would not result in an increase in population that would cause substantial physical deterioration of recreational facilities through increased use. No impact would occur.

**b. No Impact**

The proposed project does not include the provision of recreational facilities or require the construction or expansion of recreational facilities. No impact would occur.

**4.17 Transportation/Traffic**

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. 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 design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**EXPLANATIONS:****a. Potentially Significant Unless Mitigation Incorporated**

The proposed project would not construct any residential, commercial, or other uses that would generate vehicle trips during operation. Project construction is anticipated to take approximately 20 months and would comply with the Municipal Code which limits construction activities to occur from 7:00 a.m. to 7:00 p.m. from Monday through Friday excluding holidays and from 8:00 a.m. to 4:00 p.m. on Saturdays. Once construction is completed, roadways would be restored to pre-existing conditions. Because construction is proposed within the right-of-way of Kalmia Avenue, a Traffic Control and Detour Plan would be required to allow continued access. Mitigation measure TRA-1 would require preparation of a Traffic Control and Detour Plan, in accordance with the City of Moreno Valley traffic control guidelines. Implementation of mitigation measure TRA-1 would reduce significant impacts conflicting with a program, plan, ordinance, or policy addressing the circulation system to a level less than significant.

**b. Less Than Significant Impact**

Additionally, operational vehicle trips would be limited to periodic maintenance and inspection that would not affect intersection and roadway operations. Therefore, preparation of a Vehicle Miles Traveled Analysis per CEQA Guidelines Section 15064.3, subdivision (b) was not required, and impacts would be less than significant.

**c. Potentially Significant Unless Mitigation Incorporated**

The proposed project would not result in any permanent changes to the existing circulation network. Construction within the right-of-way of Kalmia Avenue would be temporary and include traffic control measures to allow continued access. Once construction is completed, roadways would be restored to pre-existing conditions. As previously stated, a Traffic Control and Detour Plan would be required. Mitigation measure TRA-1 would require preparation of a Traffic Control and Detour Plan, in accordance with the City of Moreno Valley traffic control guidelines. Implementation of mitigation measure TRA-1 would reduce significant impacts due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses to a level less than significant.

**d. Potentially Significant Unless Mitigation Incorporated**

The proposed project would not result in any permanent changes to the existing circulation network. Construction within the right-of-way for Kalmia Avenue would be temporary and include traffic control measures to allow continued access. Once construction is completed, roadways would be restored to pre-existing conditions. As previously stated, a Traffic Control and Detour Plan would be required. Mitigation measure TRA-1 would require preparation of a Traffic Control and Detour Plan, in accordance with the City of Moreno Valley traffic control guidelines. Implementation of mitigation measure TRA-1 would reduce significant impacts related to inadequate emergency access to or from the project site to a level less than significant.

**Mitigation Measures****TRA-1: Traffic Control and Detour Plan**

Prior to project construction, EMWD shall require the construction contractor to prepare a Traffic Control and Detour Plan, in accordance with the City of Moreno Valley traffic control guidelines. The Traffic Control and Detour Plan shall, at minimum:

- Identify staging locations to be used during construction.
- Identify safe ingress and egress points from staging areas.
- Identify potential road closures.
- Establish haul routes for construction-related vehicle traffic.
- Include a Detour Plan that identifies alternative safe routes to maintain pedestrian and bicyclist safety during construction.
- Include provisions for traffic control measures such as barricades, warning signs, cones, lights, and flag persons, to allow safe circulation of vehicle, bicycle, pedestrian, and emergency response traffic.
- Ensure access to individual properties.



The Traffic Control and Detour Plan shall be reviewed and approved by EMWD's project manager and the construction inspector prior to the commencement of project construction activities. EMWD's construction inspector shall provide the construction schedule and Traffic Control and Detour Plan to the City of Moreno Valley for review, to ensure that construction of the proposed project does not conflict with other construction projects that may be occurring simultaneously in the project vicinity.

Prior to project construction, EMWD's Public and Governmental Affairs Department will perform public outreach to local residents informing them of upcoming construction activities. EMWD shall require the construction contractor to provide EMWD with a four-week notice for any project activities that may have an impact on surrounding communities. Public outreach to local residents may include any or all of the following:

- Written notices (i.e., letters, door hangers, other like forms of community engagement).
- Attendance at community events or presentations.
- Contact information for community complaints.

If the contractor receives complaints directly, the contractor shall forward complaints directly to the Public and Governmental Affairs staff and immediately notify the project inspector.

## 4.18 Tribal Cultural Resources

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. 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"/>

**EXPLANATIONS:****a.i. and a.ii. Potentially Significant Unless Mitigation Incorporated**

Per AB 52, the District initiated consultation with Native American Tribes that are traditionally and culturally affiliated with the geographic area of the proposed project to identify resources of cultural or spiritual value to the Tribe. On October 7, 2022, the District sent consultation notification letters to Native American Tribes on the District's main list pursuant to the requirements of AB 52 pertaining to government-to-government consultation. Table 10 summarizes the District's consultation efforts. To date, EMWD has conducted consultation with one federally recognized Tribe: The Soboba Band of Luiseño Indians (Soboba). As seen in Table 10, the additional five Tribes included in the District's consultation efforts either declined consultation or did not respond.

Table 10 Tribal Consultation				
Tribe	Individual Contacted	Date Letter Mailed	Response Received	Consultation Held
Agua Caliente Band of Cahuilla Indians	Katie Croft	October 7, 2022	October 19, 2022; Declined consultation	N/A
Morongo Band of Mission Indians	Travis Armstrong	October 7, 2022	Did not respond	N/A
Pechanga Band of Luiseño Indians	Ebru Ozdil	October 7, 2022	Did not respond	N/A
Rincon Band of Luiseño Indians	Destiny Colucho	October 7, 2022	December 12, 2022; Declined consultation	N/A
San Manuel Band of Mission Indians	Jessica Mauck	October 7, 2022	November 8, 2022; Declined consultation	N/A
Soboba Band of Luiseño Indians	Joe Ontiveros	October 7, 2022	December 15, 2022; Requested consultation	February 1, 2023

During the consultation meeting, Soboba highlighted their concerns for the general area, noting that it is within Traditional Use Areas and considered sensitive as there are existing sites in the surrounding areas. Soboba provided recommendations with regards to mitigation. Soboba expressed concern with potential unearthing of unknown artifacts while grading the selected site and recommended tribal monitoring consistent with those measures used in prior CEQA analysis conducted by EMWD to mitigate the potential for uncovering unknown buried artifacts.

As described in Section 4.5 above, the records search, historic aerial photographs, and on-foot survey did not identify any historic structures or resources. Additionally, the Sacred Lands File search results were negative. However, due to the project site being within Traditional Use Areas and considered sensitive as there are existing sites in the surrounding areas, construction activities would have the potential to unearth previously unknown tribal cultural resources, the discovery of which would be considered a significant impact. Implementation of mitigation measures CUL-1 through CUL-7 would reduce impacts related to unknown tribal cultural resources to a level less than significant.

## 4.19 Utilities and Service Systems

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water or wastewater treatment or storm water 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 provided 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 type="checkbox"/>	<input checked="" type="checkbox"/>
d. Generate solid waste in excess of state or 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 statutes and regulation related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**EXPLANATIONS:****a. Less Than Significant Impact**

The District's 10-Year Capital Improvement Program identifies several capital improvement projects needed in the immediate future, including the proposed project. The proposed project would replace the existing 1969 below-grade BPS with a new, modern, above-grade BPS to increase pumping capacity to provide system capacity/reliability. The proposed project would not construct residential,

commercial, or other uses that would require expanded water or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities. Any other facilities that would be served by the proposed project consist of existing development and planned growth that is already anticipated in the General Plan. Therefore, the proposed project would not result in increased utilities demand that would cause significant environmental effects, and impacts would be less than significant.

**b. Less Than Significant Impact**

The proposed project would not construct any residential, commercial, or other uses that would require water supply. Any other facilities that would be served by the proposed project consist of existing development and planned growth that is already anticipated in the General Plan. Water consumption would be limited to small amounts during construction. Therefore, sufficient water supplies available to serve the proposed project, and impacts would be less than significant.

**c. No Impact**

The proposed project would not construct any residential, commercial, or other uses that would require expanded wastewater treatment capacity. Any other facilities that would be served by the proposed project consist of existing development and planned growth that is already anticipated in the General Plan. Therefore, the proposed project would not exceed existing wastewater treatment capacity and would accommodate existing and planned growth in the City. No impact would occur.

**d. Less Than Significant Impact**

Project construction would generate small amounts of waste that would likely be disposed of at either the Badlands Sanitary Landfill, located in Moreno Valley, or the El Sobrante Landfill, located in Corona. The Badlands Landfill has a remaining capacity of 7,800,000 cubic yards and a maximum permitted throughput of 5,000 tons per day and the El Sobrante Landfill has a remaining capacity of 143,977,170 cubic yards and a maximum permitted throughput of 16,054 tons per day (California Department of Resources Recycling and Recovery [CalRecycle] 2020). Both landfills would have sufficient capacity to accommodate the small amounts of waste that would be generated during construction. Operation of the proposed project would not generate any solid waste. Therefore, the proposed project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, and impacts would be less than significant.

**e. Less Than Significant Impact**

As described in Section 4.19d above, the proposed project would generate small amounts of waste during construction that would be disposed of at either the Badlands Sanitary Landfill, located in Moreno Valley, or the El Sobrante Landfill, located in Corona, which both have adequate capacity. The proposed project would also comply with local regulations pertaining to recycling of construction waste. Operation of the proposed project would not generate any solid waste. Therefore, the proposed project would comply with federal, state, and local statutes and regulation related to solid waste, and impacts would be less than significant.

## 4.20 Wildfire

Would the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

### EXPLANATIONS:

#### a. Potentially Significant Unless Mitigation Incorporated

The proposed project would not result in any permanent changes to an adopted emergency response plan or emergency evacuation plan. Construction within the right-of-way for Kalmia Avenue would be temporary and include traffic control measures to allow continued access. Once construction is completed, roadways would be restored to pre-existing conditions. As previously stated in Section 4.17, a Traffic Control and Detour Plan would be required. Mitigation measure TRA-1 would require preparation of a Traffic Control and Detour Plan, in accordance with the City of Moreno Valley traffic control guidelines. Implementation of mitigation measure TRA-1 would reduce

significant impacts related to an adopted emergency response plan or emergency evacuation plan to a level less than significant.

**b. No Impact**

Because the proposed project involves construction and operation of a BPS and belowground pipeline, it would not, in combination with environmental factors such as slope or prevailing winds, exacerbate fire risks. In addition, aside from temporary construction and maintenance workers, there would be no occupants on-site. Therefore, no impact would occur.

**c. No Impact**

The proposed project would not require any new infrastructure that may exacerbate fire risk. Kalmia Avenue would be restored to pre-existing conditions once construction is completed. Therefore, the proposed project would not require the installation or maintenance of infrastructure that could exacerbate fire risk or result in temporary or ongoing impacts to the environment. No impact would occur.

**d. No Impact**

As described in Sections 4.8 and 4.10, the proposed project would not result in any impacts associated with landslides or flooding. Therefore, the proposed project would not expose people or structures to significant risks from runoff, post-fire slope instability, or drainage changes. No impact would occur.

## 4.21 Mandatory Findings of Significance

Does the proposed project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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"/>

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable futures projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**EXPLANATIONS:****a. Potentially Significant Unless Mitigation Incorporated**

As described in Section 4.4a, implementation of mitigation measures BIO-1 and BIO-2 would reduce potential impacts to burrowing owls to a level less than significant, and implementation of mitigation measure BIO-3 would reduce impacts related to nesting birds or raptors to a level less than significant. The proposed project does not have the potential to result in any other impacts that would 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. As described in Section 4.5, implementation of mitigation measures CUL-5 through CUL-7 would reduce impacts regarding the disturbance of human remains to a level less than significant. As described in Sections 4.5b and 4.18, implementation of mitigation measures CUL-1 through CUL-7 would reduce impacts related to unknown archaeological and tribal cultural resources to a level less than significant.

**b. Potentially Significant Unless Mitigation Incorporated**

Project impacts requiring mitigation are limited to biological resources and tribal cultural resources. As described in Section 4.4a, implementation of mitigation measure BIO-1 and BIO-2 would reduce impacts related to burrowing owls to a level less than significant, and implementation of mitigation measure BIO-3 would reduce impacts related to nesting bird or raptor species to a level less than significant. Implementation of mitigation measures BIO-1 through BIO-3 would also ensure consistency with the MSHCP. By mitigating project-level impacts to a level less than significant, the proposed project would not contribute to existing cumulative impact to biological resources. As described in Section 4.5, implementation of mitigation measures CUL-5 through CUL-7 would reduce



impacts regarding the disturbance of human remains to a level less than significant. As described in Sections 4.5b and 4.18, implementation of mitigation measures CUL-1 through CUL-7 would reduce impacts related to unknown archaeological and tribal cultural resources to a level less than significant. As described in Section 4.18, mitigation measure TRA-1 would require preparation of a Traffic Control and Detour Plan, reducing transportation and traffic-related impacts. All other project-level impacts would be less than significant without mitigation. Consequently, the proposed project would not result in any project-level significant impacts that could contribute to an existing cumulative impact on the environment.

### **c. Less Than Significant Impact**

As described in Sections 4.1 through 4.20, the proposed project would not result in any substantial adverse direct or indirect impacts to human beings. Therefore, impacts would be less than significant.

## **5.0 Preparers**

### **Eastern Municipal Water District**

Al Javier, Environmental Regulatory Compliance Director  
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Jessica Fleming, Air Quality/GHG/Noise Analyst  
Benjamin Arp, GIS Specialist  
Jennifer Gutierrez, Production Specialist  
Stacey Higgins, Senior Production Specialist

## 6.0 Sources Consulted

### Project Description

Riverside, County of

- 2003 Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Prepared by Dudek and Associates. Approved June 17. [https://www.wrc-rca.org/Permit\\_Docs/MSHCP/MSHCP-Volume%201.pdf](https://www.wrc-rca.org/Permit_Docs/MSHCP/MSHCP-Volume%201.pdf).
- 2011 Riverside County Design Handbook for Low Impact Development (Riverside County Flood Control and Watershed Conservation) <https://content.rcflood.org/downloads/NPDES/Documents/LIDManual/Sections%201.0-3.0.pdf>

U.S. Geological Survey

- 1980 7.5-minute topographic map series, Sunnymead quadrangle.

### Aesthetics

Moreno Valley, City of

- 2021a MoVal 2040 General Plan. <https://www.moval.org/cdd/documents/general-plan-documents-draft-general-plan.html>.
- 2021b Final Environmental Impact Report for the MoVal 2040: Moreno Valley Comprehensive Plan Update, Housing Element Update, and Climate Action Plan. [https://www.moval.org/cdd/documents/general-plan-update/final-docs/Moval%202040\\_Final%20EIR\\_with%20RTCs.pdf](https://www.moval.org/cdd/documents/general-plan-update/final-docs/Moval%202040_Final%20EIR_with%20RTCs.pdf)

### Air Quality

Bay Area Air Quality Management District

- 2017 California Environmental Quality Act Air Quality Guidelines. May.

California Air Pollution Control Officers Association

- 2021 California Emissions Estimator Model (CalEEMod). User's Guide Version 2020.4.0. May.

South Coast Air Quality Management District (SCAQMD)

- 1993 SCAQMD CEQA Air Handbook. November.
- 2008 Final Localized Significance Threshold Methodology. July.
- 2015 SCAQMD Air Quality Significance Thresholds. Updated March 2015.

### Biological Resources

California Department of Fish and Wildlife (CDFW)

- 2012 Staff Report on Burrowing Owl Mitigation. March.

Riverside, County of

- 2003 Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Prepared by Dudek and Associates. Approved June 17. [https://www.wrc-rca.org/Permit\\_Docs/MSHCP/MSHCP-Volume%201.pdf](https://www.wrc-rca.org/Permit_Docs/MSHCP/MSHCP-Volume%201.pdf).

**Geology and Soils**

Scott, E. G.

- 2015 Paleontology literature and records review, Moreno Valley Logistics Center, City of Moreno Valley, Riverside County, California. Unpublished report prepared for Brian F. Smith and Associates, Poway, by the Division of Geological Sciences, San Bernardino County Museum, Redlands.

**Greenhouse Gas Emissions**

South Coast Air Quality Management District (SCAQMD)

- 2008 Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans.
- 2009 Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group 14. <http://www.aqmd.gov/ceqa/handbook/GHG/2009/nov19mtg/ghgmtg14.pdf>. November 19.
- 2010 Greenhouse Gas CEQA Significance Thresholds Stakeholder Working Group 15. September 28.

**Hazards and Hazardous Materials**

California Department of Forestry and Fire Protection (CAL FIRE)

- 2022 Fire Hazard Severity Zones Maps. Fire Hazard Severity Zones in State Responsibility Area ([arcgis.com](http://arcgis.com)).

State Water Resources Control Board (SWRCB)

- 2022a GeoTracker database. <http://geotracker.waterboards.ca.gov>.
- 2022b Envirostor database. <https://www.envirostor.dtsc.ca.gov/public/>.

**Hydrology and Water Quality**

Eastern Municipal Water District (EMWD)

- 2021 Groundwater Sustainability Plan for the San Jacinto Groundwater Basin. September 2021. <https://www.emwd.org/post/sustainable-groundwater-management-act>, accessed September 14, 2023.

**Noise**

California Department of Transportation (Caltrans)

- 2013 Technical Noise Supplement. November.

Federal Highway Administration (FHWA)

2006 Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054, SOT-VNTSC-FHWA-05-01. Final Report. January.

Federal Transit Administration (FTA)

2018 Transit Noise and Vibration Impact Assessment. Washington, DC. May.

**Utilities and Service Systems**

California Department of Resources Recycling and Recovery (CalRecycle)

2020 Solid Waste Information System. <https://www2.calrecycle.ca.gov/swfacilities/Directory/>.

## APPENDICES

Under Separate Cover

## **APPENDIX A**

Geotechnical Investigation Report – Booster Pump Station,  
Converse Consultants



**Converse Consultants**

Geotechnical Engineering  
Environmental & Groundwater Science  
Inspection & Testing Services

## GEOTECHNICAL INVESTIGATION REPORT

### STEEPLECHASE AND KALMIA BOOSTER PUMP STATION (BPS) REPLACEMENT

25565 KALMIA AVENUE

CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

CONVERSE PROJECT No. 20-81-256-02



*Prepared For:*

**GANNETT FLEMING, INC.**

20 Pacifica, Suite 430  
Irvine, CA 92618

*Presented By:*

**CONVERSE CONSULTANTS**

2021 Rancho Drive, Suite 1  
Redlands, CA 92373  
909-796-0544

March 2, 2022





# Converse Consultants

Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services

March 2, 2022

Mr. Jerry Pascoe, PE, GE  
Principal Engineer  
Gannett Fleming, Inc.  
20 Pacifica, Suite 430  
Irvine, CA 92618

Subject: **GEOTECHNICAL INVESTIGATION REPORT**  
**Steeplechase and Kalmia Booster Pump Station (BPS) Replacement**  
25565 Kalmia Avenue  
City of Moreno Valley, Riverside County, California  
Converse Project No. 20-81-256-02

Dear Mr. Pascoe:

Converse Consultants (Converse) is pleased to submit this geotechnical investigation report to assist with the design and construction of the Steeplechase and Kalmia Booster Pump Station (BPS) Replacement Project, located in the City of Moreno Valley, Riverside County, California. This report was prepared in accordance with our proposal dated October 12, 2020, and your Agreement Between Consultant and Subconsultant dated May 4, 2021.

Based upon our field investigation, laboratory data, and analyses, the proposed project is considered feasible from a geotechnical standpoint, provided the recommendations presented in this report are incorporated into the design and construction of the project.

We appreciate the opportunity to be of service to Gannett Fleming, Inc., and the Eastern Municipal Water District (EMWD). Should you have any questions, please do not hesitate to contact us at 909-796-0544.

## CONVERSE CONSULTANTS

Hashmi S. E. Quazi, PhD, PE, GE  
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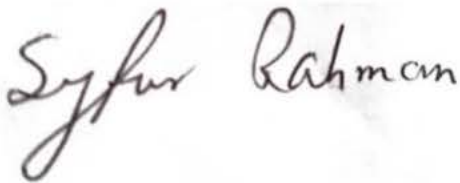
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## PROFESSIONAL CERTIFICATION

This report has been prepared by the following professionals whose seals and signatures appear herein.

The findings, recommendations, specifications, and professional opinions contained in this report were prepared in accordance with the generally accepted professional engineering and engineering geologic principle and practice in this area of Southern California. We make no other warranty, either expressed or implied.



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Sk Syfur Rahman, PhD, EIT  
Senior Staff Engineer



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Hashmi S. E. Quazi, PhD, PE, GE  
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Appendix A .....	<i>Field Exploration</i>
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## 1.0 INTRODUCTION

This report presents the results of our geotechnical investigation performed for the Steeplechase and Kalmia Booster Pump Station (BPS) Replacement Project, located in the City of Moreno Valley, Riverside County, California. The project location is shown in Figure No. 1, *Approximate Project Location Map*.

The purposes of this investigation were to determine the nature and engineering properties of the subsurface soils, and to provide design and construction recommendations for the project.

This report is prepared for the project described herein and is intended for use solely by Gannett Fleming, Inc., and their authorized agents for design purposes. It should not be used as a bidding document but may be made available to the potential contractors for information on factual data only. For bidding purposes, the contractors should be responsible for making their own interpretation of the data contained in this report.

## 2.0 PROJECT DESCRIPTION

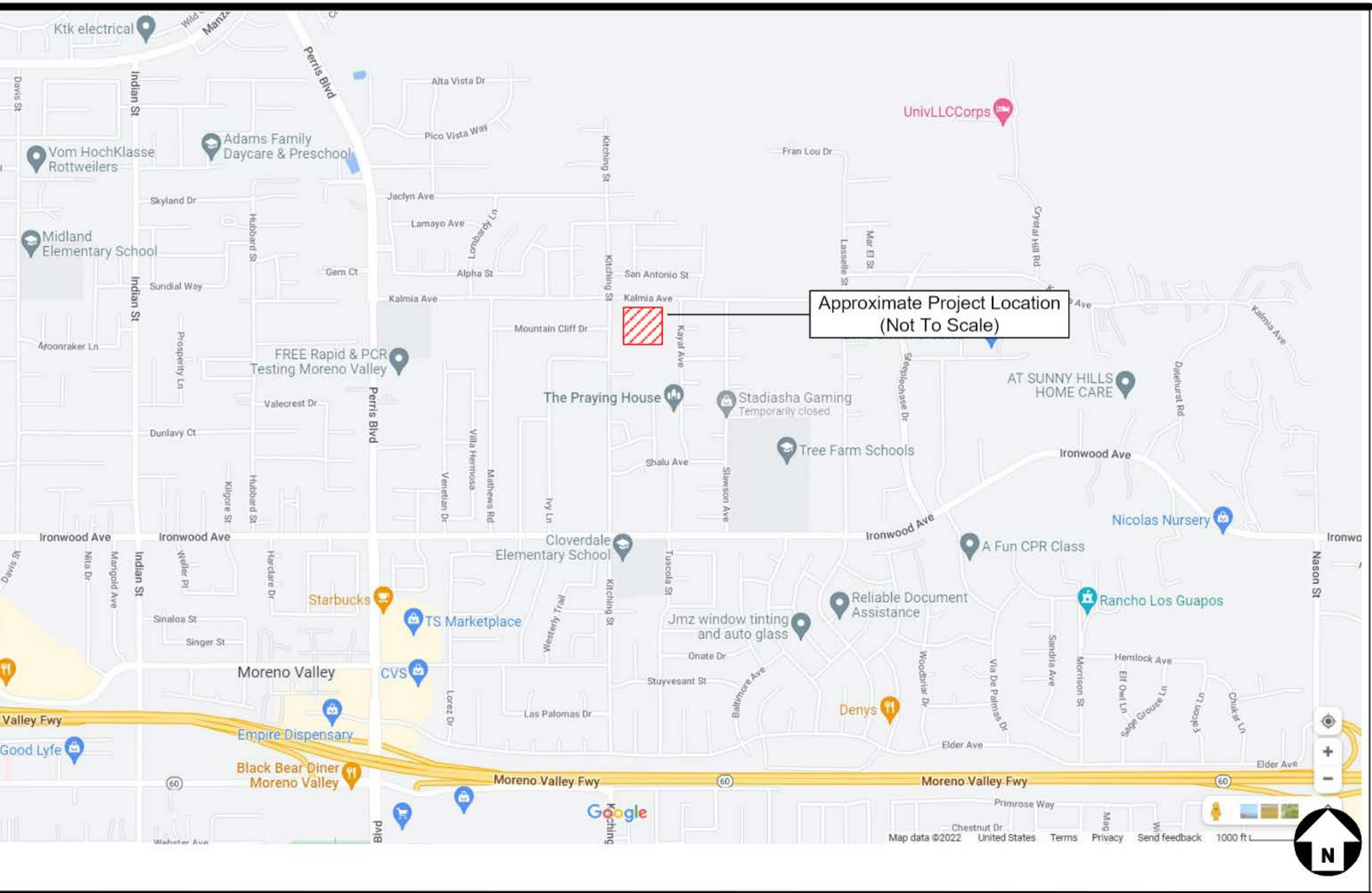
Based on the information provided by Gannett Fleming, Inc., the project will consist of the construction of a new BPS. The BPS will likely be a 40' x 20' masonry block wall building with slab on grade. It will be founded on shallow footings. Associated with the BPS there will be yard piping. Depth to pipe invert will be about 5 feet below existing ground surface.

## 3.0 SITE DESCRIPTION

The site is located at 25565 Kalmia Avenue in the City of Moreno Valley, Riverside County, California. The site is bounded by Kalmia Avenue on the north, residential properties to the east, west and south (separated by a standard chain link from all the sides). The site is presently occupied by a water reservoir. The property can be divided into two sections: front and back. The description of the site is as follows.

- Front: Landscaped lot fully secured on all sides by a standard 6-foot chain link fence, with angled barbed wire top. A paved access road surrounds the existing tank. Several above ground appurtenances exist around the premises. A 7-foot-high cinder block wall surrounding existing cell phone signal tower to the southwest of existing tank. Steep slopes surround the north and east of the property.
- Back: Undeveloped, graded dirt lot fully secured on all sides by a standard 6-foot-high chain link fence with angled barbed wire top. Several below ground appurtenances traverse the subsurface.
- Access to entire project site off Kalmia Avenue via locked gate (front). Access to future BPS location through secondary locked gates (back).
- No overhead utilities. Several large trees are present in front, no trees in back.
- Photograph No. 1 and 2 depict the present site conditions.





Project: Steeplechase and Kalmia Booster Pump Station (BPS) Replacement

Location: City of Moreno Valley, Riverside County, California

Prepared by: Gannett Fleming, Inc.

## Approximate Project Location Map

Project No.  
20-81-256-02



**Converse Consultants**

Figure No.

1





*Photograph No. 1: Entrance to existing tank site, facing south.*



*Photograph No. 2: Rear vacant lot, facing south.*



## 4.0 SCOPE OF WORK

The scope of this investigation included project set-up, subsurface exploration, laboratory testing, engineering analysis, and preparation of this report, as described in the following sections.

### 4.1 Project Set-up

As part of the project set-up, our staff performed the following tasks.

- Conducted a field reconnaissance and staked/marked the borings at locations selected by Ms. Carolina Cubides with Gannett Fleming, Inc. such that drill rig access to all the locations was available.
- Notified Underground Service Alert (USA) at least 48 hours prior to drilling to clear the boring locations of any conflict with existing underground utilities.
- Engaged a California-licensed driller to drill exploratory borings.

### 4.2 Subsurface Exploration

Three exploratory borings (BH-01 through BH-03) were drilled on December 28, 2021, to investigate the subsurface conditions. The borings were drilled to depths between 15.5 feet and 51.5 feet below ground surface (bgs).

Approximate boring locations are indicated in Figure No. 2, *Approximate Boring Locations Map*. For a description of the field exploration and sampling program, see Appendix A, *Field Exploration*.

### 4.3 Laboratory Testing

Representative soil samples of the project site were tested in the laboratory to aid in the soils classification and to evaluate the relevant engineering properties of the soils. These tests included the following.

- *In-situ* moisture contents and dry densities (ASTM D2216 and ASTM D2937)
- Soil corrosivity (California Tests 643, 422, and 417)
- Collapse potential (ASTM D4546)
- Grain size distribution (ASTM D6913)
- Maximum dry density and optimum-moisture content (ASTM D1557)
- Direct shear (ASTM D3080)
- Consolidation (ASTM D2435)

For *in-situ* moisture and dry density data, see the Logs of Borings in Appendix A, *Field Exploration*. For a description of the laboratory test methods and test results, see Appendix B, *Laboratory Testing Program*.





## EXPLANATION

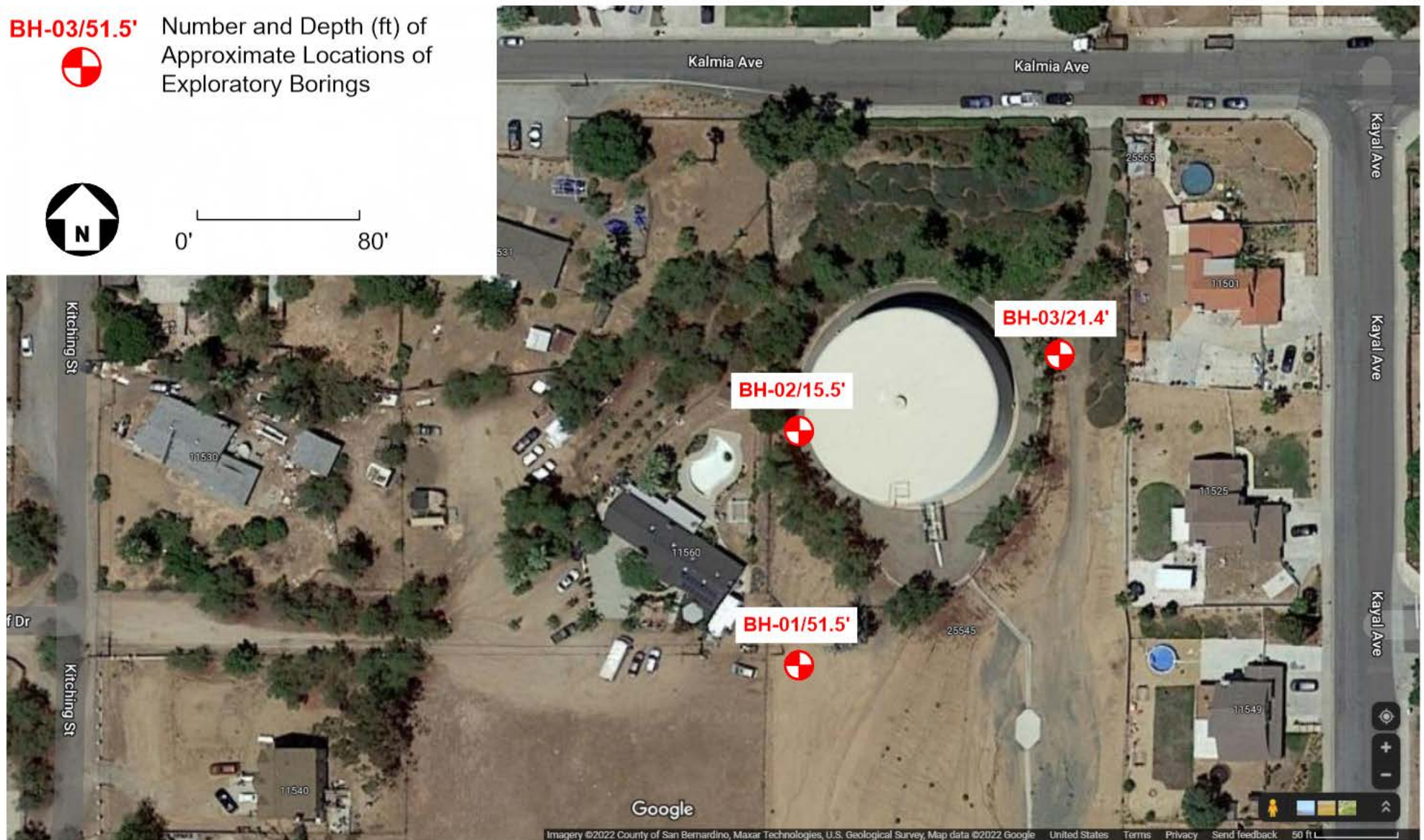
**BH-03/51.5'**



Number and Depth (ft) of  
Approximate Locations of  
Exploratory Borings



0' 80'



Project: Steeplechase and Kalmia Booster Pump Station (BPS) Replacement

Location: City of Moreno Valley, Riverside County, California

Prepared by: Gannett Fleming, Inc.

## Approximate Boring Locations Map

Project No.  
20-81-256-02



**Converse Consultants**

Figure No.

2



#### 4.4 Analysis and Report Preparation

Data obtained from the field exploration and laboratory testing program was compiled and evaluated. Geotechnical analyses of the compiled data were performed, and this report was prepared to present our findings, conclusions, and recommendations for the project.

### 5.0 LABORATORY TEST RESULTS

Results of physical and chemical tests performed for this project are presented below.

#### 5.1 Physical Testing

Results of the various laboratory tests are presented in Appendix B, *Laboratory Testing Program*, except for the results of in-situ moisture and dry density tests which are presented on the Logs of Borings in Appendix A, *Field Exploration*. The results are also discussed below.

- In-situ Moisture and Dry Density – *In-situ* dry density and moisture content of the soils were determined in accordance with ASTM Standard D2216 and D2937. Dry densities of upper 10 feet soils of the site ranged from 111 to 124 pcf with moisture contents ranging from 2 to 13 percent. Results are presented in the log of borings in Appendix A, *Field Exploration*.
- Collapse Potential – The collapse potential of three relatively undisturbed samples were tested under a vertical stress of up to 2.0 kips per square foot (ksf) in accordance with the ASTM Standard D4546 test method. The test results showed collapse potential of 1.6, 1.9 and 0.3 percent, indicating slight collapse potential.
- Grain Size Analysis – Three representative soil samples were tested to determine the relative grain size distribution in accordance with the ASTM Standard D6913. The test results are graphically presented in Drawing No. B-1, *Grain Size Distribution Results*.
- Maximum Dry Density and Optimum Moisture Content – The moisture-density relationship of a representative soil sample was tested in according to ASTM Standard D1557 and the results are presented in Drawing No. B-2, *Moisture-Density Relationship Results*, in Appendix B, *Laboratory Testing Program*. The laboratory maximum dry density was 133.0 pounds per cubic feet (pcf) with optimum moisture content of 7.5 percent.
- Direct Shear – One direct shear test was performed in accordance with ASTM Standard D3080 on relatively undisturbed ring samples. The results of the direct shear tests are presented in Drawing No. B-3, *Direct Shear Test Results* in Appendix B, *Laboratory Testing Program*.
- Consolidation – One consolidation test was performed on relatively undisturbed samples of the site soils, in accordance with ASTM Standard D2435. The test results are shown on Drawing No. B-4, *Consolidation Test Results*, in Appendix B, *Laboratory Testing Program*.



## **5.2 Chemical Testing - Corrosivity Evaluation**

One representative soil sample was tested to determine minimum electrical resistivity, pH, and chemical content, including soluble sulfate and chloride concentrations. The purposes of these tests were to determine the corrosion potential of site soils when placed in contact with common pipe materials. These tests were performed by AP Engineering and Testing, Inc. (Pomona, CA) in accordance with California Tests 643, 422, and 417. The test results are presented in Appendix B, *Laboratory Testing Program* and summarized below.

- The pH measurement of the sample was 8.3.
- The soluble sulfate content of the sample was 16 ppm (0.0016 percent by weight).
- The chloride concentration of the sample was 26 ppm.
- The minimum electrical resistivity of the sample when saturated was 2,717 ohm-cm.

## **6.0 SITE CONDITIONS**

A general description of the subsurface conditions, various materials and groundwater conditions encountered at each location during our field exploration is discussed below.

### **6.1 Subsurface Profile**

Based on the exploratory borings and laboratory test results, the subsurface soils at the site encountered in the borings at various depths consists primarily of a mixture of sand, silt, trace clay, and gravel. Scattered to few gravel up to 2 inches in maximum dimension was observed in all the borings. The soils were slightly indurated below a depth of 25 feet.

Discernible fill soils were not identified in our subsurface exploration; however, the site may have been previously graded for the existing structures and fill soil is likely present. If present, the fill soils were likely derived from on-site sources and are similar to the native alluvial soils in composition and density.

For a detailed description of the subsurface materials encountered in the exploratory borings, see Drawings No. A-2 through A-4 *Logs of Borings*, in Appendix A, *Field Exploration*.

### **6.2 Groundwater**

Groundwater was not encountered in any of the borings to the maximum explored depth of 51.5 feet bgs. The coordinates of 33.953058N, 117.215849W were used to research and identify comparable groundwater levels.

The State Water Resources Control Board's GeoTracker Database (SWRCB, 2021) was reviewed to establish current and historic groundwater levels. Within a 1.0-mile radius of the centralized coordinates, no site with groundwater data was identified.





The National Water Information System (USGS, 2021) was reviewed to establish current and historic groundwater levels. Within a 1.0-mile radius of the centralized coordinates, no site with groundwater data was identified.

The California Department of Water Resources database (DWR, 2021) was reviewed to establish current and historic groundwater levels. Within a 1.0-mile radius of the centralized coordinates, no site with groundwater data was identified.

Based on available data, current groundwater is expected to be deeper than about 51.5 feet bgs. Groundwater is not expected to be encountered during the construction of the project. It should be noted that the groundwater level could vary depending upon the seasonal precipitation and possible groundwater pumping activity in the site vicinity. Shallow perched groundwater may be present locally, particularly following precipitation.

### **6.3 Expansive Soils**

Expansive soils are characterized by their ability to undergo significant volume changes (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from precipitation, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors and may result in unacceptable settlement or heave of structures or concrete slabs supported on grade. Depending on the extent and location below finish subgrade, expansive soils can have a detrimental effect on structures. Expansion index of the site soils was not determined. However, based on the soil type and experience with similar projects, the expansion index of site soil should be less than 20, corresponds to very low expansion potential. This should be verified during the site grading.

### **6.4 Collapse Potential**

Soil deposits subjected to collapse/hydro-consolidation generally exist in regions of moisture deficiency. Collapsible soils are generally defined as soils that have potential to suddenly decrease in volume upon increase in moisture content even without an increase in external loads. Moreover, some soils may have a different degree of collapse/hydro-consolidation based on the amount of proposed fill or structure loads. Soils susceptible to collapse/ hydro-consolidation include wind-blown silt, weakly cemented sand, and silt where the cementing agent is soluble (e.g., soluble gypsum, halite), alluvial or colluvial deposits within semi-arid to arid climate, and certain weathered bedrock above the groundwater table.

Granular soils may have a potential to collapse upon wetting in arid climate regions. Collapse/hydro-consolidation may occur when the soluble cements (carbonates) in the soil matrix dissolve, causing the soil to densify from its loose/low density configuration from deposition.

The degree of collapse of a soil can be defined by the collapse potential value, which is expressed as a percent of collapse of the total sample using the Collapse Potential Test



(ASTM D4546). According to the ASTM guideline, the severity of collapse potential is commonly evaluated by the following Table No. 1, *Collapse Potential Values*.

**Table No. 1, Collapse Potential Values**

Collapse Potential Value (%)	Severity of Problem
0	None
0.1 to 2	Slight
2.1 to 6.0	Moderate
6.0 to 10.0	Moderately Severe
>10	Severe

Based on the laboratory test results (collapse potential of 6.6, 1.9 and 0.3 percent), a slight problem is anticipated at the site. Collapse potential distress is typically considered a concern when collapse potential is over 2% (LA County, 2013).

### **6.5 Excavatability**

The subsurface materials at the site are expected to be excavatable by conventional heavy-duty earth moving and trenching equipment. However, excavation will be difficult if concentration of gravel is encountered, as well as very dense soils below a depth of approximately 5 feet to 10 feet.

The phrase "conventional heavy-duty excavation equipment" is intended to include commonly used equipment such as excavators, scrapers, and trenching machines. It does not include hydraulic hammers ("breakers"), jackhammers, blasting, or other specialized equipment and techniques used to excavate hard earth materials. Selection of an appropriate excavation equipment models should be done by an experienced earthwork contractor.

### **6.6 Subsurface Variations**

Based on results of the subsurface exploration and our experience, some variations in the continuity and nature of subsurface conditions within the project site should be anticipated. Because of the uncertainties involved in the nature and depositional characteristics of the earth material, care should be exercised in interpolating or extrapolating subsurface conditions between or beyond the boring locations.

## **7.0 ENGINEERING GEOLOGY**

The regional and local geology within the proposed project area is discussed below.





## **7.1 Regional Geology**

The project is located within the northern Peninsular Ranges Geomorphic Province of Southern California. The Peninsular Ranges Geomorphic Province consists of a series of northwest-trending mountain ranges and valleys bounded on the north by the San Bernardino and San Gabriel Mountains, on the west by the Los Angeles Basin, and on the southwest by the Pacific Ocean.

The province is a seismically active region characterized by a series of northwest-trending strike-slip faults. The most prominent of the nearby fault zones include the San Jacinto, Elsinore, and San Andreas fault zones (CGS, 2007), all of which have been known to be active during Quaternary time.

Topography within the province is generally characterized by broad alluvial valleys separated by linear mountain ranges. This northwest-trending linear fabric is created by the regional faulting within the granitic basement rock of the Southern California Batholith. Broad, linear, alluvial valleys have been formed by erosion of these principally granitic mountain ranges.

The project is located within the north-central portion of the Perris Block region of the Peninsular Ranges province. The Perris Block is a relatively stable structural block bounded by the active Elsinore and San Jacinto fault zones to the west and east, and the Chino and Temecula basins to the north and south, respectively. The Perris Block has low relief and is roughly rectangular in shape.

## **7.2 Local Geology**

- The project site and alignments are anticipated to be primarily underlain by middle to early Pleistocene, very old alluvial fan deposits (Qvof). These deposits are mostly moderately to well consolidated silt, sand, gravel, and conglomerate.
- Tonalite granite (bedrock) is exposed approximately 1,500 feet northwest of the project site and is potentially present at shallow depths nearby.

The site and surrounding local geology are shown on Figure 3, *Geological Reference Map*.

## **8.0 FAULTING AND SEISMICITY**

Nearby active faults, seismicity, and their impact on the project site and alignment are discussed in the following sections.

### **8.1 Faulting**

No portion of the project site is located within a currently designated State of California or Riverside County Earthquake Fault Zone (CGS, 2007; Riverside County, 2021). The nearest



# LEGEND



Very old alluvial-fan deposits  
Moderately to well consolidated  
silt, sand, gravel, and  
conglomerate.



Young axial-channel deposits  
Slightly to moderately consolidated  
silt, sand, and gravel deposits.



Young alluvial-fan deposits  
Unconsolidated to moderately  
consolidated silt, sand, with cobbles  
and possible boulders.



Steeplechase and Kalmia  
Booster Pump Station



2,400 Linear Feet of Pipeline



Qyf<sub>a</sub>

Qyaa

Qvof

Map Credit: Portion of Morton, D.M., and Miller, F.K., 2006, Geologic map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California: U.S. Geological Survey, Open-File Report OF-2006-1217, scale 1:100,000.

Project: Steeplechase and Kalmia Booster Pump Station (BPS) Replacement  
Location: City of Moreno Valley, Riverside County, California

## Geological Reference Map

Project No.  
20-81-256-02

Prepared by: Gannett Fleming, Inc.



**Converse Consultants**

Figure No.

3



active fault zone is a Riverside County Fault Zone located approximately 1.5 miles to the northeast and the San Jacinto Fault Zone located approximately 2.3 miles northeast of Kalmia Avenue.

## 8.2 CBC Seismic Design Parameters

CBC seismic design parameters based on the 2019 California Building Code (CBC, 2019), ASCE 7-16 and site coordinates 33.953058N latitude and 117.215849W longitude are provided in the following table. These parameters were determined using the ATC Hazards online calculator.

**Table No. 2, CBC Seismic Design Parameters**

Seismic Parameters	
Site Coordinates	33.953058N, 117.215849W
Site Class	D
Risk Category	III
Mapped Short period (0.2-sec) Spectral Response Acceleration, $S_s$	2.029g
Mapped 1-second Spectral Response Acceleration, $S_1$	0.804g
Site Coefficient (from Table 11.4-1), $F_a$	1.0
Site Coefficient (from Table 11.4-2), $F_v$	1.7
MCE 0.2-sec period Spectral Response Acceleration, $S_{MS}$	2.029g
MCE 1-second period Spectral Response Acceleration, $S_{M1}$	1.367g
Design Spectral Response Acceleration for short period $S_{DS}$	1.353g
Design Spectral Response Acceleration for 1-second period, $S_{D1}$	0.911g
Site Modified Maximum Peak Ground Acceleration, $PGA_M$	0.942g

## 8.3 Secondary Effects of Seismic Activity

Generally, in addition to ground shaking, effects of seismic activity on a structure/pipeline may include surface fault rupture, soil liquefaction and dry seismic settlement, landslides and lateral spreading, and flooding due to earthquake-induced dam failure. The site-specific potential for each of these seismic hazards is discussed in the following sections.

**Surface Fault Rupture:** No portion of the project site/alignment is located within a currently designated State of California or Riverside County Earthquake Fault Zone (CGS, 2007; Riverside County, 2021). The potential for surface rupture resulting from the movement of nearby or distant faults is not known with certainty but is considered very low.

**Dynamic Settlement (Liquefaction and Dry Seismic Settlement):** Liquefaction is defined as the phenomenon in which a soil mass within about the upper 50 feet of the ground surface suffers a substantial reduction in its shear strength, due the development of excess



pore pressures. During earthquakes, excess pore pressures in saturated soil deposits may develop as a result of induced cyclic shear stresses, resulting in liquefaction.

Soil liquefaction occurs during or after strong ground shaking. There are several requirements for liquefaction to occur. They are as follows.

- Soils must be submerged
- Soils must be loose to medium-dense
- Ground motion must be intense
- Duration of shaking must be sufficient for the soils to lose shear resistance

Based on a review of state and county data, the risk of liquefaction is considered to be low to moderate at this project site. Based on a site-specific settlement analysis presented in Appendix C, *Liquefaction and Settlement Analysis*, we estimate that the liquefaction induced settlement of the site is negligible.

**Landslides and Lateral Spreading:** Seismically induced landslides and other slope failures are common occurrences during or after earthquakes in areas of significant relief. No portion of the project site is located within a currently designated State of California or Riverside County Landslide Zone (CGS, 2007; Riverside County, 2021). Seismically induced lateral spreading involves primarily lateral movement of earth materials due to ground shaking. The potential for landslides or lateral spreading at this project site is considered very low.

**Tsunamis:** Tsunamis are large waves generated in open bodies of water by fault displacement or major ground movement. Due to the inland location and elevation of the site, tsunamis are not considered to be a risk.

**Seiches:** Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Due to the distance to large bodies of water, the site is not at risk of seiching.

**Earthquake-Induced Flooding:** Dams or other water-retaining structures may fail as a result of large earthquakes. The project site is not located within a designated dam inundation area (DSOD, 2021).

## 9.0 EARTHWORK RECOMMENDATIONS

Earthwork recommendations for the project are presented in the following sections.

### 9.1 General

This section contains our general recommendations regarding earthwork and grading for the project. These recommendations are based on the results of our field exploration, laboratory tests, our experience with similar projects, and data evaluation as presented in





the preceding sections. These recommendations may require modification by the geotechnical consultant based on observation of the actual field conditions during grading.

Prior to the start of construction, all existing underground utilities and appurtenances should be located at the project site. Such utilities should either be protected in-place or removed and replaced during construction as required by the project specifications. All excavations should be conducted in such a manner as not to cause loss of bearing and/or lateral support of existing utilities. All debris and deleterious material should be removed from the site.

If isolated pockets of very soft, loose, eroded, or pumping soil are encountered, the unstable soil should be excavated as needed to expose undisturbed, firm, and unyielding soils.

The contractor should determine the best manner to conduct the excavations, such that there are no losses of bearing and/or lateral support to the existing utilities (if any).

The final bottom surfaces of all excavations should be observed and approved by the project geotechnical consultant prior to placing any fill. Based on these observations, localized areas may require remedial grading deeper than indicated herein. Therefore, some variations in the depth and lateral extent of excavation recommended in this report should be anticipated.

## **9.2 Remedial Grading**

Footings, slab-on-grade, and pavements should be uniformly supported by compacted fill. In order to provide uniform support, structural areas should be generally overexcavated, scarified, and recompacted as follows.

**Table No. 3, Overexcavation Depths**

<b>Structure/Pavement</b>	<b>Minimum Excavation Depth</b>
Footings (building)	2 feet below footing bottom or 5 feet below existing ground surface, whichever is deeper
Slab-on-grade	15 inches below slab bottom or 2 feet below existing ground surface, whichever is deeper
Walls (footings if any)	15 inches below footings bottom or 2 feet below existing ground surface, whichever is deeper
Pavements	12 inches below finish grade

The overexcavation below the footings, slab and pavements should be uniform. The overexcavation should extend to at least 3 feet beyond the footprint of the building footings, 2 feet beyond the slab and wall footings and at least 1 foot beyond the edge of the pavements. The overexcavation bottom should be scarified and compacted as described in Section 9.4, *Compacted Fill Placement*.



### **9.3 Engineered/Structural Fill**

No fill or aggregate base should be placed until excavations and/or natural ground preparation have been observed by the geotechnical consultant. The native soils encountered within the site are generally considered suitable for re-use as compacted fill. Excavated soils should be processed, including cleaning roots and debris, removal of oversized particles, mixing, and moisture conditioning, before placing as compacted fill. On-site soils used as fill should meet the following criteria.

- No particles larger than 3 inches in largest dimension.
- Rocks larger than 1 inch should not be placed within the upper 12 inches of subgrade soils.
- Free of all organic matter, debris, or other deleterious material.
- Expansion index of 20 or less.
- Sand Equivalent greater than 15 (greater than 30 for pipe bedding).
- Contain less than 30 percent by weight retained in 3/4-inch sieve.
- Contain less than 40 percent fines (passing #200 sieve).

Based on field investigation and laboratory testing results, on-site soils may be suitable as structural/engineered fill materials.

Any imported fills should be tested and approved by geotechnical representative prior to delivery to the site. Imported materials, if required, should meet the above criteria prior to being used as compacted fill.

### **9.4 Compacted Fill Placement**

All surfaces to receive structural fills should be scarified to a depth of 6 inches. The soil should be moisture conditioned to within  $\pm 3$  percent of optimum moisture content for coarse soils and 0 to 2 percent above optimum moisture content for fine soils. The scarified soils should be recompacted to at least 90 percent of the laboratory maximum dry density.

Fill soils should be thoroughly mixed, and moisture conditioned to within  $\pm 3$  percent of optimum moisture content for coarse soils and 0 to 2 percent above optimum moisture content for fine soils. Fill soils should be evenly spread in horizontal lifts not exceeding 8 inches in uncompacted thickness.

All fill placed at the site should be compacted to at least 90 percent of the laboratory maximum dry densities as determined by ASTM Standard D1557 test method unless a higher compaction is specified herein. At least the upper 1 foot of subgrade soils underneath pavements intended to support vehicle loads should be scarified, moisture conditioned, and compacted to at least 95 percent of the laboratory maximum dry density.

Fill materials should not be placed, spread, or compacted during unfavorable weather conditions. When site grading is interrupted by heavy rain, filling operations should not





resume until the geotechnical consultant approves the moisture and density conditions of the previously placed fill.

### **9.5     *Shrinkage and Subsidence***

The volume of excavated and recompacted soils may be expected to decrease as a result of grading. The shrinkage would depend on, among other factors, the depth of cut and/or fill, and the grading method and equipment utilized. For preliminary estimation, shrinkage factors for various units of earth material at the site may be taken as presented below.

- An average shrinkage factor (defined as a percentage of soil volume reduction when moisture conditioned and compacted to the average of 92 percent relative compaction) of 5 to 8 percent can be used for the upper 5 feet of soils for preliminary earthwork planning.
- Subsidence (defined as the settlement of native materials from the equipment load applied during grading) would depend on the construction methods including type of equipment utilized. For estimation purposes, ground subsidence may be taken as 0.1 to 0.15 feet.

Although these values are only approximate, they represent our best estimates of the factors to be used to calculate lost volume that may occur during grading. If more accurate shrinkage and subsidence factors are needed, it is recommended that field-testing using the actual equipment and grading techniques be conducted.

### **9.6     *Site Drainage***

Adequate positive drainage should be provided away from the structure and excavation areas to prevent ponding and to reduce percolation of water into the foundation soils. The building pad should have a gradient of at least 2 percent towards drainage facilities. The drainage gradient should be 1 percent for paved areas and 2 percent in landscaped areas. Surface drainage should be directed to suitable non-erosive devices.

### **9.7     *Utility Trench Backfill***

The following sections present earthwork recommendations for utility trench backfill, including subgrade preparation and trench zone backfill.

Open cuts adjacent to existing roadways or structures are not recommended within a 1:1 (horizontal: vertical) plane extending down and away from the roadway or structure perimeter (if any).

Soils from the trench excavation should not be stockpiled more than 6 feet in height or within a horizontal distance from the trench edge equal to the depth of the trench. Soils should not be stockpiled behind the shoring, if any, within a horizontal distance equal to the depth of the trench, unless the shoring has been designed for such loads.



### 9.7.1 Pipeline Subgrade Preparation

The final subgrade surface should be level, firm, uniform, and free of loose materials and properly graded to provide uniform bearing and support to the entire section of the pipe placed on bedding material. Protruding oversize particles larger than 2 inches in dimension, if any, should be removed from the trench bottom and replaced with compacted on-site materials.

Any loose, soft and/or unsuitable materials encountered at the pipe subgrade should be removed and replaced with an adequate bedding material. During the digging of depressions for proper sealing of the pipe joints, the pipe should rest on a prepared bottom for as near its full length as is practicable.

### 9.7.2 Pipe Bedding

Bedding is defined as the material supporting and surrounding the pipe to 1 foot above the pipe. Pipe bedding should follow EMWD Standards. If additional recommendations beyond EMWD Standards are needed, the following specifications can be used during the placement of pipe bedding.

To provide uniform and firm support for the pipe, compacted granular materials such as clean sand, gravel or  $\frac{3}{4}$ -inch crushed aggregate, or crushed rock may be used as pipe bedding material. Typically, soils with sand equivalent value of 30 or more are used as pipe bedding material. The pipe designer should determine if the soils are suitable as pipe bedding material.

The type and thickness of the granular bedding placed underneath and around the pipe, if any, should be selected by the pipe designer. The load on the rigid pipes and deflection of flexible pipes and, hence, the pipe design, depends on the type and the amount of bedding placed underneath and around the pipe.

Bedding materials should be vibrated in-place to achieve compaction. Care should be taken to densify the bedding material below the springline of the pipe. Prior to placing the pipe bedding material, the pipe subgrade should be uniform and properly graded to provide uniform bearing and support to the entire section of the pipe placed on bedding material. During the digging of depressions for proper sealing of the pipe joints, the pipe should rest on a prepared bottom for as near its full length as is practicable.

Migration of fines from the surrounding native and/or fill soils may not be considered in selecting the gradation of any imported bedding material.

### 9.7.3 Trench Zone Backfill

The trench zone is defined as the portion of the trench above the pipe bedding extending up to the final grade level of the trench surface. Excavated site soil free of oversize particles and deleterious matter may be used to backfill the trench zone. Trench backfill





should follow EMWD Standards. For trenching excavation into bedrock, see Section 6.5, *Excavatability*. Based on the pipe profile (cover 5 feet bgs), trenching recommendations for pipelines below groundwater is not required. If additional recommendations beyond EMWD Standards are needed, the following specifications can be used during the placement of trench backfill.

- Trench excavations to receive backfill should be free of trash, debris or other unsatisfactory materials at the time of backfill placement.
- Trench zone backfill should be compacted to at least 90 percent of the laboratory maximum dry density as per ASTM D1557 test method. At least the upper 1 foot of trench backfill underlying pavement should be compacted to at least 95 percent of the laboratory maximum dry density as per ASTM D1557 test method.
- Particles larger than 1 inch should not be placed within 12 inches of the pavement subgrade. No more than 30 percent of the backfill volume should be larger than ¾-inch in the largest dimension. Gravel should be well mixed with finer soil. Rocks larger than 3 inches in the largest dimension should not be placed as trench backfill.
- Trench backfill should be compacted by mechanical methods, such as sheepsfoot, vibrating or pneumatic rollers or mechanical tampers to achieve the density specified herein. The backfill materials should be brought to within  $\pm 3$  percent of optimum moisture content for coarse-grained soil, and between optimum and 2 percent above optimum for fine-grained soil, then placed in horizontal layers. The thickness of uncompacted layers should not exceed 8 inches. Each layer should be evenly spread, moistened or dried as necessary, and then tamped or rolled until the specified density has been achieved.
- The contractor should select the equipment and processes to be used to achieve the specified density without damage to adjacent ground, structures, utilities and completed work.
- The field density of the compacted soil should be measured by the ASTM D1556 (Sand Cone) or ASTM D6938 (Nuclear Gauge) or equivalent.
- Observations and field tests should be performed by the project soils consultant to confirm that the required degree of compaction has been obtained. Where compaction is less than that specified, additional compactive effort should be made with adjustment of the moisture content as necessary, until the specified compaction is obtained.
- It should be the responsibility of the contractor to maintain safe working conditions during all phases of construction.
- Trench backfill should not be placed, spread or rolled during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations should not resume until field tests by the project's geotechnical consultant indicate that the moisture content and density of the fill are in compliance with project specifications.



## 10.0 DESIGN RECOMMENDATIONS

The various design recommendations provided in this section are based on the assumption that the above earthwork and grading recommendations will be implemented in the project design and construction.

### 10.1 *Shallow Foundation Design Parameters*

The proposed BPS pads and walls (if any) may be supported on continuous and/or isolated spread footings. The design of the shallow foundations should be based on the recommended parameters presented in the table below.

**Table No. 4, Recommended Foundation Parameters**

Parameter	Value
Minimum continuous footing width	18 inches
Minimum isolated footing width	18 inches
Minimum continuous or isolated footing depth of embedment below lowest adjacent grade	18 inches
Allowable net bearing capacity	3,000 psf

The actual footing dimensions and reinforcement should be based on structural design. The allowable bearing capacity can be increased by 500 pounds per square foot (psf) with each foot of additional embedment and 100 psf with each foot of additional width up to a maximum of 4,000 psf.

The net allowable bearing values indicated above are for the dead loads and frequently applied live loads and are obtained by applying a factor of safety of 3.0 to the net ultimate bearing capacity. If normal code requirements are applied for design, the above vertical bearing value may be increased by 33 percent for short duration loadings, which will include loadings induced by wind or seismic forces.

### 10.2 *Lateral Earth Pressures and Resistance to Lateral Loads*

In the following subsections, the lateral earth pressures and resistance to lateral loads are estimated by using on-site native soils strength parameters obtained from laboratory testing.

#### 10.2.1 **Active Earth Pressures**

The active earth pressure behind any buried wall or foundation depends primarily on the allowable wall movement, type of backfill materials, backfill slopes, wall or foundation inclination, surcharges, and any hydrostatic pressures. The lateral earth pressures are presented in the following table.





**Table No. 5, Active and At-Rest Earth Pressures**

Loading Conditions	Lateral Earth Pressure (psf)
Active earth conditions (wall is free to deflect at least 0.001 radian)	40
At-rest (wall is restrained)	60

These pressures assume no surcharge, and no hydrostatic pressure. If water pressure is allowed to build up behind the walls, the active pressures should be reduced by 50 percent and added to a full hydrostatic pressure to compute the design pressures against the walls.

A uniform lateral pressure of 100 psf should be considered to account for normal vehicular and construction traffic within 10 feet of the structures.

### **10.2.2 Resistance to Lateral Loads**

Resistance to lateral loads can be assumed to be provided by a combination of friction acting at the base of foundations and by passive earth pressure. A coefficient of friction of 0.35 between formed concrete and soil may be used with the dead load forces. An allowable passive earth pressure of 270 psf per foot of depth may be used for the sides of the footing poured against recompacted native soils. A factor of safety of 1.5 was applied in calculating passive earth pressure. The maximum value of the passive earth pressure should be limited to 3,000 psf.

Vertical and lateral bearing values indicated above are for the total dead loads and frequently applied live loads. If normal code requirements are applied for design, the above vertical bearing and lateral resistance values may be increased by 33 percent for short duration loading, which will include the effect of wind or seismic forces.

Due to the low overburden stress of the soil at shallow depth, the upper 1 foot of passive resistance should be neglected unless the soil is confined by pavement or slab.

### **10.3 Settlement**

The total settlement of mat foundation/footing from static structural loads and short-term settlement of properly compacted fill is anticipated to be 0.5 inch or less. The differential settlement resulting from static loads is anticipated to be 0.25 inches or less over a horizontal distance of 40 feet.

Our analysis of the potential dynamic settlement is presented in Appendix C, *Liquefaction and Settlement Analysis*. We estimate that the potential for liquefaction induced settlement and dry seismic settlement for the site is negligible.



#### 10.4 Pipe Design for Underground Utilities

Structural design of pipes requires proper evaluation of all possible loads acting on pipes. The stresses and strains induced on buried pipes depend on many factors, including the type of soil, density, bearing pressure, angle of internal friction, coefficient of passive earth pressure, and coefficient of friction at the interface between the backfill and native soils. The recommended values of the various soil parameters for the pipe design are provided in Table No. 6, *Soil Parameters for Pipe Design* below.

Where pipes are connecting to rigid structures near, or at its lower levels, and then are subjected to significant loads as the backfill is placed to finish grade, we recommend that provisions be incorporated in the design to provide support of these pipes where they exit the structure. Consideration can be given to flexible connections, concrete slurry support beneath the pipes where they exit the structures, overlaying and supporting the pipes with a few inches of compressible material, (i.e., Styrofoam, or other materials), or other techniques. Automatic shutoffs should be installed to limit the potential leakage in the event of damage in a seismic event.

**Table No. 6, Soil Parameters for Pipe Design**

Soil Parameters	Value
Average compacted fill total unit weight (assuming 92% relative compaction), $\gamma$ (pcf)	131.5
Angle of internal friction of soils, $\phi$	32
Soil cohesion, $c$ (psf)	0
Coefficient of friction between concrete and native soils, $f_s$	0.35
Coefficient of friction between CML&C steel, PVC or HDPE pipe and native soils, $f_s$	0.25
Bearing pressure against native soils (psf)	2,500
Coefficient of passive earth pressure, $K_p$	3.25
Coefficient of active earth pressure, $K_a$	0.31
Modulus of Soil Reaction $E'$ (psi)	1,500

#### 10.5 Soil Corrosivity

The results of chemical testing of one representative soil sample were evaluated for corrosivity with respect to common construction materials such as concrete and steel. The test results are presented in Appendix B, *Laboratory Testing Program*, and general discussion pertaining to soil corrosivity are presented below.

The sulfate contents of the sampled soil correspond to American Concrete Institute (ACI) exposure category S0 for the sulfate concentration (ACI 318-14, Table 19.3.1.1). No





concrete type restrictions are specified for exposure category S0 (ACI 318-14, Table 19.3.2.1). A minimum compressive strength of 2,500 psi is recommended.

We anticipate that concrete will be exposed to moisture from precipitation and irrigation. Based on the project location and the results of chloride testing of the soils, we do not anticipate that concrete structures will be exposed to external sources of chlorides, such as deicing chemicals, salt, brackish water, or seawater. ACI specifies exposure category C1 where concrete is exposed to moisture, but not to external sources of chlorides (ACI 318-14, Table 19.3.1.1). ACI provides concrete design recommendations in ACI 318-14, Table 19.3.2.1, including a compressive strength of at least 2,500 psi and a maximum chloride content of 0.3 percent.

According to Romanoff, 1957, the following table provides general guideline of soil corrosion based on electrical resistivity.

**Table No. 7, Correlation Between Resistivity and Corrosion**

Soil Resistivity (ohm-cm) per Caltrans CT 643	Corrosivity Category
Over 10,000	Mildly corrosive
2,000 – 10,000	Moderately corrosive
1,000 – 2,000	Corrosive
Less than 1,000	Severe corrosive

The measured value of the minimum electrical resistivity of the sample when saturated was 2,717 Ohm-cm. This indicates that the soil tested of the site is moderately corrosive to ferrous metals in contact with the soils (Romanoff, 1957). Converse does not practice in the area of corrosion consulting. If needed, a qualified corrosion consultant should provide appropriate corrosion mitigation measures for any ferrous metals in contact with the site and site soils.

## **10.6 Flexible Pavement Recommendations**

Based on the soil type and experience with similar type of projects, an R-value of 30 was assumed. For pavement design, we have utilized a design subgrade R-value of 30 and design Traffic Indices (TIs) ranging from 5 to 8.

Based on the above information, asphalt concrete and aggregate base thickness results are presented using the Caltrans Highway Design Manual (Caltrans, 2020), Chapter 630 with a safety factor of 0.2 for asphalt concrete/aggregate base section and 0.1 for full depth asphalt concrete section. Preliminary asphalt concrete pavement sections are presented in the following table below.



**Table No. 8, Recommended Preliminary Asphalt Concrete Pavement Sections**

Design R-value 30	Traffic Index (TI)	Pavement Section		
		Option 1		Option 2
		Asphalt Concrete (inches)	Aggregate Base (inches)	Full AC Section (inches)
	5	3.0	5.0	6.0
	6	3.5	7.0	7.0
	7	4.0	9.0	8.5
	8	5.0	11.0	10.0

At or near the completion of grading, subsurface samples should be tested to evaluate the actual subgrade R-value for final pavement design.

Prior to placement of aggregate base, at least the upper 12 inches of subgrade soils should be scarified, moisture-conditioned if necessary, and recompact to at least 95 percent of the laboratory maximum dry density as defined by ASTM Standard D1557 test method.

Base materials should conform with the City of Moreno Valley Standards should be placed in accordance with corresponding section of the Public Works Standards "Greenbook" latest version.

Asphaltic concrete materials should conform to the City of Moreno Valley Standards or corresponding section of the Greenbook and should be placed accordingly.

### **10.7 Rigid Pavement Recommendations**

Based on the soil type and experience with similar type of projects, an R-value of 30 to 40 can be assumed. For pavement design, we have utilized a design subgrade R-value of 30 and design Traffic Indices (TIs) ranging from 5 to 8. We recommend that the project structural engineer consider the loading conditions at various locations and select the appropriate pavement sections from the following table.

**Table No. 9, Rigid Pavement Structural Sections**

Design R-Value	Design Traffic Index (TI)	PCCP Pavement Section (inches)
30	5.0	6.5
	6.0	7.0
	7.0	7.5
	8.0	7.5

Prior to placement of aggregate base, at least the upper 12 inches of subgrade soils should be scarified, moisture-conditioned if necessary, and recompact to at least 95 percent of the laboratory maximum dry density as defined by ASTM Standard D1557 test method.





Positive drainage should be provided away from all pavement areas to prevent seepage of surface and/or subsurface water into pavement base and/or subgrade.

At or near the completion of grading, subsurface samples should be tested to evaluate the actual subgrade R-value for final pavement design.

The concrete pavement section is based on a minimum 28-day Modulus of Rupture (M-R) of 550 psi and a compressive strength of 3,000 psi. The third point method of testing beams should be used to evaluate modulus of rupture. The concrete mix design should contain a minimum cement content of 5.5 sacks per cubic yard. Recommended maximum and minimum values of slump for pavement concrete are three inches and one inch, respectively.

Transverse contraction joints should not be spaced more than 15 feet and should be cut to a depth of  $\frac{1}{4}$  the thickness of the slab. Longitudinal joints should not be spaced more than 12 feet apart. A longitudinal joint is not necessary in the pavement adjacent to the curb and gutter section.

Concrete materials should conform to Section 201 of the 2018 Standard Specifications for Public Works Construction (SSPWC; Public Works Standards, 2018), and concrete pavement should be constructed in accordance with Section 302-6, "Portland Cement Concrete Pavement" of the SSPWC.

## **10.8 Concrete Flatwork**

Except as modified herein, concrete walks, driveways, access ramps, curb and gutters should be constructed in accordance with Section 303-5, *Concrete Curbs, Walks, Gutters, Cross-Gutters, Alley Intersections, Access Ramps, and Driveways*, of the Standard Specifications for Public Works Construction (Public Works Standards, 2018).

The subgrade soils under the above structures should consist of compacted fill placed as described in this report. Prior to placement of concrete, the upper 2 feet of subgrade soils should be moisture conditioned within 3 percent of optimum moisture content for coarse-grained soils and 0 to 2 percent above optimum for fine-grained soils and compacted to at least 95% of the laboratory maximum dry density.

The cement concrete thickness of driveways for passenger vehicles should be at least 4 inches, or as required by the civil or structural engineer. Transverse control joints for driveways should be spaced not more than 10 feet apart. Driveways wider than 12 feet should be provided with a longitudinal control joint.

Concrete walks subjected to pedestrian and bicycle loading should be at least 4 inches thick, or as required by the civil or structural engineer. Transverse joints should be spaced 15 feet or less and should be cut to a depth of one-fourth the slab thickness.



Positive drainage should be provided away from all driveways and sidewalks to prevent seepage of surface and/or subsurface water into the concrete base and/or subgrade.

## 11.0 CONSTRUCTION RECOMMENDATIONS

Temporary sloped excavation and shoring design recommendations are presented in the following sections.

### 11.1 General

Prior to the start of construction, all existing underground utilities should be located at the project site. Such utilities should either be protected in-place or removed and replaced during construction as required by the project specifications.

Sloped excavations may not be feasible in locations adjacent to existing utilities, pavement, or structures. Recommendations pertaining to temporary excavations are presented in this section.

Excavations near existing structures may require vertical side wall excavation. Where the side of the excavation is a vertical cut, it should be adequately supported by temporary shoring to protect workers and any adjacent structures.

All applicable requirements of the California Construction and General Industry Safety Orders, the Occupational Safety and Health Act, and the Construction Safety Act should be met. The soils exposed in cuts should be observed during excavation by the geotechnical consultant and the competent person designated by the contractor. If potentially unstable soil conditions are encountered, modifications of slope ratios for temporary cuts may be required.

### 11.2 Temporary Sloped Excavations

Temporary open-cut trenches may be constructed with side slopes as recommended in the following table. Temporary cuts encountering soft and wet fine-grained soils; dry loose, cohesionless soils or loose fill from trench backfill may have to be constructed at a flatter gradient than presented below.

**Table No. 10, Slope Ratios for Temporary Excavations**

Soil Type	OSHA Soil Type	Depth of Cut (feet)	Recommended Maximum Slope (Horizontal:Vertical) <sup>1</sup>
Silty Sand (SM) and Sand with Silt (SP-SM)	C	0-10	1.5:1

<sup>1</sup> Slope ratio assumed to be uniform from top to toe of slope.

For shallow excavations up to 4 feet bgs can be vertical. For steeper temporary construction slopes or deeper excavations, or unstable soil encountered during the





excavation, shoring or trench shields should be provided by the contractor to protect the workers in the excavation.

Surfaces exposed in slope excavations should be kept moist but not saturated to retard raveling and sloughing during construction. Adequate provisions should be made to protect the slopes from erosion during periods of rainfall. Surcharge loads, including construction materials, should not be placed within 5 feet of the unsupported slope edge. Stockpiled soils with a height higher than 6 feet will require greater distance from trench edges.

## **12.0 GEOTECHNICAL SERVICES DURING CONSTRUCTION**

The project geotechnical consultant should review plans and specifications as the project design progresses. Such review is necessary to identify design elements, assumptions, or new conditions which require revisions or additions to our geotechnical recommendations.

The project geotechnical consultant should be present to observe conditions during construction. Geotechnical observation and testing should be performed as needed to verify compliance with project specifications. Additional geotechnical recommendations may be required based on subsurface conditions encountered during construction.

## **13.0 CLOSURE**

This report is prepared for the project described herein and is intended for use solely by Gannett Fleming, Inc. their authorized agents to assist in the design and construction of the proposed project. Our findings and recommendations were obtained in accordance with generally accepted professional principles practiced in geotechnical engineering. We make no other warranty, either expressed or implied.

Converse Consultants is not responsible or liable for any claims or damages associated with interpretation of available information provided to others. Field exploration identifies actual soil conditions only at those points where samples are taken, when they are taken. Data derived through sampling and laboratory testing is extrapolated by Converse employees who render an opinion about the overall soil conditions. Actual conditions in areas not sampled may differ. In the event that changes to the project occur, or additional, relevant information about the project is brought to our attention, the recommendations contained in this report may not be valid unless these changes and additional relevant information are reviewed, and the recommendations of this report are modified or verified in writing. In addition, the recommendations can only be finalized by observing actual subsurface conditions revealed during construction. Converse cannot be held responsible for misinterpretation or changes to our recommendations made by others during construction.



As the project evolves, continued consultation and construction monitoring by a qualified geotechnical consultant should be considered an extension of geotechnical investigation services performed to date. The geotechnical consultant should review plans and specifications to verify that the recommendations presented herein have been appropriately interpreted, and that the design assumptions used in this report are valid. Where significant design changes occur, Converse may be required to augment or modify the recommendations presented herein. Subsurface conditions may differ in some locations from those encountered in the explorations, and may require additional analyses and, possibly, modified recommendations.

Design recommendations given in this report are based on the assumption that it will be implemented. Additional consultation may be prudent to interpret Converse's findings for contractors, or to possibly refine these recommendations based upon the review of the actual site conditions encountered during construction. If the scope of the project changes, if project completion is to be delayed, or if the report is to be used for another purpose, this office should be consulted.





## 14.0 REFERENCES

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# Appendix A

Field Exploration





## APPENDIX A

### FIELD EXPLORATION

Our field investigation included site a reconnaissance and a subsurface exploration program consisting of drilling soil borings. During the site reconnaissance, the surface conditions were noted, and the borings were marked at locations selected by Ms. Carolina Cubides with Gannett Fleming, Inc. The approximate boring locations were established in the field with reference to existing site plans and other visible features. The locations should be considered accurate only to the degree implied by the method used.

Three exploratory borings (BH-01 through BH-03) were drilled on December 28, 2021, to investigate the subsurface conditions. The borings were drilled to depths between 15.5 feet and 51.5 feet below ground surface (bgs).

The borings were advanced using a truck-mounted drill rig equipped with 8-inch diameter hollow-stem augers for soils sampling. Encountered materials were continuously logged by a Converse Geologist and classified in the field by visual classification in accordance with the Unified Soil Classification System. Where appropriate, the field descriptions and classifications have been modified to reflect laboratory test results.

Relatively undisturbed samples were obtained using California Modified Samplers (2.4 inches inside diameter and 3.0 inches outside diameter) lined with thin sample rings. The steel ring sampler was driven into the bottom of the borehole with successive drops of a 140-pound driving weight falling 30 inches. Blow counts at each sample interval are presented on the boring logs. Samples were retained in brass rings (2.4 inches inside diameter and 1.0 inch in height) and carefully sealed in waterproof plastic containers for shipment to the Converse laboratory. Bulk samples of typical soil types were also obtained.

Standard Penetration Testing (SPT) was also performed in accordance with the ASTM Standard D1586 test method at 10-foot intervals beginning at 20 feet bgs in boring BH-01 using a standard (1.4 inches inside diameter and 2.0 inches outside diameter) split-barrel sampler. The mechanically driven hammer for the SPT sampler was 140 pounds, falling 30 inches for each blow. The recorded blow counts for every 6 inches for a total of 1.5 feet of sampler penetration are shown on the Logs of Borings.

The exact depths at which material changes occur cannot always be established accurately. Unless a more precise depth can be established by other means, changes in material conditions that occur between drive samples are indicated on the logs at the top of the next drive sample.



Following the completion of logging and sampling, the borings (BH-01 and BH-03) were backfilled with soil cuttings and compacted by pushing down with an auger using drill rig weight. Since BH-02 was on an asphalt concrete surface, so the surface was patched with cold asphalt concrete. If construction is delayed, the surface of the borings may settle over time. We recommend the owner monitor the boring locations and backfill any depressions that might occur or provide protection around the boring locations to prevent trip and fall injuries from occurring near the area of any potential settlement.

For a key to soil symbols and terminology used in the boring logs, refer to Drawing No. A-1a and A-1b, *Unified Soil Classification and Key to Boring Log Symbols*. For logs of borings, see Drawing Nos. A-2 through A-4 *Logs of Borings*.



# SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS  (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
	SAND AND SANDY SOILS	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
			GRAVELS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
		MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	CLEAN SANDS  (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			CLEAN SANDS  (LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		SM	SILTY SANDS, SAND - SILT MIXTURES	
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
				ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		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	
				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
HIGHLY ORGANIC SOILS				CH	INORGANIC CLAYS OF HIGH PLASTICITY	
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

FIELD AND LABORATORY TESTS	
C	Consolidation (ASTM D 2435)
CL	Collapse Potential (ASTM D 4546)
CP	Compaction Curve (ASTM D 1557)
CR	Corrosion, Sulfates, Chlorides (CTM 643-99; 417; 422)
CU	Consolidated Undrained Triaxial (ASTM D 4767)
DS	Direct Shear (ASTM D 3080)
EI	Expansion Index (ASTM D 4829)
M	Moisture Content (ASTM D 2216)
OC	Organic Content (ASTM D 2974)
P	Permeability (ASTM D 2434)
PA	Particle Size Analysis (ASTM D 6913 [2002])
PI	Liquid Limit, Plastic Limit, Plasticity Index (ASTM D 4318)
PL	Point Load Index (ASTM D 5731)
PM	Pressure Meter
PP	Pocket Penetrometer
R	R-Value (CTM 301)
SE	Sand Equivalent (ASTM D 2419)
SG	Specific Gravity (ASTM D 854)
SW	Swell Potential (ASTM D 4546)
TV	Pocket Torvane
UC	Unconfined Compression - Soil (ASTM D 2166)
	Unconfined Compression - Rock (ASTM D 7012)
UU	Unconsolidated Undrained Triaxial (ASTM D 2850)
UW	Unit Weight (ASTM D 2937)

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

## BORING LOG SYMBOLS

DRILLING METHOD SYMBOLS			
	Auger Drilling		Mud Rotary Drilling
	Dynamic Cone or Hand Driven		Diamond Core

SAMPLE TYPE	
	<b>STANDARD PENETRATION TEST</b> Split barrel sampler in accordance with ASTM D-1586-84 Standard Test Method
	<b>DRIVE SAMPLE</b> 2.42" I.D. sampler (CMS)
	<b>DRIVE SAMPLE</b> No recovery
	<b>BULK SAMPLE</b>
	<b>GROUNDWATER WHILE DRILLING</b>
	<b>GROUNDWATER AFTER DRILLING</b>

## UNIFIED SOIL CLASSIFICATION AND KEY TO BORING LOG SYMBOLS



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Project No. Drawing No.  
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CONSISTENCY OF COHESIVE SOILS						
Descriptor	Unconfined Compressive Strength (tsf)	SPT Blow Counts	Pocket Penetrometer (tsf)	CA Sampler	Torvane (tsf)	Field Approximation
Very Soft	<0.25	< 2	<0.25	<3	<0.12	Easily penetrated several inches by fist
Soft	0.25 - 0.50	2 - 4	0.25 - 0.50	3 - 6	0.12 - 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 - 1.0	5 - 8	0.50 - 1.0	7 - 12	0.25 - 0.50	Can be penetrated several inches by thumb with moderate effort
Stiff	1.0 - 2.0	9 - 15	1.0 - 2.0	13 - 25	0.50 - 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2.0 - 4.0	16 - 30	2.0 - 4.0	26 - 50	1.0 - 2.0	Readily indented by thumbnail
Hard	>4.0	>30	>4.0	>50	>2.0	Indented by thumbnail with difficulty

APPARENT DENSITY OF COHESIONLESS SOILS		
Descriptor	SPT $N_{60}$ Value (blows / foot)	CA Sampler
Very Loose	<4	<5
Loose	4 - 10	5 - 12
Medium Dense	11 - 30	13 - 35
Dense	31 - 50	36 - 60
Very Dense	>50	>60

MOISTURE	
Descriptor	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OF PROPORTION OF SOILS	
Descriptor	Criteria
Trace (fine)/ Scattered (coarse)	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

SOIL PARTICLE SIZE		
Descriptor	Size	
Boulder	> 12 inches	
Cobble	3 to 12 inches	
Gravel	Coarse	3/4 inch to 3 inches
	Fine	No. 4 Sieve to 3/4 inch
Sand	Coarse	No. 10 Sieve to No. 4 Sieve
	Medium	No. 40 Sieve to No. 10 Sieve
	Fine	No. 200 Sieve to No. 40 Sieve
Silt and Clay	Passing No. 200 Sieve	

PLASTICITY OF FINE-GRAINED SOILS	
Descriptor	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll, and not much time is required to reach the plastic limit; it cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

CEMENTATION/ Induration	
Descriptor	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

**NOTE:** This legend sheet provides descriptions and associated criteria for required soil description components only. Refer to Caltrans Soil and Rock Logging, Classification, and Presentation Manual (2010), Section 2, for tables of additional soil description components and discussion of soil description and identification.

## UNIFIED SOIL CLASSIFICATION AND KEY TO BORING LOG SYMBOLS





# Log of Boring No. BH-01

Dates Drilled: 12/28/2021 Logged by: Catherine Nelson Checked By: Hashmi S. Quazi,

Equipment: 8" HOLLOW STEM AUGER

Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 1933

Depth to Water (ft, bgs): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the Boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
			DRIVE	BULK				
5		<b>VERY OLD ALLUVIAL FAN DEPOSITS</b> <b>SILTY SAND (SM):</b> fine to coarse-grained, few gravel up to 0.5 inch in maximum dimensions, dense, moist, orangish brown.			18/30/30	3	112	CR, PA, CP
		- increased coarse content, light grayish brown			9/16/20	3	113	DS
		- medium dense			13/16/19	2	111	PA
					15/22/30	2	114	
10		<b>SAND WITH SILT (SP-SM):</b> fine to coarse-grained, dense, moist, grayish brown.						
15		- increased coarse content, scattered gravel up to 0.5 inch in maximum dimension, very dense			29/32/31	2	111	
20					15/13/17			
25		<b>SILTY SAND (SM):</b> fine to coarse-grained, slightly indurated, very dense, moist, orangish brown.			50-6"	6	111	
30		- trace clay, increased fines content			22/34/22			



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25565 Kalmia Avenue  
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For: Gannett Fleming, Inc.

Project No. Drawing No.

20-81-256-02

A-2a

# Log of Boring No. BH-01

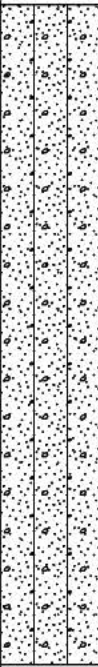
Dates Drilled: 12/28/2021 Logged by: Catherine Nelson Checked By: Hashmi S. Quazi,

Equipment: 8" HOLLOW STEM AUGER

Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 1933

Depth to Water (ft, bgs): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the Boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
			DRIVE	BULK				
40		<b>VERY OLD ALLUVIAL FAN DEPOSITS</b> <b>SILTY SAND (SM):</b> fine to coarse-grained, few gravel up to 2 inches maximum dimension, slightly indurated, very dense, moist, orangish brown.			27/33/44	6	113	
			X		25/40/40			
45					50-6"	9	110	
50		- dense	X		15/23/26			
		End of boring at 51.5 feet bgs. No groundwater was encountered. Borehole backfilled with soil cuttings and compacted by pushing down with an auger using the drill rig weight on 12/28/2021.						



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Steeplechase and Kalmia Booster Pump Station (BPS) Replacement Project No. Drawing No.  
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City of Moreno Valley, Riverside County, California  
For: Gannett Fleming, Inc.

# Log of Boring No. BH-02

Dates Drilled: 12/28/2021 Logged by: Catherine Nelson Checked By: Hashmi S. Quazi,

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 1952 Depth to Water (ft, bgs): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the Boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
			DRIVE	BULK				
		3.5" ASPHALT CONCRETE/ 20" AGGREGATE BASE						
		<b>VERY OLD ALLUVIAL FAN DEPOSITS</b>						
5		<b>SILTY SAND (SM):</b> fine to coarse-grained, few gravel up to 0.5 inches in maximum dimension, medium dense, moist, reddish-brown. - rootlets, trace clay			6/7/10	7	114	PA CL
		- trace caliche, very dense, moist, light orangish brown			7/12/14	8	124	
10		- dark orangish brown			40/50-4"	7	120	
		- reddish brown			50-5.5"	8	113	
15					50-6"	6	118	
		End of boring at 15.5 feet bgs. No groundwater was encountered. Borehole backfilled with soil cuttings and compacted by pushing down with an auger using the drill rig weight and surface patched with cold asphalt concrete on 12/28/2021.						



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Project No. Drawing No.  
20-81-256-02 A-3



# Log of Boring No. BH-03

Dates Drilled: 12/28/2021 Logged by: Catherine Nelson Checked By: Hashmi S. Quazi,

Equipment: 8" HOLLOW STEM AUGER

Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 1946

Depth to Water (ft, bgs): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the Boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
			DRIVE	BULK				
5		<b>VERY OLD ALLUVIAL FAN DEPOSITS</b> <b>SILTY SAND (SM):</b> fine to coarse-grained, trace clay, very dense, moist, reddish-brown.			15/27/50-3"	7	120	
		- increased coarse content			21/50-6"	13	113	CL
		- orangish brown			31/50-6"	8	119	
		- severely desiccated, pinhole porosity			37/50-6"	11	118	
		- increased fines content, light grayish brown			24/30/50	5	126	
20					21/40/50-4"	7	120	
		End of boring at 21.3 feet bgs. No groundwater was encountered. Borehole backfilled with soil cuttings and compacted by pushing down with an auger using the drill rig weight on 12/28/2021.						



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For: Gannett Fleming, Inc.

Project No. Drawing No.

20-81-256-02

A-4



# Appendix B

## Laboratory Testing Program



## APPENDIX B

### LABORATORY TESTING PROGRAM

Tests were conducted in our laboratory on representative soil samples for the purpose of classification and evaluation of their physical properties and engineering characteristics. The amount and selection of tests were based on the geotechnical parameters required for this project. Test results are presented herein and on the Logs of Borings, in Appendix A, *Field Exploration*. The following is a summary of the various laboratory tests conducted for this project.

#### **In-Situ Moisture Content and Dry Density**

In-situ dry density and moisture content tests were performed on relatively undisturbed ring samples, in accordance with ASTM Standard D2216 and D2937 to aid soils classification and to provide qualitative information on strength and compressibility characteristics of the site soils. For test results, see the Logs of Borings in Appendix A, *Field Exploration*.

#### **Soil Corrosivity**

One representative soil sample was tested to determine minimum electrical resistivity, pH, and chemical content, including soluble sulfate and chloride concentrations. The purpose of these tests was to determine the corrosion potential of site soils when placed in contact with common construction materials. The tests were performed by AP Engineering and Testing, Inc. (Pomona, CA) in accordance with Caltrans Test Methods 643, 422 and 417. Test results are presented in the following table.

**Table No. B-1, Summary of Soil Corrosivity Test Results**

Boring No.	Depth (feet)	pH	Soluble Sulfates (CA 417) (ppm)	Soluble Chlorides (CA 422) (ppm)	Min. Resistivity (CA 643) (Ohm-cm)
BH-01	0-5	8.3	16	26	2,717

#### **Collapse**

To evaluate the moisture sensitivity (collapse/swell potential) of the encountered soils, three collapse tests were performed in accordance with the ASTM Standard D4546 laboratory procedure. The samples were loaded to approximately 2 kips per square foot (ksf), allowed to stabilize under load, and then submerged. The tests results are presented in the following table.

**Table No. B-2, Collapse Test Results**

Boring No.	Depth (ft)	Soil Classification	Percent Swell (+) Percent Collapse (-)	Collapse Potential
BH-01	2.5-4.0	Silty Sand (SM)	-1.6	Slight
BH-02	2.5-4.0	Silty Sand (SM)	-1.9	Slight
BH-03	5.0-6.0	Silty Sand (SM)	-0.3	Slight

### **Grain-Size Analysis**

To assist in classification of soils, mechanical grain-size analyses were performed on three select samples in accordance with the ASTM Standard D6913 test method. Grain-size curves are shown in Drawing No. B-1, *Grain Size Distribution Results* and results are presented in the below table.

**Table No. B-3, Grain Size Distribution Test Results**

Boring No.	Depth (ft)	Soil Classification	% Gravel	% Sand	%Silt	%Clay
BH-01	0-5	Silty Sand (SM)	5.0	64.0	31.0	
BH-01	5-10	Silty Sand (SM)	8.0	78.0	14.0	
BH-02	2-5	Silty Sand (SM)	10.0	75.0	15.0	

### **Maximum Dry Density and Optimum Moisture Content**

One laboratory maximum dry density-optimum moisture content relationship test was performed on a representative bulk sample. The test was conducted in accordance with the ASTM Standard D1557 test method. The test results are presented in Drawing No. B-2, *Moisture-Density Relationship Results*, and are summarized in the following table.

**Table No B-4, Summary of Moisture-Density Relationship Test Results**

Boring No.	Depth (ft)	Soil Description	Optimum Moisture (%)	Maximum Density (lb/cft)
BH-01	0-5	Silty Sand (SM), Orangish Brown	7.5	133.0

### **Direct Shear**

One direct shear test was performed on relatively undisturbed representative ring samples under soaked moisture condition in accordance with the ASTM D3080 procedure. For the test, three samples contained in brass sampler rings were placed, one at a time, directly into the test apparatus and subjected to a range of normal loads appropriate for the anticipated conditions. The samples were then sheared at a constant strain rate of 0.02 inch/minute. Shear deformation was recorded until a maximum of about 0.25-inch shear displacement was achieved. Ultimate strength was selected from the shear-stress deformation data and plotted to determine the shear strength parameters.





For test data, including sample density and moisture content, see Drawing No. B-3, *Direct Shear Test Results*, and the following table.

**Table No. B-5, Summary of Direct Shear Test Results**

Boring No.	Depth (feet)	Soil Description	Peak Strength Parameters	
			Friction Angle (degrees)	Cohesion (psf)
BH-01	5.0-6.5	Silty Sand (SM)	34	10

### **Consolidation Test**

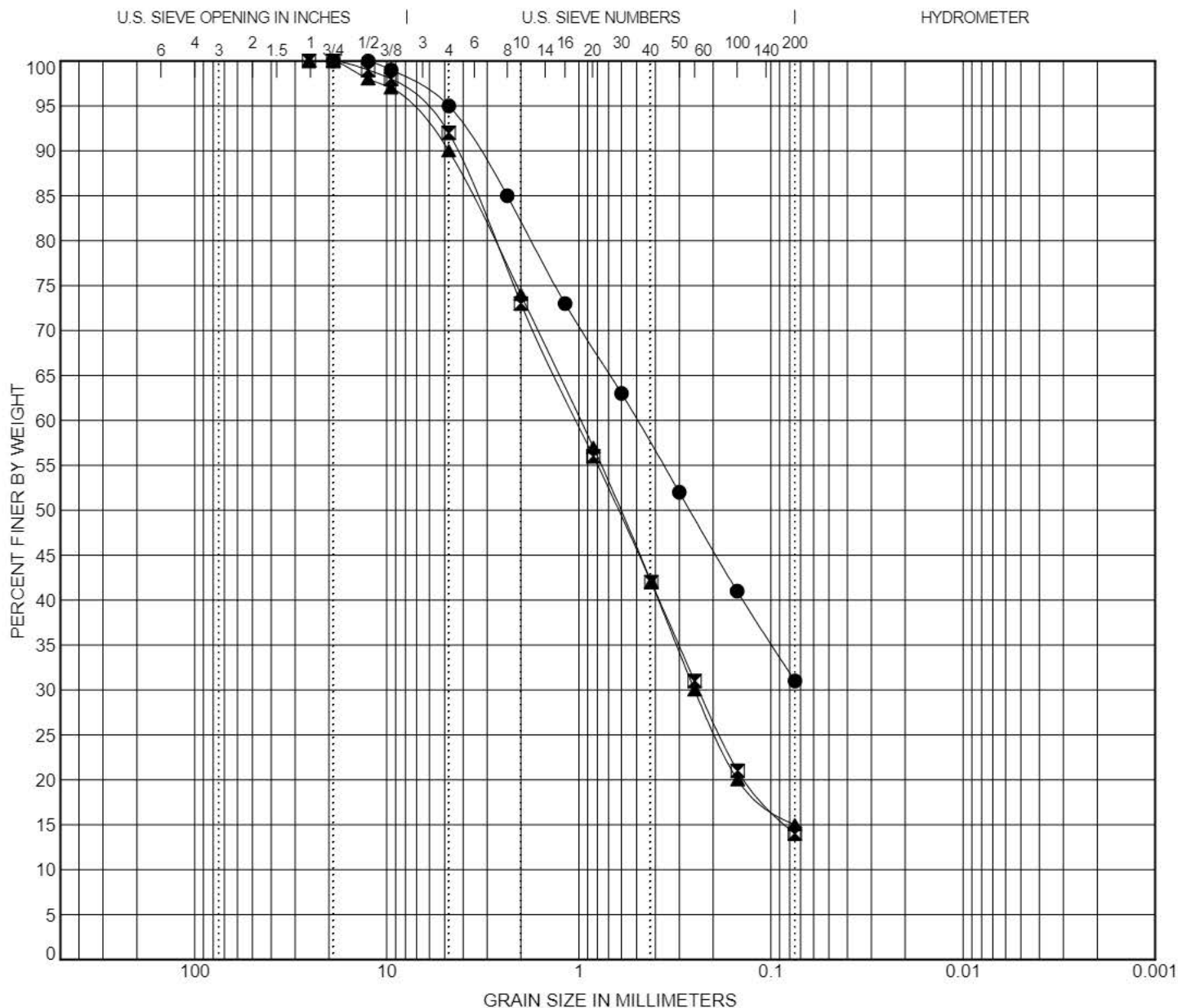
One consolidation test was conducted in accordance with ASTM Standard D2435 method. Data obtained from this test performed on one relatively undisturbed ring sample was used to evaluate the settlement characteristics of the on-site soils under load. Preparation for this test involved trimming the sample, placing it in a 1-inch-high brass ring, and loading it into the test apparatus, which contained porous stones to accommodate drainage during testing. Normal axial loads were applied to one end of the sample through the porous stones, and the resulting deflections were recorded at various time periods. The load was increased after the sample reached a reasonable state of equilibrium. Normal loads were applied at a constant load-increment ratio, successive loads being generally twice the preceding load. For test result, including sample density and moisture content, see Drawing No. B-4, *Consolidation Test Results*.

### **Sample Storage**

Soil samples presently stored in our laboratory will be discarded 30 days after the date of this report, unless this office receives a specific request to retain the samples for a longer period.







COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.		Depth (ft)	Description				LL	PL	PI	Cc	Cu
●	BH-01	0-5	SILTY SAND (SM)								
⊠	BH-01	5-10	SILTY SAND (SM)								
▲	BH-02	2-5	SILTY SAND (SM)								
Boring No.		Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	BH-01	0-5	19	0.497			5.0	64.0	31.0		
⊠	BH-01	5-10	25.4	1.03	0.237		8.0	78.0	14.0		
▲	BH-02	2-5	25.4	0.979	0.25		10.0	75.0	15.0		

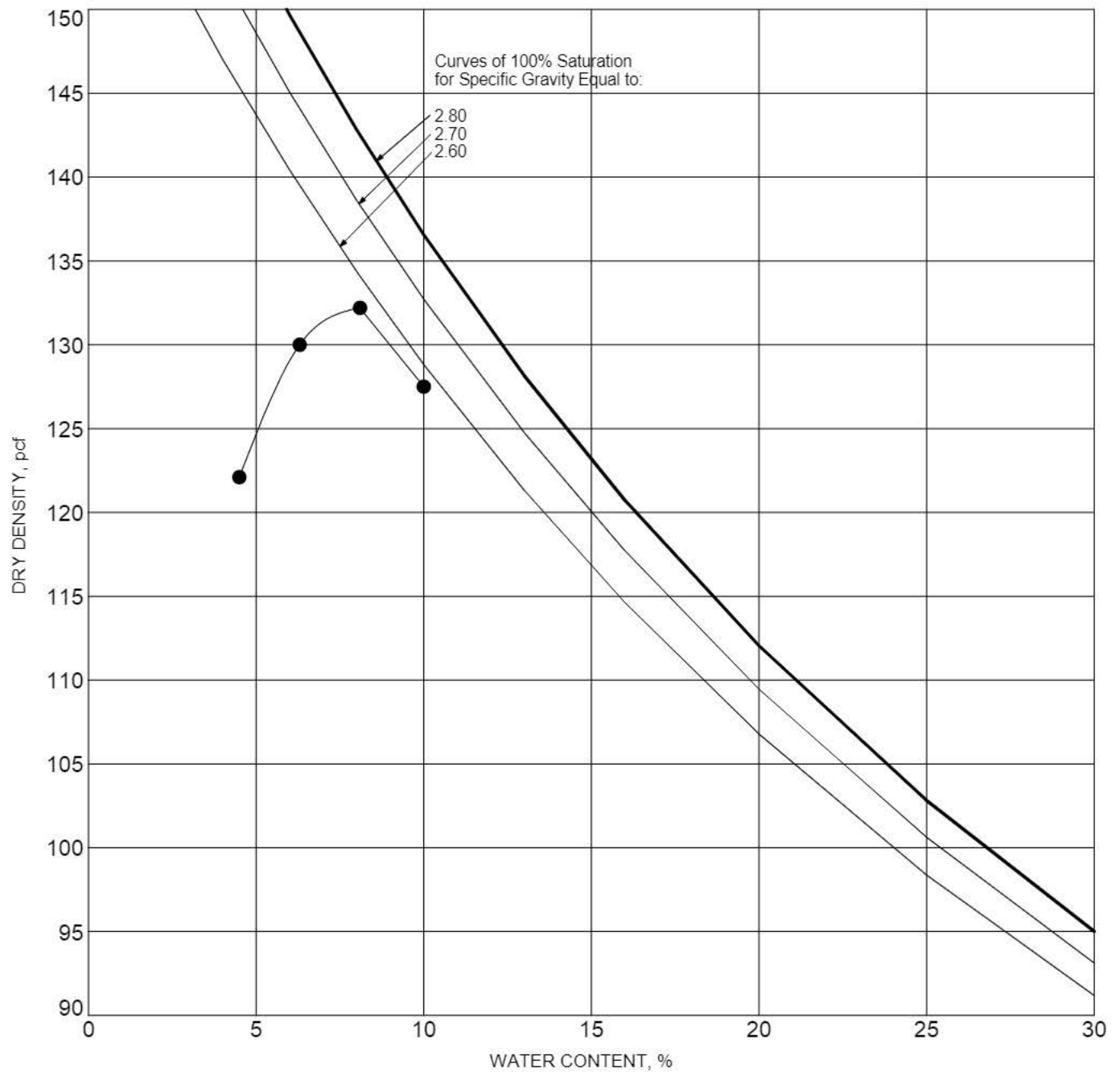
## GRAIN SIZE DISTRIBUTION RESULTS



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Project No. Drawing No.  
20-81-256-02 B-1



SYMBOL	BORING NO.	DEPTH (ft)	DESCRIPTION	ASTM TEST METHOD	OPTIMUM WATER, %	MAXIMUM DRY DENSITY, pcf
●	BH-01	0-5	SILTY SAND (SM), Orangish Brown	D1557 - A	7.5	133.0

## MOISTURE-DENSITY RELATIONSHIP RESULTS

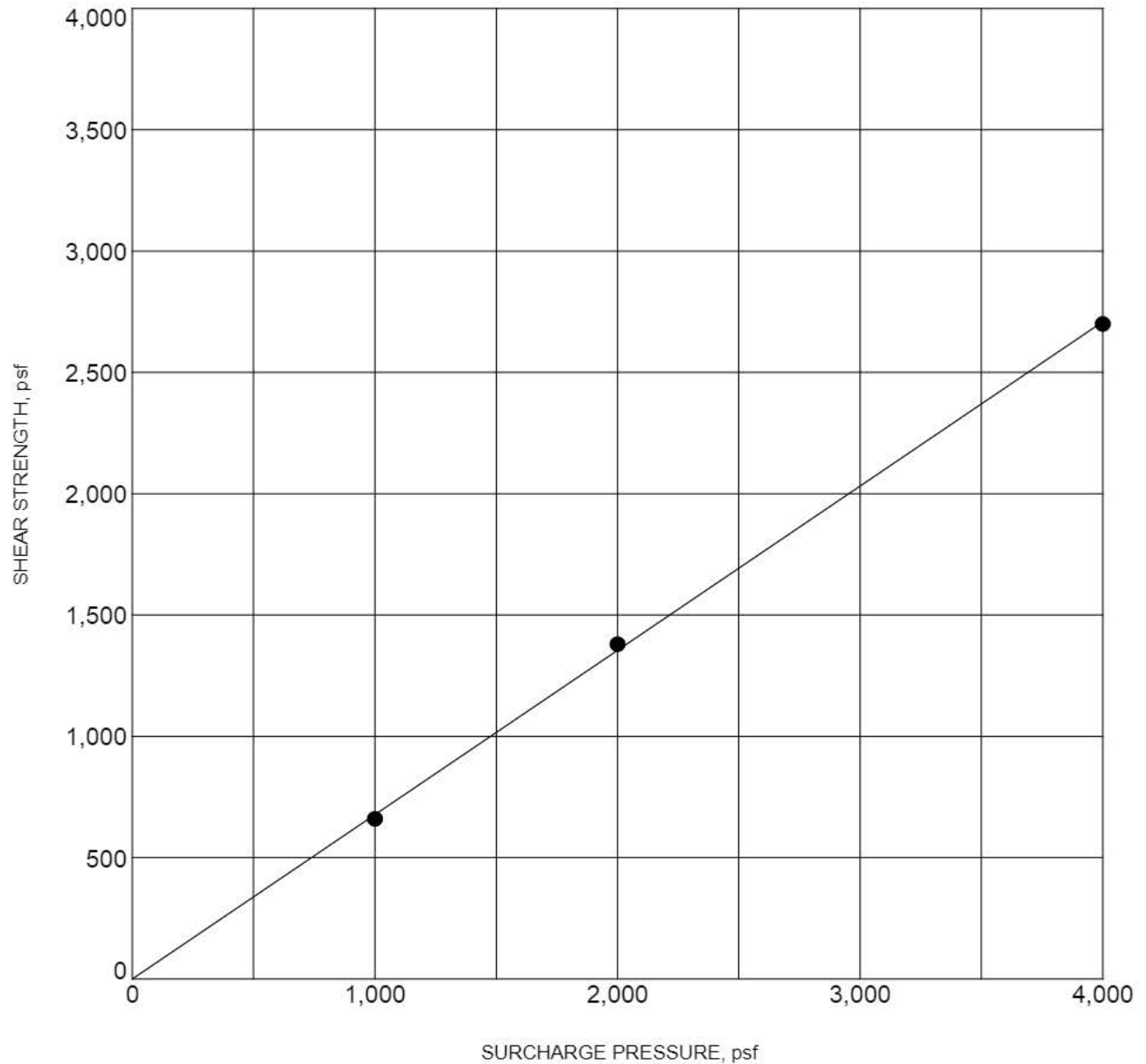


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For: Gannett Fleming, Inc.

Project No.  
20-81-256-02

Drawing No.  
B-2



BORING NO.	BH-01	DEPTH (ft)	5.0-6.5
DESCRIPTION	SILTY SAND (SM)		
COHESION (psf)	10	FRICTION ANGLE (degrees):	34
MOISTURE CONTENT (%)	3.1	DRY DENSITY (pcf)	112.7

NOTE: Ultimate Strength.

## DIRECT SHEAR TEST RESULTS

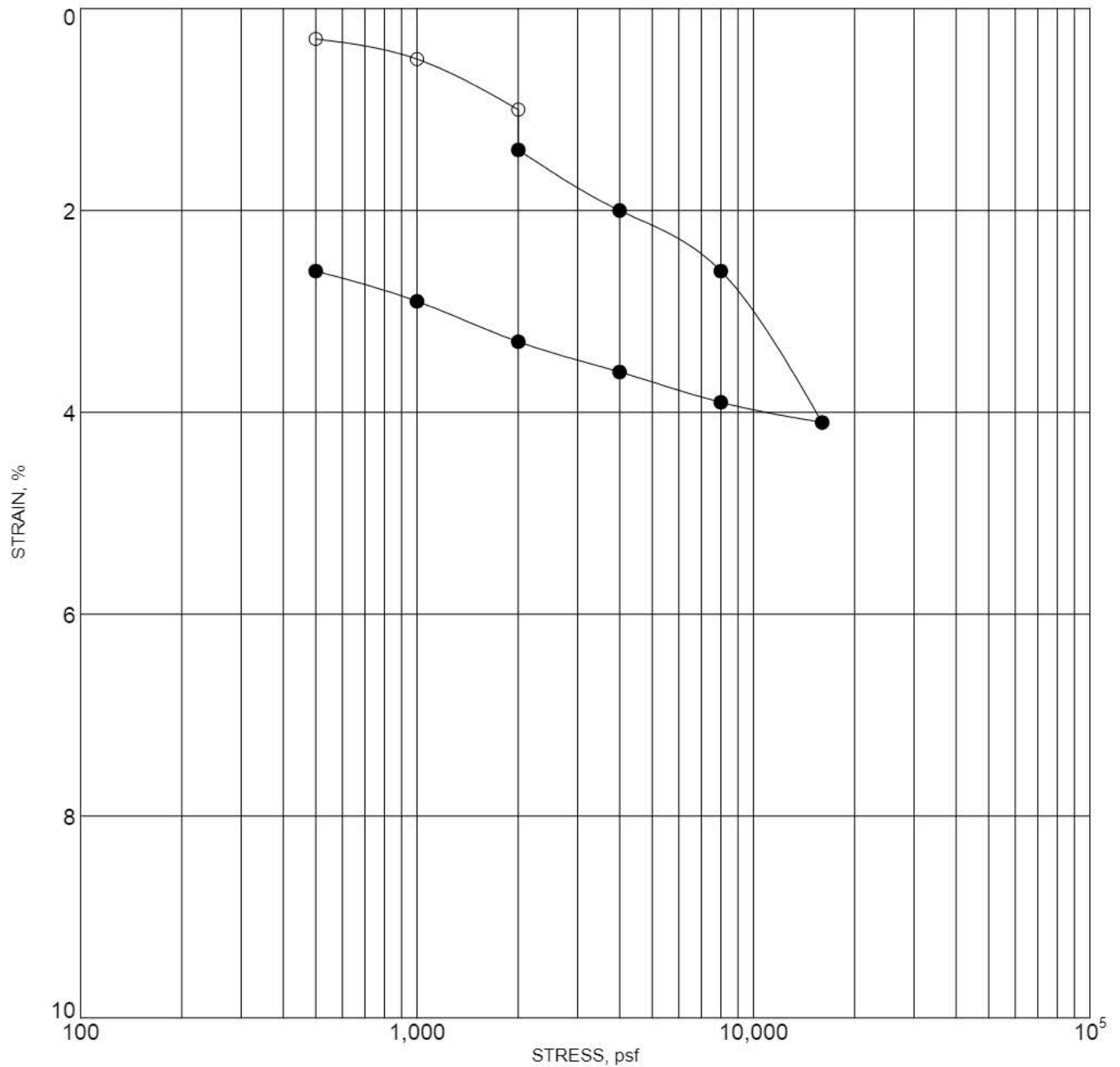


**Converse Consultants**

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 25565 Kalmia Avenue  
 City of Moreno Valley, Riverside County, California  
 For: Gannett Fleming, Inc.

Project No.  
**20-81-256-02**

Drawing No.  
**B-3**



BORING NO. : BH-02		DEPTH (ft) : 7.5-9.0	
DESCRIPTION : SILTY SAND (SM)			
MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL 7	120	49	0.374
FINAL			

NOTE: SOLID CIRCLES INDICATE READINGS AFTER ADDITION OF WATER

## CONSOLIDATION TEST RESULTS



**Converse Consultants**

Steeplechase and Kalmia Booster Pump Station (BPS) Replacement  
 25565 Kalmia Avenue  
 City of Moreno Valley, Riverside County, California  
 For: Gannett and Fleming, Inc.

Project No. **20-81-256-02** Drawing No. **B-4**



# Appendix C

## Liquefaction and Settlement Analysis



## APPENDIX C

### LIQUEFACTION AND SETTLEMENT ANALYSIS

The subsurface data obtained from the boring BH-01 was used to evaluate the liquefaction potential and associated dry seismic settlement when subjected to ground shaking during earthquakes.

A simplified liquefaction hazard analysis was performed using the program SPTLIQ (InfraGEO Software, 2021) using the liquefaction triggering analysis method by Boulanger and Idriss (2014). A modal earthquake magnitude of M 8.1 was selected based on the results of seismic deaggregation analysis using the USGS interactive online tool (<https://earthquake.usgs.gov/hazards/interactive/>).

A peak ground acceleration ( $PGA_M$ ) of 0.942g for the MCE design event, where g is the acceleration due to gravity, was selected for this analysis. The PGA was based on the 2019 CBC seismic design parameters presented in Section 8.2, *CBC Seismic design Parameters*.

The result of our analysis is presented on Plates No. C-1 through C-3 and summarized in the following table.

**Table C-1, Estimated Dynamic Settlements**

Location	Groundwater Conditions	Groundwater Depth (feet bgs)	Dry Seismic Settlement (inches)	Liquefaction Induced Settlement (inches)
BH-01	Current	> 51.5	negligible	negligible
	Historical			

Based on our analysis, the potential for liquefaction induced settlement and dry seismic settlement for the site is negligible.

(Copyright © 2015, 2020, SPTLIQ, All Rights Reserved; By: InfraGEO Software)

[illegible]



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SEISMIC DESIGN PARAMETERS	
Earthquake Moment Magnitude, $M_e$	8.10
Peak Ground Acceleration, $A_{max}$	0.94 g
Factor of Safety Against Liquefaction, FS	1.30

### INPUT SOIL PROFILE DATA

#### REFERENCES:

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NOTES AND REFERENCES
<p>+ This method of analysis is based on observed seismic performance of level ground sites using correlation with normalized and fines-corrected SPT blow count, <math>(\bar{N}_{60})_{fs} = f\{(N_{60})_{fs}, FC\}</math> where <math>(N_{60})_{fs} = N_{60} C_{d1} C_{d2} C_{d3} C_{d4}</math></p> <p>++ Liquefaction susceptibility screening is performed to identify soil layers assessed to be non-liquefiable based on laboratory test results using the criterion proposed by Cetin and Seed (2003).</p> <p>Bray and Sancio (2006), or Idriss and Boulanger (2008).</p> <p>* <math>FS_{eq}</math> = Factor of Safety against liquefaction = <math>(CRR/CSR)</math>, where <math>CRR = CRR_{7.5} MSF K_{\sigma} K_w</math>, <math>MSF</math> = Magnitude Scaling Factor, <math>K_{\sigma} = f[(N_{60})_{fs}, \sigma'_{vd}]</math>, <math>K_w = 1.0</math> (level ground), <math>CSR</math> = Cyclic Stress Ratio = <math>0.65 A_{max}/(\sigma'_{vd}/\sigma'_{vm})^{1/2}</math>, and <math>CRR_{7.5}</math> = Cyclic Resistance Ratio is a function of <math>(N_{60})_{fs}</math> and corrected for an earthquake magnitude <math>M_w</math> of 7.5.</p> <p>*** Residual strength values of liquefied soils are based on correlation with post-earthquake, normalized and fines-corrected SPT blow count derived by Idriss and Boulanger (2008).</p> <p>**** Based on Iwasaki et al. (1978) and Toprak and Holzer (2003)</p>
<p>+ Reference: Boulanger, E.W. and Idriss, I.M. (2014), "CPT and SPT Based Liquefaction Triggering Procedures," University of California Davis, Center for Geotechnical Modeling Report No. UCD/CGM-14/01, 1-134.</p>

[illegible]



SIMPLIFIED LIQUEFACTION HAZARDS ASSESSMENT USING STANDARD PENETRATION TEST (SPT) DATA

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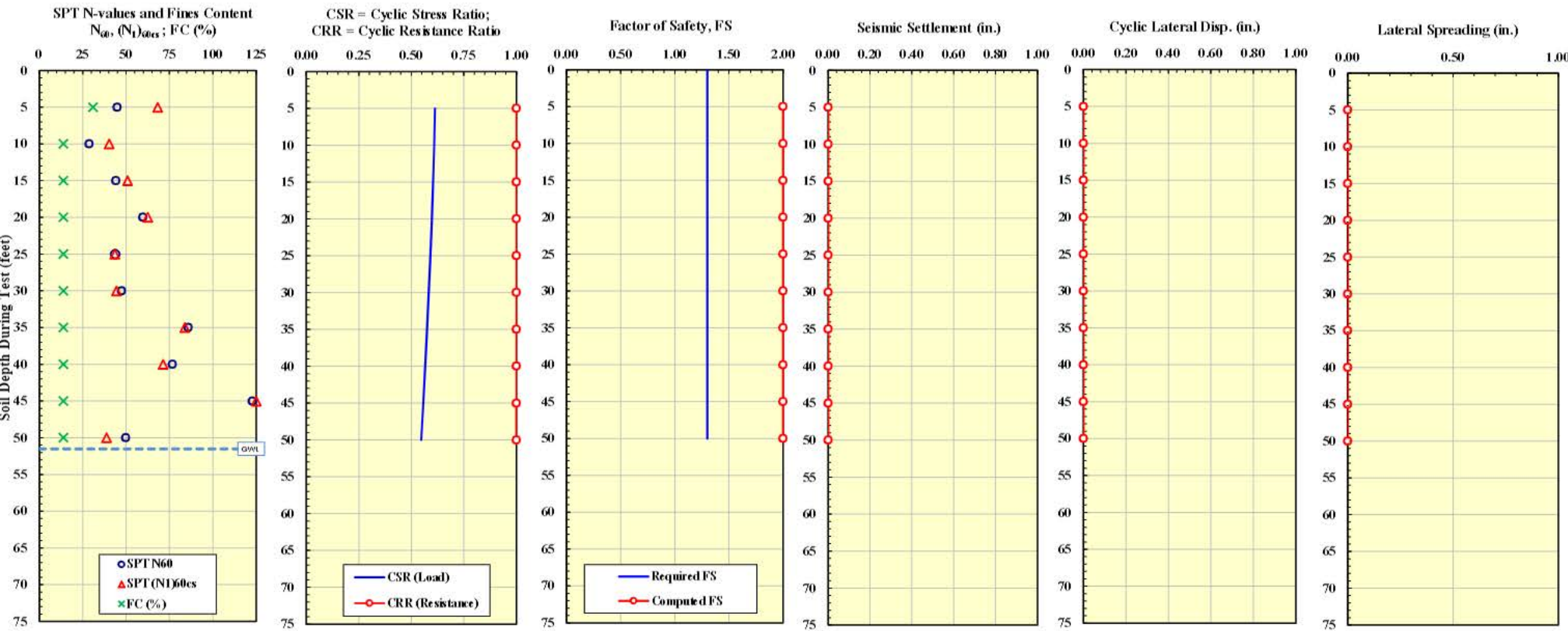
PROJECT INFORMATION	
Project Name	Steeplechase and Kalmia Booster Pump Station (BPS) Replacement
Project No.	20-81-256-02
Project Location	City of Moreno Valley, Riverside County, California
Analyzed By	Syfur Rahman
Reviewed By	Md Zahangir Alam

TOPOGRAPHIC CONDITIONS	
Ground Slope, S	0.00 %
Free Face (L/H) Ratio	N/A      H =    50.00 feet

GROUNDWATER DATA	
GWL Depth Measured During Test	51.50 feet
GWL Depth Used in Design	51.50 feet

BORING DATA	
Boring No.	BH-01
Ground Surface Elevation	1,937.00 feet
Proposed Grade Elevation	1,937.00 feet
Borehole Diameter	8.00 inches
Hammer Weight	140.00 pounds
Hammer Drop	30.00 inches
Hammer Energy Efficiency Ratio, ER	80.00 %
Hammer Distance to Ground Surface	5.00 feet

SEISMIC DESIGN PARAMETERS	
Earthquake Moment Magnitude, $M_w$	8.10
Peak Ground Acceleration, $A_{max}$	0.94 g
Factor of Safety Against Liquefaction, FS	1.30



Analysis Methods Used ==>>

Liquefaction Triggering:  
Boulanger-Idriss (2014)

Seismic Settlements:  
Above GWL: Pradel (1998)  
Below GWL: Ishihara and Yoshimine (1992)

Cyclic Lateral Displacements:  
Above GWL: Pradel (1998)  
Below GWL: Tokimatsu and Asaka (1998)

Lateral Spreading:  
Zhang et al. (2004)

## **APPENDIX B**

Air Quality CalEEMod Emission Calculation Output,  
RECON Environmental, Inc.

9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9295.16 Steeplechase Pump Station  
Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.50	1000sqft	0.50	2,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -  
Land Use - Building - approx 2,500 sf  
Site less than 0.5 acres  
Construction Phase - 20 months  
Grading -  
Vehicle Trips - 1.5 trips/ksf  
Stationary Sources - Emergency Generators and Fire Pumps -  
Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1.00	4.00
tblConstructionPhase	NumDays	2.00	8.00
tblConstructionPhase	NumDays	100.00	384.00

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblConstructionPhase	NumDays	5.00	19.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	PhaseEndDate	1/2/2023	1/5/2023
tblConstructionPhase	PhaseEndDate	1/4/2023	1/17/2023
tblConstructionPhase	PhaseEndDate	5/24/2023	7/8/2024
tblConstructionPhase	PhaseEndDate	5/31/2023	8/2/2024
tblConstructionPhase	PhaseEndDate	6/7/2023	8/30/2024
tblConstructionPhase	PhaseStartDate	1/3/2023	1/6/2023
tblConstructionPhase	PhaseStartDate	1/5/2023	1/18/2023
tblConstructionPhase	PhaseStartDate	5/25/2023	7/9/2024
tblConstructionPhase	PhaseStartDate	6/1/2023	8/5/2024
tblLandUse	LotAcreage	0.06	0.50
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	419.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	ST_TR	6.42	1.50
tblVehicleTrips	SU_TR	5.09	1.50
tblVehicleTrips	WD_TR	3.93	1.50

**2.0 Emissions Summary**

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## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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					
2023	0.9609	10.1976	7.1268	0.0148	5.4014	0.4205	5.8219	2.5923	0.3869	2.9791	0.0000	1,436.805 2	1,436.805 2	0.4432	1.9200e- 003	1,448.458 3
2024	1.3395	5.9760	7.5315	0.0128	0.2012	0.2824	0.4450	0.0534	0.2598	0.2810	0.0000	1,193.186 1	1,193.186 1	0.3576	4.0100e- 003	1,202.022 3
<b>Maximum</b>	<b>1.3395</b>	<b>10.1976</b>	<b>7.5315</b>	<b>0.0148</b>	<b>5.4014</b>	<b>0.4205</b>	<b>5.8219</b>	<b>2.5923</b>	<b>0.3869</b>	<b>2.9791</b>	<b>0.0000</b>	<b>1,436.805 2</b>	<b>1,436.805 2</b>	<b>0.4432</b>	<b>4.0100e- 003</b>	<b>1,448.458 3</b>

**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					
2023	0.9609	10.1976	7.1268	0.0148	2.1611	0.4205	2.5816	1.0255	0.3869	1.4123	0.0000	1,436.805 2	1,436.805 2	0.4432	1.9200e- 003	1,448.458 3
2024	1.3395	5.9760	7.5315	0.0128	0.2012	0.2824	0.4450	0.0534	0.2598	0.2810	0.0000	1,193.186 0	1,193.186 0	0.3576	4.0100e- 003	1,202.022 3
<b>Maximum</b>	<b>1.3395</b>	<b>10.1976</b>	<b>7.5315</b>	<b>0.0148</b>	<b>2.1611</b>	<b>0.4205</b>	<b>2.5816</b>	<b>1.0255</b>	<b>0.3869</b>	<b>1.4123</b>	<b>0.0000</b>	<b>1,436.805 2</b>	<b>1,436.805 2</b>	<b>0.4432</b>	<b>4.0100e- 003</b>	<b>1,448.458 3</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	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	57.84	0.00	51.71	59.22	0.00	48.06	0.00	0.00	0.00	0.00	0.00	0.00

**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	0.0559	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Energy	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064
Mobile	0.0114	0.0200	0.1252	3.2000e-004	0.0351	2.6000e-004	0.0353	9.3600e-003	2.4000e-004	9.6000e-003		32.3817	32.3817	1.5800e-003	1.5700e-003	32.8881
Stationary	0.6876	1.9218	1.7533	3.3000e-003		0.1012	0.1012		0.1012	0.1012		351.7564	351.7564	0.0493		352.9893
Total	0.7572	1.9635	1.8969	3.7500e-003	0.0351	0.1031	0.1381	9.3600e-003	0.1030	0.1124		410.1902	410.1902	0.0514	2.0500e-003	412.0844

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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	lb/day										lb/day					
Area	0.0559	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Energy	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064
Mobile	0.0114	0.0200	0.1252	3.2000e-004	0.0351	2.6000e-004	0.0353	9.3600e-003	2.4000e-004	9.6000e-003		32.3817	32.3817	1.5800e-003	1.5700e-003	32.8881
Stationary	0.6876	1.9218	1.7533	3.3000e-003		0.1012	0.1012		0.1012	0.1012		351.7564	351.7564	0.0493		352.9893
<b>Total</b>	<b>0.7572</b>	<b>1.9635</b>	<b>1.8969</b>	<b>3.7500e-003</b>	<b>0.0351</b>	<b>0.1031</b>	<b>0.1381</b>	<b>9.3600e-003</b>	<b>0.1030</b>	<b>0.1124</b>		<b>410.1902</b>	<b>410.1902</b>	<b>0.0514</b>	<b>2.0500e-003</b>	<b>412.0844</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail****Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/5/2023	5	4	
2	Grading	Grading	1/6/2023	1/17/2023	5	8	
3	Building Construction	Building Construction	1/18/2023	7/8/2024	5	384	
4	Paving	Paving	7/9/2024	8/2/2024	5	19	

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

5	Architectural Coating	Architectural Coating	8/5/2024	8/30/2024	5	20
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**Acres of Grading (Site Preparation Phase): 2****Acres of Grading (Grading Phase): 6****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,750; Non-Residential Outdoor: 1,250; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Building Construction	5	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Water Exposed Area

**3.2 Site Preparation - 2023****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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084		942.4317	942.4317	0.3048		950.0517
<b>Total</b>	<b>0.5348</b>	<b>6.1887</b>	<b>3.9239</b>	<b>9.7300e-003</b>	<b>0.5303</b>	<b>0.2266</b>	<b>0.7568</b>	<b>0.0573</b>	<b>0.2084</b>	<b>0.2657</b>		<b>942.4317</b>	<b>942.4317</b>	<b>0.3048</b>		<b>950.0517</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.2 Site Preparation - 2023****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	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
Worker	0.0171	0.0117	0.1486	4.5000e-004	0.0559	2.6000e-004	0.0562	0.0148	2.4000e-004	0.0151		45.0212	45.0212	1.1400e-003	1.2000e-003	45.4075
<b>Total</b>	<b>0.0171</b>	<b>0.0117</b>	<b>0.1486</b>	<b>4.5000e-004</b>	<b>0.0559</b>	<b>2.6000e-004</b>	<b>0.0562</b>	<b>0.0148</b>	<b>2.4000e-004</b>	<b>0.0151</b>		<b>45.0212</b>	<b>45.0212</b>	<b>1.1400e-003</b>	<b>1.2000e-003</b>	<b>45.4075</b>

**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					0.2068	0.0000	0.2068	0.0223	0.0000	0.0223			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084	0.0000	942.4317	942.4317	0.3048		950.0517
<b>Total</b>	<b>0.5348</b>	<b>6.1887</b>	<b>3.9239</b>	<b>9.7300e-003</b>	<b>0.2068</b>	<b>0.2266</b>	<b>0.4334</b>	<b>0.0223</b>	<b>0.2084</b>	<b>0.2308</b>	<b>0.0000</b>	<b>942.4317</b>	<b>942.4317</b>	<b>0.3048</b>		<b>950.0517</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.2 Site Preparation - 2023****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	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
Worker	0.0171	0.0117	0.1486	4.5000e-004	0.0559	2.6000e-004	0.0562	0.0148	2.4000e-004	0.0151		45.0212	45.0212	1.1400e-003	1.2000e-003	45.4075
<b>Total</b>	<b>0.0171</b>	<b>0.0117</b>	<b>0.1486</b>	<b>4.5000e-004</b>	<b>0.0559</b>	<b>2.6000e-004</b>	<b>0.0562</b>	<b>0.0148</b>	<b>2.4000e-004</b>	<b>0.0151</b>		<b>45.0212</b>	<b>45.0212</b>	<b>1.1400e-003</b>	<b>1.2000e-003</b>	<b>45.4075</b>

**3.3 Grading - 2023****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					5.3119	0.0000	5.3119	2.5686	0.0000	2.5686			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
<b>Total</b>	<b>0.9335</b>	<b>10.1789</b>	<b>5.5516</b>	<b>0.0141</b>	<b>5.3119</b>	<b>0.4201</b>	<b>5.7320</b>	<b>2.5686</b>	<b>0.3865</b>	<b>2.9550</b>		<b>1,364.7713</b>	<b>1,364.7713</b>	<b>0.4414</b>		<b>1,375.8062</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.3 Grading - 2023****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	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
Worker	0.0274	0.0187	0.2377	7.1000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		72.0339	72.0339	1.8300e-003	1.9200e-003	72.6521
<b>Total</b>	<b>0.0274</b>	<b>0.0187</b>	<b>0.2377</b>	<b>7.1000e-004</b>	<b>0.0894</b>	<b>4.2000e-004</b>	<b>0.0898</b>	<b>0.0237</b>	<b>3.8000e-004</b>	<b>0.0241</b>		<b>72.0339</b>	<b>72.0339</b>	<b>1.8300e-003</b>	<b>1.9200e-003</b>	<b>72.6521</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.0717	0.0000	2.0717	1.0017	0.0000	1.0017			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
<b>Total</b>	<b>0.9335</b>	<b>10.1789</b>	<b>5.5516</b>	<b>0.0141</b>	<b>2.0717</b>	<b>0.4201</b>	<b>2.4918</b>	<b>1.0017</b>	<b>0.3865</b>	<b>1.3882</b>	<b>0.0000</b>	<b>1,364.7713</b>	<b>1,364.7713</b>	<b>0.4414</b>		<b>1,375.8062</b>



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.3 Grading - 2023****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	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
Worker	0.0274	0.0187	0.2377	7.1000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		72.0339	72.0339	1.8300e-003	1.9200e-003	72.6521
<b>Total</b>	<b>0.0274</b>	<b>0.0187</b>	<b>0.2377</b>	<b>7.1000e-004</b>	<b>0.0894</b>	<b>4.2000e-004</b>	<b>0.0898</b>	<b>0.0237</b>	<b>3.8000e-004</b>	<b>0.0241</b>		<b>72.0339</b>	<b>72.0339</b>	<b>1.8300e-003</b>	<b>1.9200e-003</b>	<b>72.6521</b>

**3.4 Building Construction - 2023****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6322	6.4186	7.0970	0.0114		0.3203	0.3203		0.2946	0.2946		1,104.6089	1,104.6089	0.3573		1,113.5402
<b>Total</b>	<b>0.6322</b>	<b>6.4186</b>	<b>7.0970</b>	<b>0.0114</b>		<b>0.3203</b>	<b>0.3203</b>		<b>0.2946</b>	<b>0.2946</b>		<b>1,104.6089</b>	<b>1,104.6089</b>	<b>0.3573</b>		<b>1,113.5402</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2023****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	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
Worker	3.4200e-003	2.3400e-003	0.0297	9.0000e-005	0.0112	5.0000e-005	0.0112	2.9600e-003	5.0000e-005	3.0100e-003		9.0042	9.0042	2.3000e-004	2.4000e-004	9.0815
<b>Total</b>	<b>3.4200e-003</b>	<b>2.3400e-003</b>	<b>0.0297</b>	<b>9.0000e-005</b>	<b>0.0112</b>	<b>5.0000e-005</b>	<b>0.0112</b>	<b>2.9600e-003</b>	<b>5.0000e-005</b>	<b>3.0100e-003</b>		<b>9.0042</b>	<b>9.0042</b>	<b>2.3000e-004</b>	<b>2.4000e-004</b>	<b>9.0815</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6322	6.4186	7.0970	0.0114		0.3203	0.3203		0.2946	0.2946	0.0000	1,104.6089	1,104.6089	0.3573		1,113.5402
<b>Total</b>	<b>0.6322</b>	<b>6.4186</b>	<b>7.0970</b>	<b>0.0114</b>		<b>0.3203</b>	<b>0.3203</b>		<b>0.2946</b>	<b>0.2946</b>	<b>0.0000</b>	<b>1,104.6089</b>	<b>1,104.6089</b>	<b>0.3573</b>		<b>1,113.5402</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2023****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	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
Worker	3.4200e-003	2.3400e-003	0.0297	9.0000e-005	0.0112	5.0000e-005	0.0112	2.9600e-003	5.0000e-005	3.0100e-003		9.0042	9.0042	2.3000e-004	2.4000e-004	9.0815
<b>Total</b>	<b>3.4200e-003</b>	<b>2.3400e-003</b>	<b>0.0297</b>	<b>9.0000e-005</b>	<b>0.0112</b>	<b>5.0000e-005</b>	<b>0.0112</b>	<b>2.9600e-003</b>	<b>5.0000e-005</b>	<b>3.0100e-003</b>		<b>9.0042</b>	<b>9.0042</b>	<b>2.3000e-004</b>	<b>2.4000e-004</b>	<b>9.0815</b>

**3.4 Building Construction - 2024****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598		1,104.9834	1,104.9834	0.3574		1,113.9177
<b>Total</b>	<b>0.5950</b>	<b>5.9739</b>	<b>7.0675</b>	<b>0.0114</b>		<b>0.2824</b>	<b>0.2824</b>		<b>0.2598</b>	<b>0.2598</b>		<b>1,104.9834</b>	<b>1,104.9834</b>	<b>0.3574</b>		<b>1,113.9177</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2024****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	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
Worker	3.2000e-003	2.0800e-003	0.0278	9.0000e-005	0.0112	5.0000e-005	0.0112	2.9600e-003	5.0000e-005	3.0100e-003		8.7193	8.7193	2.1000e-004	2.2000e-004	8.7909
<b>Total</b>	<b>3.2000e-003</b>	<b>2.0800e-003</b>	<b>0.0278</b>	<b>9.0000e-005</b>	<b>0.0112</b>	<b>5.0000e-005</b>	<b>0.0112</b>	<b>2.9600e-003</b>	<b>5.0000e-005</b>	<b>3.0100e-003</b>		<b>8.7193</b>	<b>8.7193</b>	<b>2.1000e-004</b>	<b>2.2000e-004</b>	<b>8.7909</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598	0.0000	1,104.9834	1,104.9834	0.3574		1,113.9177
<b>Total</b>	<b>0.5950</b>	<b>5.9739</b>	<b>7.0675</b>	<b>0.0114</b>		<b>0.2824</b>	<b>0.2824</b>		<b>0.2598</b>	<b>0.2598</b>	<b>0.0000</b>	<b>1,104.9834</b>	<b>1,104.9834</b>	<b>0.3574</b>		<b>1,113.9177</b>



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2024****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	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
Worker	3.2000e-003	2.0800e-003	0.0278	9.0000e-005	0.0112	5.0000e-005	0.0112	2.9600e-003	5.0000e-005	3.0100e-003		8.7193	8.7193	2.1000e-004	2.2000e-004	8.7909
<b>Total</b>	<b>3.2000e-003</b>	<b>2.0800e-003</b>	<b>0.0278</b>	<b>9.0000e-005</b>	<b>0.0112</b>	<b>5.0000e-005</b>	<b>0.0112</b>	<b>2.9600e-003</b>	<b>5.0000e-005</b>	<b>3.0100e-003</b>		<b>8.7193</b>	<b>8.7193</b>	<b>2.1000e-004</b>	<b>2.2000e-004</b>	<b>8.7909</b>

**3.5 Paving - 2024****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269		1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.5904</b>	<b>5.2297</b>	<b>7.0314</b>	<b>0.0113</b>		<b>0.2429</b>	<b>0.2429</b>		<b>0.2269</b>	<b>0.2269</b>		<b>1,036.2393</b>	<b>1,036.2393</b>	<b>0.3019</b>		<b>1,043.7858</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.5 Paving - 2024****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	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
Worker	0.0576	0.0375	0.5001	1.5500e-003	0.2012	9.0000e-004	0.2021	0.0534	8.3000e-004	0.0542		156.9468	156.9468	3.7400e-003	4.0100e-003	158.2365
<b>Total</b>	<b>0.0576</b>	<b>0.0375</b>	<b>0.5001</b>	<b>1.5500e-003</b>	<b>0.2012</b>	<b>9.0000e-004</b>	<b>0.2021</b>	<b>0.0534</b>	<b>8.3000e-004</b>	<b>0.0542</b>		<b>156.9468</b>	<b>156.9468</b>	<b>3.7400e-003</b>	<b>4.0100e-003</b>	<b>158.2365</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269	0.0000	1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.5904</b>	<b>5.2297</b>	<b>7.0314</b>	<b>0.0113</b>		<b>0.2429</b>	<b>0.2429</b>		<b>0.2269</b>	<b>0.2269</b>	<b>0.0000</b>	<b>1,036.2393</b>	<b>1,036.2393</b>	<b>0.3019</b>		<b>1,043.7858</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.5 Paving - 2024****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	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
Worker	0.0576	0.0375	0.5001	1.5500e-003	0.2012	9.0000e-004	0.2021	0.0534	8.3000e-004	0.0542		156.9468	156.9468	3.7400e-003	4.0100e-003	158.2365
<b>Total</b>	<b>0.0576</b>	<b>0.0375</b>	<b>0.5001</b>	<b>1.5500e-003</b>	<b>0.2012</b>	<b>9.0000e-004</b>	<b>0.2021</b>	<b>0.0534</b>	<b>8.3000e-004</b>	<b>0.0542</b>		<b>156.9468</b>	<b>156.9468</b>	<b>3.7400e-003</b>	<b>4.0100e-003</b>	<b>158.2365</b>

**3.6 Architectural Coating - 2024****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	1.1588					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>1.3395</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.6 Architectural Coating - 2024****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	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
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	1.1588					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>1.3395</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.6 Architectural Coating - 2024****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	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
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****4.0 Operational Detail - Mobile****4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0114	0.0200	0.1252	3.2000e-004	0.0351	2.6000e-004	0.0353	9.3600e-003	2.4000e-004	9.6000e-003		32.3817	32.3817	1.5800e-003	1.5700e-003	32.8881
Unmitigated	0.0114	0.0200	0.1252	3.2000e-004	0.0351	2.6000e-004	0.0353	9.3600e-003	2.4000e-004	9.6000e-003		32.3817	32.3817	1.5800e-003	1.5700e-003	32.8881

**4.2 Trip Summary Information**

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.75	3.75	3.75	16,606	16,606
Total	3.75	3.75	3.75	16,606	16,606

**4.3 Trip Type Information**

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064
NaturalGas Unmitigated	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064

**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					
General Heavy Industry	221.438	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064
<b>Total</b>		<b>2.3900e-003</b>	<b>0.0217</b>	<b>0.0182</b>	<b>1.3000e-004</b>		<b>1.6500e-003</b>	<b>1.6500e-003</b>		<b>1.6500e-003</b>	<b>1.6500e-003</b>		<b>26.0516</b>	<b>26.0516</b>	<b>5.0000e-004</b>	<b>4.8000e-004</b>	<b>26.2064</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****5.2 Energy by Land Use - NaturalGas****Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0.221438	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064
<b>Total</b>		<b>2.3900e-003</b>	<b>0.0217</b>	<b>0.0182</b>	<b>1.3000e-004</b>		<b>1.6500e-003</b>	<b>1.6500e-003</b>		<b>1.6500e-003</b>	<b>1.6500e-003</b>		<b>26.0516</b>	<b>26.0516</b>	<b>5.0000e-004</b>	<b>4.8000e-004</b>	<b>26.2064</b>

**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	0.0559	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Unmitigated	0.0559	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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	6.3500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
<b>Total</b>	<b>0.0559</b>	<b>0.0000</b>	<b>2.5000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>5.5000e-004</b>	<b>5.5000e-004</b>	<b>0.0000</b>		<b>5.8000e-004</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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	6.3500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
<b>Total</b>	<b>0.0559</b>	<b>0.0000</b>	<b>2.5000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>5.5000e-004</b>	<b>5.5000e-004</b>	<b>0.0000</b>		<b>5.8000e-004</b>

**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****Fire Pumps and Emergency Generators**

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	419	0.73	Diesel

**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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**10.1 Stationary Sources****Unmitigated/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
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (300 - 600 HP)	0.6876	1.9218	1.7533	3.3000e-003		0.1012	0.1012		0.1012	0.1012		351.7564	351.7564	0.0493		352.9893
<b>Total</b>	<b>0.6876</b>	<b>1.9218</b>	<b>1.7533</b>	<b>3.3000e-003</b>		<b>0.1012</b>	<b>0.1012</b>		<b>0.1012</b>	<b>0.1012</b>		<b>351.7564</b>	<b>351.7564</b>	<b>0.0493</b>		<b>352.9893</b>

**11.0 Vegetation**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9295.16 Steeplechase Pump Station  
Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.50	1000sqft	0.50	2,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Building - approx 2,500 sf  
Site less than 0.5 acres

Construction Phase - 20 months

Grading -

Vehicle Trips - 1.5 trips/ksf

Stationary Sources - Emergency Generators and Fire Pumps -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1.00	4.00
tblConstructionPhase	NumDays	2.00	8.00
tblConstructionPhase	NumDays	100.00	384.00



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblConstructionPhase	NumDays	5.00	19.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	PhaseEndDate	1/2/2023	1/5/2023
tblConstructionPhase	PhaseEndDate	1/4/2023	1/17/2023
tblConstructionPhase	PhaseEndDate	5/24/2023	7/8/2024
tblConstructionPhase	PhaseEndDate	5/31/2023	8/2/2024
tblConstructionPhase	PhaseEndDate	6/7/2023	8/30/2024
tblConstructionPhase	PhaseStartDate	1/3/2023	1/6/2023
tblConstructionPhase	PhaseStartDate	1/5/2023	1/18/2023
tblConstructionPhase	PhaseStartDate	5/25/2023	7/9/2024
tblConstructionPhase	PhaseStartDate	6/1/2023	8/5/2024
tblLandUse	LotAcreage	0.06	0.50
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	419.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	ST_TR	6.42	1.50
tblVehicleTrips	SU_TR	5.09	1.50
tblVehicleTrips	WD_TR	3.93	1.50

**2.0 Emissions Summary**

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## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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					
2023	0.0837	0.8494	0.9153	1.5100e-003	0.0241	0.0419	0.0660	0.0109	0.0385	0.0494	0.0000	132.3083	132.3083	0.0424	4.0000e-005	133.3787
2024	0.0602	0.4686	0.5725	9.3000e-004	2.6300e-003	0.0221	0.0248	7.0000e-004	0.0204	0.0211	0.0000	81.5831	81.5831	0.0248	5.0000e-005	82.2187
<b>Maximum</b>	<b>0.0837</b>	<b>0.8494</b>	<b>0.9153</b>	<b>1.5100e-003</b>	<b>0.0241</b>	<b>0.0419</b>	<b>0.0660</b>	<b>0.0109</b>	<b>0.0385</b>	<b>0.0494</b>	<b>0.0000</b>	<b>132.3083</b>	<b>132.3083</b>	<b>0.0424</b>	<b>5.0000e-005</b>	<b>133.3787</b>

**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					
2023	0.0837	0.8494	0.9153	1.5100e-003	0.0105	0.0419	0.0524	4.5400e-003	0.0385	0.0430	0.0000	132.3081	132.3081	0.0424	4.0000e-005	133.3785
2024	0.0602	0.4686	0.5725	9.3000e-004	2.6300e-003	0.0221	0.0248	7.0000e-004	0.0204	0.0211	0.0000	81.5830	81.5830	0.0248	5.0000e-005	82.2186
<b>Maximum</b>	<b>0.0837</b>	<b>0.8494</b>	<b>0.9153</b>	<b>1.5100e-003</b>	<b>0.0105</b>	<b>0.0419</b>	<b>0.0524</b>	<b>4.5400e-003</b>	<b>0.0385</b>	<b>0.0430</b>	<b>0.0000</b>	<b>132.3081</b>	<b>132.3081</b>	<b>0.0424</b>	<b>5.0000e-005</b>	<b>133.3785</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	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	50.86	0.00	15.00	54.71	0.00	8.99	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2023	4-1-2023	0.2440	0.2440
2	4-2-2023	7-1-2023	0.2293	0.2293
3	7-2-2023	10-1-2023	0.2319	0.2319
4	10-2-2023	1-1-2024	0.2317	0.2317
5	1-2-2024	4-1-2024	0.2137	0.2137
6	4-2-2024	7-1-2024	0.2137	0.2137
7	7-2-2024	9-30-2024	0.0930	0.0930
		Highest	0.2440	0.2440

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****2.2 Overall Operational****Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0102	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Energy	4.4000e-004	3.9600e-003	3.3300e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	8.7113	8.7113	4.5000e-004	1.2000e-004	8.7596
Mobile	2.0900e-003	3.6600e-003	0.0236	6.0000e-005	6.2800e-003	5.0000e-005	6.3300e-003	1.6800e-003	4.0000e-005	1.7200e-003	0.0000	5.4318	5.4318	2.6000e-004	2.6000e-004	5.5159
Stationary	0.0172	0.0481	0.0438	8.0000e-005		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	7.9777	7.9777	1.1200e-003	0.0000	8.0057
Waste						0.0000	0.0000		0.0000	0.0000	0.6293	0.0000	0.6293	0.0372	0.0000	1.5590
Water						0.0000	0.0000		0.0000	0.0000	0.1834	1.3350	1.5184	0.0190	4.6000e-004	2.1288
<b>Total</b>	<b>0.0299</b>	<b>0.0557</b>	<b>0.0708</b>	<b>1.6000e-004</b>	<b>6.2800e-003</b>	<b>2.8800e-003</b>	<b>9.1600e-003</b>	<b>1.6800e-003</b>	<b>2.8700e-003</b>	<b>4.5500e-003</b>	<b>0.8127</b>	<b>23.4559</b>	<b>24.2686</b>	<b>0.0580</b>	<b>8.4000e-004</b>	<b>25.9690</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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	0.0102	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Energy	4.4000e-004	3.9600e-003	3.3300e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	8.7113	8.7113	4.5000e-004	1.2000e-004	8.7596
Mobile	2.0900e-003	3.6600e-003	0.0236	6.0000e-005	6.2800e-003	5.0000e-005	6.3300e-003	1.6800e-003	4.0000e-005	1.7200e-003	0.0000	5.4318	5.4318	2.6000e-004	2.6000e-004	5.5159
Stationary	0.0172	0.0481	0.0438	8.0000e-005		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	7.9777	7.9777	1.1200e-003	0.0000	8.0057
Waste						0.0000	0.0000		0.0000	0.0000	0.6293	0.0000	0.6293	0.0372	0.0000	1.5590
Water						0.0000	0.0000		0.0000	0.0000	0.1834	1.3350	1.5184	0.0190	4.6000e-004	2.1288
<b>Total</b>	<b>0.0299</b>	<b>0.0557</b>	<b>0.0708</b>	<b>1.6000e-004</b>	<b>6.2800e-003</b>	<b>2.8800e-003</b>	<b>9.1600e-003</b>	<b>1.6800e-003</b>	<b>2.8700e-003</b>	<b>4.5500e-003</b>	<b>0.8127</b>	<b>23.4559</b>	<b>24.2686</b>	<b>0.0580</b>	<b>8.4000e-004</b>	<b>25.9690</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail****Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/5/2023	5	4	
2	Grading	Grading	1/6/2023	1/17/2023	5	8	

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

3	Building Construction	Building Construction	1/18/2023	7/8/2024	5	384
4	Paving	Paving	7/9/2024	8/2/2024	5	19
5	Architectural Coating	Architectural Coating	8/5/2024	8/30/2024	5	20

**Acres of Grading (Site Preparation Phase): 2****Acres of Grading (Grading Phase): 6****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,750; Non-Residential Outdoor: 1,250; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

**Trips and VMT**

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Water Exposed Area

**3.2 Site Preparation - 2023****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					1.0600e-003	0.0000	1.0600e-003	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0700e-003	0.0124	7.8500e-003	2.0000e-005		4.5000e-004	4.5000e-004		4.2000e-004	4.2000e-004	0.0000	1.7099	1.7099	5.5000e-004	0.0000	1.7237
<b>Total</b>	<b>1.0700e-003</b>	<b>0.0124</b>	<b>7.8500e-003</b>	<b>2.0000e-005</b>	<b>1.0600e-003</b>	<b>4.5000e-004</b>	<b>1.5100e-003</b>	<b>1.1000e-004</b>	<b>4.2000e-004</b>	<b>5.3000e-004</b>	<b>0.0000</b>	<b>1.7099</b>	<b>1.7099</b>	<b>5.5000e-004</b>	<b>0.0000</b>	<b>1.7237</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.2 Site Preparation - 2023****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	3.0000e-005	2.0000e-005	3.1000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0836	0.0836	0.0000	0.0000	0.0843
<b>Total</b>	<b>3.0000e-005</b>	<b>2.0000e-005</b>	<b>3.1000e-004</b>	<b>0.0000</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>1.1000e-004</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0836</b>	<b>0.0836</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0843</b>

**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					4.1000e-004	0.0000	4.1000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0700e-003	0.0124	7.8500e-003	2.0000e-005		4.5000e-004	4.5000e-004		4.2000e-004	4.2000e-004	0.0000	1.7099	1.7099	5.5000e-004	0.0000	1.7237
<b>Total</b>	<b>1.0700e-003</b>	<b>0.0124</b>	<b>7.8500e-003</b>	<b>2.0000e-005</b>	<b>4.1000e-004</b>	<b>4.5000e-004</b>	<b>8.6000e-004</b>	<b>4.0000e-005</b>	<b>4.2000e-004</b>	<b>4.6000e-004</b>	<b>0.0000</b>	<b>1.7099</b>	<b>1.7099</b>	<b>5.5000e-004</b>	<b>0.0000</b>	<b>1.7237</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.2 Site Preparation - 2023****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	3.0000e-005	2.0000e-005	3.1000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0836	0.0836	0.0000	0.0000	0.0843
<b>Total</b>	<b>3.0000e-005</b>	<b>2.0000e-005</b>	<b>3.1000e-004</b>	<b>0.0000</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>1.1000e-004</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0836</b>	<b>0.0836</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0843</b>

**3.3 Grading - 2023****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					0.0213	0.0000	0.0213	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.7300e-003	0.0407	0.0222	6.0000e-005		1.6800e-003	1.6800e-003		1.5500e-003	1.5500e-003	0.0000	4.9524	4.9524	1.6000e-003	0.0000	4.9924
<b>Total</b>	<b>3.7300e-003</b>	<b>0.0407</b>	<b>0.0222</b>	<b>6.0000e-005</b>	<b>0.0213</b>	<b>1.6800e-003</b>	<b>0.0229</b>	<b>0.0103</b>	<b>1.5500e-003</b>	<b>0.0118</b>	<b>0.0000</b>	<b>4.9524</b>	<b>4.9524</b>	<b>1.6000e-003</b>	<b>0.0000</b>	<b>4.9924</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.3 Grading - 2023****Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	8.0000e-005	1.0000e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2675	0.2675	1.0000e-005	1.0000e-005	0.2698
<b>Total</b>	<b>1.0000e-004</b>	<b>8.0000e-005</b>	<b>1.0000e-003</b>	<b>0.0000</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>3.5000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2675</b>	<b>0.2675</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.2698</b>

**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					8.2900e-003	0.0000	8.2900e-003	4.0100e-003	0.0000	4.0100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.7300e-003	0.0407	0.0222	6.0000e-005		1.6800e-003	1.6800e-003		1.5500e-003	1.5500e-003	0.0000	4.9524	4.9524	1.6000e-003	0.0000	4.9924
<b>Total</b>	<b>3.7300e-003</b>	<b>0.0407</b>	<b>0.0222</b>	<b>6.0000e-005</b>	<b>8.2900e-003</b>	<b>1.6800e-003</b>	<b>9.9700e-003</b>	<b>4.0100e-003</b>	<b>1.5500e-003</b>	<b>5.5600e-003</b>	<b>0.0000</b>	<b>4.9524</b>	<b>4.9524</b>	<b>1.6000e-003</b>	<b>0.0000</b>	<b>4.9924</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.3 Grading - 2023****Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	8.0000e-005	1.0000e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2675	0.2675	1.0000e-005	1.0000e-005	0.2698
<b>Total</b>	<b>1.0000e-004</b>	<b>8.0000e-005</b>	<b>1.0000e-003</b>	<b>0.0000</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>3.5000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2675</b>	<b>0.2675</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.2698</b>

**3.4 Building Construction - 2023****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	0.0784	0.7959	0.8800	1.4100e-003		0.0397	0.0397		0.0365	0.0365	0.0000	124.2585	124.2585	0.0402	0.0000	125.2632
<b>Total</b>	<b>0.0784</b>	<b>0.7959</b>	<b>0.8800</b>	<b>1.4100e-003</b>		<b>0.0397</b>	<b>0.0397</b>		<b>0.0365</b>	<b>0.0365</b>	<b>0.0000</b>	<b>124.2585</b>	<b>124.2585</b>	<b>0.0402</b>	<b>0.0000</b>	<b>125.2632</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2023****Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	3.0000e-004	3.8800e-003	1.0000e-005	1.3600e-003	1.0000e-005	1.3700e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.0365	1.0365	3.0000e-005	3.0000e-005	1.0453
<b>Total</b>	<b>4.0000e-004</b>	<b>3.0000e-004</b>	<b>3.8800e-003</b>	<b>1.0000e-005</b>	<b>1.3600e-003</b>	<b>1.0000e-005</b>	<b>1.3700e-003</b>	<b>3.6000e-004</b>	<b>1.0000e-005</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>1.0365</b>	<b>1.0365</b>	<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>1.0453</b>

**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	0.0784	0.7959	0.8800	1.4100e-003		0.0397	0.0397		0.0365	0.0365	0.0000	124.2583	124.2583	0.0402	0.0000	125.2630
<b>Total</b>	<b>0.0784</b>	<b>0.7959</b>	<b>0.8800</b>	<b>1.4100e-003</b>		<b>0.0397</b>	<b>0.0397</b>		<b>0.0365</b>	<b>0.0365</b>	<b>0.0000</b>	<b>124.2583</b>	<b>124.2583</b>	<b>0.0402</b>	<b>0.0000</b>	<b>125.2630</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2023****Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	3.0000e-004	3.8800e-003	1.0000e-005	1.3600e-003	1.0000e-005	1.3700e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.0365	1.0365	3.0000e-005	3.0000e-005	1.0453
<b>Total</b>	<b>4.0000e-004</b>	<b>3.0000e-004</b>	<b>3.8800e-003</b>	<b>1.0000e-005</b>	<b>1.3600e-003</b>	<b>1.0000e-005</b>	<b>1.3700e-003</b>	<b>3.6000e-004</b>	<b>1.0000e-005</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>1.0365</b>	<b>1.0365</b>	<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>1.0453</b>

**3.4 Building Construction - 2024****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	0.0405	0.4062	0.4806	7.8000e-004		0.0192	0.0192		0.0177	0.0177	0.0000	68.1648	68.1648	0.0221	0.0000	68.7160
<b>Total</b>	<b>0.0405</b>	<b>0.4062</b>	<b>0.4806</b>	<b>7.8000e-004</b>		<b>0.0192</b>	<b>0.0192</b>		<b>0.0177</b>	<b>0.0177</b>	<b>0.0000</b>	<b>68.1648</b>	<b>68.1648</b>	<b>0.0221</b>	<b>0.0000</b>	<b>68.7160</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2024****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	1.5000e-004	1.9900e-003	1.0000e-005	7.5000e-004	0.0000	7.5000e-004	2.0000e-004	0.0000	2.0000e-004	0.0000	0.5504	0.5504	1.0000e-005	1.0000e-005	0.5549
<b>Total</b>	<b>2.1000e-004</b>	<b>1.5000e-004</b>	<b>1.9900e-003</b>	<b>1.0000e-005</b>	<b>7.5000e-004</b>	<b>0.0000</b>	<b>7.5000e-004</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>0.5504</b>	<b>0.5504</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.5549</b>

**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	0.0405	0.4062	0.4806	7.8000e-004		0.0192	0.0192		0.0177	0.0177	0.0000	68.1648	68.1648	0.0221	0.0000	68.7159
<b>Total</b>	<b>0.0405</b>	<b>0.4062</b>	<b>0.4806</b>	<b>7.8000e-004</b>		<b>0.0192</b>	<b>0.0192</b>		<b>0.0177</b>	<b>0.0177</b>	<b>0.0000</b>	<b>68.1648</b>	<b>68.1648</b>	<b>0.0221</b>	<b>0.0000</b>	<b>68.7159</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2024****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	1.5000e-004	1.9900e-003	1.0000e-005	7.5000e-004	0.0000	7.5000e-004	2.0000e-004	0.0000	2.0000e-004	0.0000	0.5504	0.5504	1.0000e-005	1.0000e-005	0.5549
<b>Total</b>	<b>2.1000e-004</b>	<b>1.5000e-004</b>	<b>1.9900e-003</b>	<b>1.0000e-005</b>	<b>7.5000e-004</b>	<b>0.0000</b>	<b>7.5000e-004</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>0.5504</b>	<b>0.5504</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.5549</b>

**3.5 Paving - 2024****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	5.6100e-003	0.0497	0.0668	1.1000e-004		2.3100e-003	2.3100e-003		2.1600e-003	2.1600e-003	0.0000	8.9306	8.9306	2.6000e-003	0.0000	8.9956
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>5.6100e-003</b>	<b>0.0497</b>	<b>0.0668</b>	<b>1.1000e-004</b>		<b>2.3100e-003</b>	<b>2.3100e-003</b>		<b>2.1600e-003</b>	<b>2.1600e-003</b>	<b>0.0000</b>	<b>8.9306</b>	<b>8.9306</b>	<b>2.6000e-003</b>	<b>0.0000</b>	<b>8.9956</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.5 Paving - 2024****Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	3.7000e-004	5.0100e-003	2.0000e-005	1.8800e-003	1.0000e-005	1.8900e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.3841	1.3841	3.0000e-005	4.0000e-005	1.3954
<b>Total</b>	<b>5.2000e-004</b>	<b>3.7000e-004</b>	<b>5.0100e-003</b>	<b>2.0000e-005</b>	<b>1.8800e-003</b>	<b>1.0000e-005</b>	<b>1.8900e-003</b>	<b>5.0000e-004</b>	<b>1.0000e-005</b>	<b>5.1000e-004</b>	<b>0.0000</b>	<b>1.3841</b>	<b>1.3841</b>	<b>3.0000e-005</b>	<b>4.0000e-005</b>	<b>1.3954</b>

**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	5.6100e-003	0.0497	0.0668	1.1000e-004		2.3100e-003	2.3100e-003		2.1600e-003	2.1600e-003	0.0000	8.9306	8.9306	2.6000e-003	0.0000	8.9956
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>5.6100e-003</b>	<b>0.0497</b>	<b>0.0668</b>	<b>1.1000e-004</b>		<b>2.3100e-003</b>	<b>2.3100e-003</b>		<b>2.1600e-003</b>	<b>2.1600e-003</b>	<b>0.0000</b>	<b>8.9306</b>	<b>8.9306</b>	<b>2.6000e-003</b>	<b>0.0000</b>	<b>8.9956</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.5 Paving - 2024****Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	3.7000e-004	5.0100e-003	2.0000e-005	1.8800e-003	1.0000e-005	1.8900e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.3841	1.3841	3.0000e-005	4.0000e-005	1.3954
<b>Total</b>	<b>5.2000e-004</b>	<b>3.7000e-004</b>	<b>5.0100e-003</b>	<b>2.0000e-005</b>	<b>1.8800e-003</b>	<b>1.0000e-005</b>	<b>1.8900e-003</b>	<b>5.0000e-004</b>	<b>1.0000e-005</b>	<b>5.1000e-004</b>	<b>0.0000</b>	<b>1.3841</b>	<b>1.3841</b>	<b>3.0000e-005</b>	<b>4.0000e-005</b>	<b>1.3954</b>

**3.6 Architectural Coating - 2024****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	0.0116					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
<b>Total</b>	<b>0.0134</b>	<b>0.0122</b>	<b>0.0181</b>	<b>3.0000e-005</b>		<b>6.1000e-004</b>	<b>6.1000e-004</b>		<b>6.1000e-004</b>	<b>6.1000e-004</b>	<b>0.0000</b>	<b>2.5533</b>	<b>2.5533</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>2.5569</b>



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.6 Architectural Coating - 2024****Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	0.0116					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
<b>Total</b>	<b>0.0134</b>	<b>0.0122</b>	<b>0.0181</b>	<b>3.0000e-005</b>		<b>6.1000e-004</b>	<b>6.1000e-004</b>		<b>6.1000e-004</b>	<b>6.1000e-004</b>	<b>0.0000</b>	<b>2.5533</b>	<b>2.5533</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>2.5568</b>

### EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

### Mitigated Construction Off-Site

[illegible]

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****4.0 Operational Detail - Mobile****4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.0900e-003	3.6600e-003	0.0236	6.0000e-005	6.2800e-003	5.0000e-005	6.3300e-003	1.6800e-003	4.0000e-005	1.7200e-003	0.0000	5.4318	5.4318	2.6000e-004	2.6000e-004	5.5159
Unmitigated	2.0900e-003	3.6600e-003	0.0236	6.0000e-005	6.2800e-003	5.0000e-005	6.3300e-003	1.6800e-003	4.0000e-005	1.7200e-003	0.0000	5.4318	5.4318	2.6000e-004	2.6000e-004	5.5159

**4.2 Trip Summary Information**

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.75	3.75	3.75	16,606	16,606
Total	3.75	3.75	3.75	16,606	16,606

**4.3 Trip Type Information**

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4.3982	4.3982	3.7000e-004	4.0000e-005	4.4209
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4.3982	4.3982	3.7000e-004	4.0000e-005	4.4209
NaturalGas Mitigated	4.4000e-004	3.9600e-003	3.3300e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	4.3131	4.3131	8.0000e-005	8.0000e-005	4.3388
NaturalGas Unmitigated	4.4000e-004	3.9600e-003	3.3300e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	4.3131	4.3131	8.0000e-005	8.0000e-005	4.3388

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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					
General Heavy Industry	80825	4.4000e-004	3.9600e-003	3.3300e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	4.3131	4.3131	8.0000e-005	8.0000e-005	4.3388
<b>Total</b>		<b>4.4000e-004</b>	<b>3.9600e-003</b>	<b>3.3300e-003</b>	<b>2.0000e-005</b>		<b>3.0000e-004</b>	<b>3.0000e-004</b>		<b>3.0000e-004</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>4.3131</b>	<b>4.3131</b>	<b>8.0000e-005</b>	<b>8.0000e-005</b>	<b>4.3388</b>

**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	80825	4.4000e-004	3.9600e-003	3.3300e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	4.3131	4.3131	8.0000e-005	8.0000e-005	4.3388
<b>Total</b>		<b>4.4000e-004</b>	<b>3.9600e-003</b>	<b>3.3300e-003</b>	<b>2.0000e-005</b>		<b>3.0000e-004</b>	<b>3.0000e-004</b>		<b>3.0000e-004</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>4.3131</b>	<b>4.3131</b>	<b>8.0000e-005</b>	<b>8.0000e-005</b>	<b>4.3388</b>



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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	24800	4.3982	3.7000e-004	4.0000e-005	4.4209
Total		4.3982	3.7000e-004	4.0000e-005	4.4209

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	24800	4.3982	3.7000e-004	4.0000e-005	4.4209
Total		4.3982	3.7000e-004	4.0000e-005	4.4209

6.0 Area Detail

6.1 Mitigation Measures Area

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive 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	0.0102	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Unmitigated	0.0102	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005

**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	1.1600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.0300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
<b>Total</b>	<b>0.0102</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>7.0000e-005</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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	1.1600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.0300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
<b>Total</b>	<b>0.0102</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>7.0000e-005</b>

**7.0 Water Detail****7.1 Mitigation Measures Water**

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.5184	0.0190	4.6000e-004	2.1288
Unmitigated	1.5184	0.0190	4.6000e-004	2.1288

**7.2 Water by Land Use****Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.578125 / 0	1.5184	0.0190	4.6000e-004	2.1288
<b>Total</b>		<b>1.5184</b>	<b>0.0190</b>	<b>4.6000e-004</b>	<b>2.1288</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****7.2 Water by Land Use****Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.578125 / 0	1.5184	0.0190	4.6000e-004	2.1288
<b>Total</b>		<b>1.5184</b>	<b>0.0190</b>	<b>4.6000e-004</b>	<b>2.1288</b>

**8.0 Waste Detail****8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.6293	0.0372	0.0000	1.5590
Unmitigated	0.6293	0.0372	0.0000	1.5590



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****8.2 Waste by Land Use****Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	3.1	0.6293	0.0372	0.0000	1.5590
<b>Total</b>		<b>0.6293</b>	<b>0.0372</b>	<b>0.0000</b>	<b>1.5590</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	3.1	0.6293	0.0372	0.0000	1.5590
<b>Total</b>		<b>0.6293</b>	<b>0.0372</b>	<b>0.0000</b>	<b>1.5590</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****10.0 Stationary Equipment****Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	419	0.73	Diesel

**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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**10.1 Stationary Sources****Unmitigated/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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (300 - 600 HP)	0.0172	0.0481	0.0438	8.0000e-005		2.5300e-003	2.5300e-003		2.5300e-003	2.5300e-003	0.0000	7.9777	7.9777	1.1200e-003	0.0000	8.0057
<b>Total</b>	<b>0.0172</b>	<b>0.0481</b>	<b>0.0438</b>	<b>8.0000e-005</b>		<b>2.5300e-003</b>	<b>2.5300e-003</b>		<b>2.5300e-003</b>	<b>2.5300e-003</b>	<b>0.0000</b>	<b>7.9777</b>	<b>7.9777</b>	<b>1.1200e-003</b>	<b>0.0000</b>	<b>8.0057</b>

**11.0 Vegetation**

9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9295.16 Steeplechase Pump Station  
Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.50	1000sqft	0.50	2,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Building - approx 2,500 sf  
Site less than 0.5 acres

Construction Phase - 20 months

Grading -

Vehicle Trips - 1.5 trips/ksf

Stationary Sources - Emergency Generators and Fire Pumps -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1.00	4.00
tblConstructionPhase	NumDays	2.00	8.00
tblConstructionPhase	NumDays	100.00	384.00

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblConstructionPhase	NumDays	5.00	19.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	PhaseEndDate	1/2/2023	1/5/2023
tblConstructionPhase	PhaseEndDate	1/4/2023	1/17/2023
tblConstructionPhase	PhaseEndDate	5/24/2023	7/8/2024
tblConstructionPhase	PhaseEndDate	5/31/2023	8/2/2024
tblConstructionPhase	PhaseEndDate	6/7/2023	8/30/2024
tblConstructionPhase	PhaseStartDate	1/3/2023	1/6/2023
tblConstructionPhase	PhaseStartDate	1/5/2023	1/18/2023
tblConstructionPhase	PhaseStartDate	5/25/2023	7/9/2024
tblConstructionPhase	PhaseStartDate	6/1/2023	8/5/2024
tblLandUse	LotAcreage	0.06	0.50
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	419.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	ST_TR	6.42	1.50
tblVehicleTrips	SU_TR	5.09	1.50
tblVehicleTrips	WD_TR	3.93	1.50

**2.0 Emissions Summary**

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## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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					
2023	0.9628	10.1969	7.1336	0.0149	5.4014	0.4205	5.8219	2.5923	0.3869	2.9791	0.0000	1,444.2706	1,444.2706	0.4432	1.8800e-003	1,455.9107
2024	1.3395	5.9759	7.6470	0.0130	0.2012	0.2824	0.4450	0.0534	0.2598	0.2810	0.0000	1,209.4185	1,209.4185	0.3576	3.9200e-003	1,218.2277
<b>Maximum</b>	<b>1.3395</b>	<b>10.1969</b>	<b>7.6470</b>	<b>0.0149</b>	<b>5.4014</b>	<b>0.4205</b>	<b>5.8219</b>	<b>2.5923</b>	<b>0.3869</b>	<b>2.9791</b>	<b>0.0000</b>	<b>1,444.2706</b>	<b>1,444.2706</b>	<b>0.4432</b>	<b>3.9200e-003</b>	<b>1,455.9107</b>

**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					
2023	0.9628	10.1969	7.1336	0.0149	2.1611	0.4205	2.5816	1.0255	0.3869	1.4123	0.0000	1,444.2706	1,444.2706	0.4432	1.8800e-003	1,455.9107
2024	1.3395	5.9759	7.6470	0.0130	0.2012	0.2824	0.4450	0.0534	0.2598	0.2810	0.0000	1,209.4185	1,209.4185	0.3576	3.9200e-003	1,218.2277
<b>Maximum</b>	<b>1.3395</b>	<b>10.1969</b>	<b>7.6470</b>	<b>0.0149</b>	<b>2.1611</b>	<b>0.4205</b>	<b>2.5816</b>	<b>1.0255</b>	<b>0.3869</b>	<b>1.4123</b>	<b>0.0000</b>	<b>1,444.2706</b>	<b>1,444.2706</b>	<b>0.4432</b>	<b>3.9200e-003</b>	<b>1,455.9107</b>



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	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	57.84	0.00	51.71	59.22	0.00	48.06	0.00	0.00	0.00	0.00	0.00	0.00

**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	0.0559	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Energy	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064
Mobile	0.0131	0.0188	0.1432	3.4000e-004	0.0351	2.6000e-004	0.0353	9.3600e-003	2.4000e-004	9.6000e-003		34.8828	34.8828	1.5600e-003	1.5400e-003	35.3794
Stationary	0.6876	1.9218	1.7533	3.3000e-003		0.1012	0.1012		0.1012	0.1012		351.7564	351.7564	0.0493		352.9893
Total	0.7590	1.9624	1.9149	3.7700e-003	0.0351	0.1031	0.1381	9.3600e-003	0.1030	0.1124		412.6914	412.6914	0.0514	2.0200e-003	414.5756

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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	lb/day										lb/day					
Area	0.0559	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Energy	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064
Mobile	0.0131	0.0188	0.1432	3.4000e-004	0.0351	2.6000e-004	0.0353	9.3600e-003	2.4000e-004	9.6000e-003		34.8828	34.8828	1.5600e-003	1.5400e-003	35.3794
Stationary	0.6876	1.9218	1.7533	3.3000e-003		0.1012	0.1012		0.1012	0.1012		351.7564	351.7564	0.0493		352.9893
<b>Total</b>	<b>0.7590</b>	<b>1.9624</b>	<b>1.9149</b>	<b>3.7700e-003</b>	<b>0.0351</b>	<b>0.1031</b>	<b>0.1381</b>	<b>9.3600e-003</b>	<b>0.1030</b>	<b>0.1124</b>		<b>412.6914</b>	<b>412.6914</b>	<b>0.0514</b>	<b>2.0200e-003</b>	<b>414.5756</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail****Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/5/2023	5	4	
2	Grading	Grading	1/6/2023	1/17/2023	5	8	
3	Building Construction	Building Construction	1/18/2023	7/8/2024	5	384	
4	Paving	Paving	7/9/2024	8/2/2024	5	19	

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

5	Architectural Coating	Architectural Coating	8/5/2024	8/30/2024	5	20
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**Acres of Grading (Site Preparation Phase): 2****Acres of Grading (Grading Phase): 6****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,750; Non-Residential Outdoor: 1,250; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Building Construction	5	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Water Exposed Area

**3.2 Site Preparation - 2023****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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084		942.4317	942.4317	0.3048		950.0517
<b>Total</b>	<b>0.5348</b>	<b>6.1887</b>	<b>3.9239</b>	<b>9.7300e-003</b>	<b>0.5303</b>	<b>0.2266</b>	<b>0.7568</b>	<b>0.0573</b>	<b>0.2084</b>	<b>0.2657</b>		<b>942.4317</b>	<b>942.4317</b>	<b>0.3048</b>		<b>950.0517</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.2 Site Preparation - 2023****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	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
Worker	0.0183	0.0113	0.1829	4.9000e-004	0.0559	2.6000e-004	0.0562	0.0148	2.4000e-004	0.0151		49.6870	49.6870	1.1500e-003	1.1700e-003	50.0653
<b>Total</b>	<b>0.0183</b>	<b>0.0113</b>	<b>0.1829</b>	<b>4.9000e-004</b>	<b>0.0559</b>	<b>2.6000e-004</b>	<b>0.0562</b>	<b>0.0148</b>	<b>2.4000e-004</b>	<b>0.0151</b>		<b>49.6870</b>	<b>49.6870</b>	<b>1.1500e-003</b>	<b>1.1700e-003</b>	<b>50.0653</b>

**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					0.2068	0.0000	0.2068	0.0223	0.0000	0.0223			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084	0.0000	942.4317	942.4317	0.3048		950.0517
<b>Total</b>	<b>0.5348</b>	<b>6.1887</b>	<b>3.9239</b>	<b>9.7300e-003</b>	<b>0.2068</b>	<b>0.2266</b>	<b>0.4334</b>	<b>0.0223</b>	<b>0.2084</b>	<b>0.2308</b>	<b>0.0000</b>	<b>942.4317</b>	<b>942.4317</b>	<b>0.3048</b>		<b>950.0517</b>



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.2 Site Preparation - 2023****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	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
Worker	0.0183	0.0113	0.1829	4.9000e-004	0.0559	2.6000e-004	0.0562	0.0148	2.4000e-004	0.0151		49.6870	49.6870	1.1500e-003	1.1700e-003	50.0653
<b>Total</b>	<b>0.0183</b>	<b>0.0113</b>	<b>0.1829</b>	<b>4.9000e-004</b>	<b>0.0559</b>	<b>2.6000e-004</b>	<b>0.0562</b>	<b>0.0148</b>	<b>2.4000e-004</b>	<b>0.0151</b>		<b>49.6870</b>	<b>49.6870</b>	<b>1.1500e-003</b>	<b>1.1700e-003</b>	<b>50.0653</b>

**3.3 Grading - 2023****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					5.3119	0.0000	5.3119	2.5686	0.0000	2.5686			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
<b>Total</b>	<b>0.9335</b>	<b>10.1789</b>	<b>5.5516</b>	<b>0.0141</b>	<b>5.3119</b>	<b>0.4201</b>	<b>5.7320</b>	<b>2.5686</b>	<b>0.3865</b>	<b>2.9550</b>		<b>1,364.7713</b>	<b>1,364.7713</b>	<b>0.4414</b>		<b>1,375.8062</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.3 Grading - 2023****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	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
Worker	0.0292	0.0181	0.2927	7.9000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		79.4992	79.4992	1.8400e-003	1.8800e-003	80.1045
<b>Total</b>	<b>0.0292</b>	<b>0.0181</b>	<b>0.2927</b>	<b>7.9000e-004</b>	<b>0.0894</b>	<b>4.2000e-004</b>	<b>0.0898</b>	<b>0.0237</b>	<b>3.8000e-004</b>	<b>0.0241</b>		<b>79.4992</b>	<b>79.4992</b>	<b>1.8400e-003</b>	<b>1.8800e-003</b>	<b>80.1045</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.0717	0.0000	2.0717	1.0017	0.0000	1.0017			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
<b>Total</b>	<b>0.9335</b>	<b>10.1789</b>	<b>5.5516</b>	<b>0.0141</b>	<b>2.0717</b>	<b>0.4201</b>	<b>2.4918</b>	<b>1.0017</b>	<b>0.3865</b>	<b>1.3882</b>	<b>0.0000</b>	<b>1,364.7713</b>	<b>1,364.7713</b>	<b>0.4414</b>		<b>1,375.8062</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.3 Grading - 2023****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	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
Worker	0.0292	0.0181	0.2927	7.9000e-004	0.0894	4.2000e-004	0.0898	0.0237	3.8000e-004	0.0241		79.4992	79.4992	1.8400e-003	1.8800e-003	80.1045
<b>Total</b>	<b>0.0292</b>	<b>0.0181</b>	<b>0.2927</b>	<b>7.9000e-004</b>	<b>0.0894</b>	<b>4.2000e-004</b>	<b>0.0898</b>	<b>0.0237</b>	<b>3.8000e-004</b>	<b>0.0241</b>		<b>79.4992</b>	<b>79.4992</b>	<b>1.8400e-003</b>	<b>1.8800e-003</b>	<b>80.1045</b>

**3.4 Building Construction - 2023****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6322	6.4186	7.0970	0.0114		0.3203	0.3203		0.2946	0.2946		1,104.6089	1,104.6089	0.3573		1,113.5402
<b>Total</b>	<b>0.6322</b>	<b>6.4186</b>	<b>7.0970</b>	<b>0.0114</b>		<b>0.3203</b>	<b>0.3203</b>		<b>0.2946</b>	<b>0.2946</b>		<b>1,104.6089</b>	<b>1,104.6089</b>	<b>0.3573</b>		<b>1,113.5402</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2023****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	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
Worker	3.6500e-003	2.2600e-003	0.0366	1.0000e-004	0.0112	5.0000e-005	0.0112	2.9600e-003	5.0000e-005	3.0100e-003		9.9374	9.9374	2.3000e-004	2.3000e-004	10.0131
<b>Total</b>	<b>3.6500e-003</b>	<b>2.2600e-003</b>	<b>0.0366</b>	<b>1.0000e-004</b>	<b>0.0112</b>	<b>5.0000e-005</b>	<b>0.0112</b>	<b>2.9600e-003</b>	<b>5.0000e-005</b>	<b>3.0100e-003</b>		<b>9.9374</b>	<b>9.9374</b>	<b>2.3000e-004</b>	<b>2.3000e-004</b>	<b>10.0131</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6322	6.4186	7.0970	0.0114		0.3203	0.3203		0.2946	0.2946	0.0000	1,104.6089	1,104.6089	0.3573		1,113.5402
<b>Total</b>	<b>0.6322</b>	<b>6.4186</b>	<b>7.0970</b>	<b>0.0114</b>		<b>0.3203</b>	<b>0.3203</b>		<b>0.2946</b>	<b>0.2946</b>	<b>0.0000</b>	<b>1,104.6089</b>	<b>1,104.6089</b>	<b>0.3573</b>		<b>1,113.5402</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2023****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	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
Worker	3.6500e-003	2.2600e-003	0.0366	1.0000e-004	0.0112	5.0000e-005	0.0112	2.9600e-003	5.0000e-005	3.0100e-003		9.9374	9.9374	2.3000e-004	2.3000e-004	10.0131
<b>Total</b>	<b>3.6500e-003</b>	<b>2.2600e-003</b>	<b>0.0366</b>	<b>1.0000e-004</b>	<b>0.0112</b>	<b>5.0000e-005</b>	<b>0.0112</b>	<b>2.9600e-003</b>	<b>5.0000e-005</b>	<b>3.0100e-003</b>		<b>9.9374</b>	<b>9.9374</b>	<b>2.3000e-004</b>	<b>2.3000e-004</b>	<b>10.0131</b>

**3.4 Building Construction - 2024****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598		1,104.9834	1,104.9834	0.3574		1,113.9177
<b>Total</b>	<b>0.5950</b>	<b>5.9739</b>	<b>7.0675</b>	<b>0.0114</b>		<b>0.2824</b>	<b>0.2824</b>		<b>0.2598</b>	<b>0.2598</b>		<b>1,104.9834</b>	<b>1,104.9834</b>	<b>0.3574</b>		<b>1,113.9177</b>



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2024****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	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
Worker	3.4000e-003	2.0100e-003	0.0342	1.0000e-004	0.0112	5.0000e-005	0.0112	2.9600e-003	5.0000e-005	3.0100e-003		9.6211	9.6211	2.1000e-004	2.2000e-004	9.6912
<b>Total</b>	<b>3.4000e-003</b>	<b>2.0100e-003</b>	<b>0.0342</b>	<b>1.0000e-004</b>	<b>0.0112</b>	<b>5.0000e-005</b>	<b>0.0112</b>	<b>2.9600e-003</b>	<b>5.0000e-005</b>	<b>3.0100e-003</b>		<b>9.6211</b>	<b>9.6211</b>	<b>2.1000e-004</b>	<b>2.2000e-004</b>	<b>9.6912</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598	0.0000	1,104.9834	1,104.9834	0.3574		1,113.9177
<b>Total</b>	<b>0.5950</b>	<b>5.9739</b>	<b>7.0675</b>	<b>0.0114</b>		<b>0.2824</b>	<b>0.2824</b>		<b>0.2598</b>	<b>0.2598</b>	<b>0.0000</b>	<b>1,104.9834</b>	<b>1,104.9834</b>	<b>0.3574</b>		<b>1,113.9177</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.4 Building Construction - 2024****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	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
Worker	3.4000e-003	2.0100e-003	0.0342	1.0000e-004	0.0112	5.0000e-005	0.0112	2.9600e-003	5.0000e-005	3.0100e-003		9.6211	9.6211	2.1000e-004	2.2000e-004	9.6912
<b>Total</b>	<b>3.4000e-003</b>	<b>2.0100e-003</b>	<b>0.0342</b>	<b>1.0000e-004</b>	<b>0.0112</b>	<b>5.0000e-005</b>	<b>0.0112</b>	<b>2.9600e-003</b>	<b>5.0000e-005</b>	<b>3.0100e-003</b>		<b>9.6211</b>	<b>9.6211</b>	<b>2.1000e-004</b>	<b>2.2000e-004</b>	<b>9.6912</b>

**3.5 Paving - 2024****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269		1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.5904</b>	<b>5.2297</b>	<b>7.0314</b>	<b>0.0113</b>		<b>0.2429</b>	<b>0.2429</b>		<b>0.2269</b>	<b>0.2269</b>		<b>1,036.2393</b>	<b>1,036.2393</b>	<b>0.3019</b>		<b>1,043.7858</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.5 Paving - 2024****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	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
Worker	0.0613	0.0362	0.6156	1.7100e-003	0.2012	9.0000e-004	0.2021	0.0534	8.3000e-004	0.0542		173.1792	173.1792	3.7500e-003	3.9200e-003	174.4420
<b>Total</b>	<b>0.0613</b>	<b>0.0362</b>	<b>0.6156</b>	<b>1.7100e-003</b>	<b>0.2012</b>	<b>9.0000e-004</b>	<b>0.2021</b>	<b>0.0534</b>	<b>8.3000e-004</b>	<b>0.0542</b>		<b>173.1792</b>	<b>173.1792</b>	<b>3.7500e-003</b>	<b>3.9200e-003</b>	<b>174.4420</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269	0.0000	1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.5904</b>	<b>5.2297</b>	<b>7.0314</b>	<b>0.0113</b>		<b>0.2429</b>	<b>0.2429</b>		<b>0.2269</b>	<b>0.2269</b>	<b>0.0000</b>	<b>1,036.2393</b>	<b>1,036.2393</b>	<b>0.3019</b>		<b>1,043.7858</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.5 Paving - 2024****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	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
Worker	0.0613	0.0362	0.6156	1.7100e-003	0.2012	9.0000e-004	0.2021	0.0534	8.3000e-004	0.0542		173.1792	173.1792	3.7500e-003	3.9200e-003	174.4420
<b>Total</b>	<b>0.0613</b>	<b>0.0362</b>	<b>0.6156</b>	<b>1.7100e-003</b>	<b>0.2012</b>	<b>9.0000e-004</b>	<b>0.2021</b>	<b>0.0534</b>	<b>8.3000e-004</b>	<b>0.0542</b>		<b>173.1792</b>	<b>173.1792</b>	<b>3.7500e-003</b>	<b>3.9200e-003</b>	<b>174.4420</b>

**3.6 Architectural Coating - 2024****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	1.1588					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>1.3395</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****3.6 Architectural Coating - 2024****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	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
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	1.1588					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
<b>Total</b>	<b>1.3395</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>		<b>281.8443</b>



9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

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	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
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****4.0 Operational Detail - Mobile****4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0131	0.0188	0.1432	3.4000e-004	0.0351	2.6000e-004	0.0353	9.3600e-003	2.4000e-004	9.6000e-003		34.8828	34.8828	1.5600e-003	1.5400e-003	35.3794
Unmitigated	0.0131	0.0188	0.1432	3.4000e-004	0.0351	2.6000e-004	0.0353	9.3600e-003	2.4000e-004	9.6000e-003		34.8828	34.8828	1.5600e-003	1.5400e-003	35.3794

**4.2 Trip Summary Information**

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.75	3.75	3.75	16,606	16,606
Total	3.75	3.75	3.75	16,606	16,606

**4.3 Trip Type Information**

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.537845	0.056225	0.173186	0.138405	0.025906	0.007191	0.011447	0.018769	0.000611	0.000309	0.023821	0.001097	0.005189

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064
NaturalGas Unmitigated	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064

**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					
General Heavy Industry	221.438	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064
<b>Total</b>		<b>2.3900e-003</b>	<b>0.0217</b>	<b>0.0182</b>	<b>1.3000e-004</b>		<b>1.6500e-003</b>	<b>1.6500e-003</b>		<b>1.6500e-003</b>	<b>1.6500e-003</b>		<b>26.0516</b>	<b>26.0516</b>	<b>5.0000e-004</b>	<b>4.8000e-004</b>	<b>26.2064</b>

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****5.2 Energy by Land Use - NaturalGas****Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0.221438	2.3900e-003	0.0217	0.0182	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0516	26.0516	5.0000e-004	4.8000e-004	26.2064
<b>Total</b>		<b>2.3900e-003</b>	<b>0.0217</b>	<b>0.0182</b>	<b>1.3000e-004</b>		<b>1.6500e-003</b>	<b>1.6500e-003</b>		<b>1.6500e-003</b>	<b>1.6500e-003</b>		<b>26.0516</b>	<b>26.0516</b>	<b>5.0000e-004</b>	<b>4.8000e-004</b>	<b>26.2064</b>

**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	0.0559	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Unmitigated	0.0559	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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	6.3500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
<b>Total</b>	<b>0.0559</b>	<b>0.0000</b>	<b>2.5000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>5.5000e-004</b>	<b>5.5000e-004</b>	<b>0.0000</b>		<b>5.8000e-004</b>



## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied****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	6.3500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
<b>Total</b>	<b>0.0559</b>	<b>0.0000</b>	<b>2.5000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>5.5000e-004</b>	<b>5.5000e-004</b>	<b>0.0000</b>		<b>5.8000e-004</b>

**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****Fire Pumps and Emergency Generators**

## 9295.16 Steeplechase Pump Station - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	419	0.73	Diesel

**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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**10.1 Stationary Sources****Unmitigated/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
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (300 - 600 HP)	0.6876	1.9218	1.7533	3.3000e-003		0.1012	0.1012		0.1012	0.1012		351.7564	351.7564	0.0493		352.9893
<b>Total</b>	<b>0.6876</b>	<b>1.9218</b>	<b>1.7533</b>	<b>3.3000e-003</b>		<b>0.1012</b>	<b>0.1012</b>		<b>0.1012</b>	<b>0.1012</b>		<b>351.7564</b>	<b>351.7564</b>	<b>0.0493</b>		<b>352.9893</b>

**11.0 Vegetation**

Construction Health Risk Calculations

Annual PM Exhaust Generation  
Annual Tons/Year

0.0416

Pounds/year

83.2

lbs/day

2.28E-01

lbs/hr

9.50E-03

g/day

103

sec/day

86,400

g/sec

1.20E-03

Max 1-hour concentration

4.13E-02

µg/m<sup>3</sup>

Annualized average concentration (0.08)

3.31E-03

µg/m<sup>3</sup>

Onsite Maximum Exposure

3rd Trimester

0<2

2<9

2<16

16<30

16-70

Cair	3.31E-03	3.31E-03	3.31E-03	3.31E-03	3.31E-03	3.31E-03
DBR	361	1090	861	745	335	290
A	1	1	1	1	1	1
EF	0.96	0.96	0.96	0.96	0.96	0.96
Dose-air	1.15E-06	3.46E-06	2.73E-06	2.36E-06	1.06E-06	9.21E-07
CPF	1.10	1.10	1.10	1.10	1.10	1.10
ASF	10	10	3	3	1	1
ED	0.25	2	7	14	14	54
AT	70	70	70	70	70	70
FAH	0.85	0.85	0.72	0.72	0.73	0.73
Risk in 1 mill	0.04	0.92	0.65	1.12	0.17	0.57
	5.00	5.00	5.00	5.00	5.00	5.00
Chronic Exposure	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
0-9	1.61	9.25				
0-30	2.26	30.25				
0-70	2.66	70.25				

**Annual Construction Emissions (tons)**

Year	Phase	PM10 Exhaust
2023	Site Preparation	0.00045
	Grading	0.00168
	Building Construction	0.0397
	2023 Total	0.04183
2024	Building Construction	0.0192
	Paving	0.00231
	Architectural Coatings	0.00061
	2024 Total	0.02212

AERSCREEN 11126 / AERMOD 1206

01/04/23

11:53:26

TITLE: STEEPLECHASE PUMP STATION

\*\*\*\*\* VOLUME PARAMETERS \*\*\*\*\*

SOURCE EMISSION RATE: 0.120E-02 g/s 0.952E-02 lb/hr  
VOLUME HEIGHT: 5.00 meters 16.40 feet  
INITIAL LATERAL DIMENSION: 100.00 meters 328.08 feet  
INITIAL VERTICAL DIMENSION: 100.00 meters 328.08 feet  
RURAL OR URBAN: URBAN  
POPULATION: 20000

FLAGPOLE RECEPTOR HEIGHT: 1.50 meters 4.92 feet

INITIAL PROBE DISTANCE = 5000. meters 16404. feet

\*\*\*\*\* BUILDING DOWNWASH PARAMETERS \*\*\*\*\*

BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES

\*\*\*\*\* PROBE ANALYSIS \*\*\*\*\*

25 meter receptor spacing: 216. meters - 5000. meters

Zo	ROUGHNESS	1-HR CONC	DIST	TEMPORAL
SECTOR	LENGTH	(ug/m3)	(m)	PERIOD

1*	1.000	0.4133E-01	216.0	WIN
----	-------	------------	-------	-----

\* = worst case flow sector

\*\*\*\*\* MAKEMET METEOROLOGY PARAMETERS \*\*\*\*\*

MIN/MAX TEMPERATURE: 250.0 / 310.0 (K)

MINIMUM WIND SPEED: 0.5 m/s

ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Urban  
DOMINANT CLIMATE TYPE: Average Moisture  
DOMINANT SEASON: Winter

ALBEDO: 0.35  
BOWEN RATIO: 1.50  
ROUGHNESS LENGTH: 1.000 (meters)

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

YR MO DY JDY HR

-----

10 01 16 16 01

H0 U\* W\* DT/DZ ZICNV ZIMCH M-O LEN Z0 BOWEN ALBEDO REF WS

-----

-0.41 0.043 -9.000 0.020 -999. 21. 19.3 1.000 1.50 0.35 0.50

HT REF TA HT

-----

10.0 310.0 2.0

METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY IMPACT

YR MO DY JDY HR

-----

10 01 16 16 01

H0 U\* W\* DT/DZ ZICNV ZIMCH M-O LEN Z0 BOWEN ALBEDO REF WS

-----

-0.41 0.043 -9.000 0.020 -999. 21. 19.3 1.000 1.50 0.35 0.50

HT REF TA HT

-----

10.0 310.0 2.0

\*\*\*\*\* AERSCREEN AUTOMATED DISTANCES \*\*\*\*\*

OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

MAXIMUM		MAXIMUM	
DIST	1-HR CONC	DIST	1-HR CONC
(m)	(ug/m3)	(m)	(ug/m3)
-----		-----	
216.00	0.4133E-01	2625.00	0.1079E-01
225.00	0.4045E-01	2650.00	0.1072E-01
250.00	0.3830E-01	2675.00	0.1065E-01



275.00	0.3648E-01	2700.00	0.1058E-01
300.00	0.3490E-01	2725.00	0.1052E-01
325.00	0.3352E-01	2750.00	0.1045E-01
350.00	0.3228E-01	2775.00	0.1039E-01
375.00	0.3117E-01	2800.00	0.1032E-01
400.00	0.3017E-01	2825.00	0.1026E-01
425.00	0.2924E-01	2850.00	0.1020E-01
450.00	0.2840E-01	2875.00	0.1014E-01
475.00	0.2761E-01	2900.00	0.1008E-01
500.00	0.2688E-01	2925.00	0.1002E-01
525.00	0.2620E-01	2950.00	0.9958E-02
550.00	0.2559E-01	2975.00	0.9899E-02
575.00	0.2514E-01	3000.00	0.9842E-02
600.00	0.2471E-01	3025.00	0.9785E-02
625.00	0.2430E-01	3050.00	0.9729E-02
650.00	0.2390E-01	3075.00	0.9674E-02
675.00	0.2351E-01	3100.00	0.9619E-02
700.00	0.2313E-01	3125.00	0.9565E-02
725.00	0.2277E-01	3150.00	0.9512E-02
750.00	0.2242E-01	3175.00	0.9459E-02
775.00	0.2208E-01	3200.00	0.9407E-02
800.00	0.2175E-01	3225.00	0.9356E-02
825.00	0.2143E-01	3250.00	0.9305E-02
850.00	0.2112E-01	3275.00	0.9255E-02
875.00	0.2082E-01	3300.00	0.9205E-02
900.00	0.2053E-01	3325.00	0.9157E-02
925.00	0.2025E-01	3350.00	0.9108E-02
950.00	0.1997E-01	3375.00	0.9060E-02
975.00	0.1971E-01	3400.00	0.9013E-02
1000.00	0.1945E-01	3425.00	0.8966E-02
1025.00	0.1919E-01	3450.00	0.8920E-02
1050.00	0.1895E-01	3475.00	0.8874E-02
1075.00	0.1871E-01	3500.00	0.8829E-02
1100.00	0.1848E-01	3525.00	0.8784E-02
1125.00	0.1825E-01	3550.00	0.8740E-02
1150.00	0.1803E-01	3575.00	0.8696E-02
1175.00	0.1782E-01	3600.00	0.8653E-02
1200.00	0.1761E-01	3625.00	0.8610E-02
1225.00	0.1741E-01	3650.00	0.8568E-02
1250.00	0.1721E-01	3675.00	0.8526E-02
1275.00	0.1701E-01	3700.00	0.8484E-02
1300.00	0.1682E-01	3725.00	0.8443E-02
1325.00	0.1664E-01	3750.00	0.8403E-02
1350.00	0.1646E-01	3775.00	0.8363E-02
1375.00	0.1628E-01	3800.00	0.8323E-02
1400.00	0.1611E-01	3825.00	0.8284E-02
1425.00	0.1595E-01	3850.00	0.8245E-02
1450.00	0.1578E-01	3875.00	0.8206E-02
1475.00	0.1562E-01	3900.00	0.8168E-02
1500.00	0.1546E-01	3925.00	0.8130E-02
1525.00	0.1531E-01	3950.00	0.8093E-02
1550.00	0.1516E-01	3975.00	0.8056E-02
1575.00	0.1501E-01	4000.00	0.8019E-02
1600.00	0.1487E-01	4025.00	0.7983E-02
1625.00	0.1473E-01	4050.00	0.7947E-02

1650.00	0.1459E-01	4075.00	0.7911E-02
1675.00	0.1446E-01	4100.00	0.7876E-02
1700.00	0.1432E-01	4125.00	0.7841E-02
1725.00	0.1419E-01	4150.00	0.7807E-02
1750.00	0.1407E-01	4175.00	0.7772E-02
1775.00	0.1394E-01	4200.00	0.7739E-02
1800.00	0.1382E-01	4225.00	0.7705E-02
1825.00	0.1370E-01	4250.00	0.7672E-02
1850.00	0.1358E-01	4275.00	0.7639E-02
1875.00	0.1347E-01	4300.00	0.7606E-02
1900.00	0.1335E-01	4325.00	0.7574E-02
1925.00	0.1324E-01	4350.00	0.7542E-02
1950.00	0.1313E-01	4375.00	0.7510E-02
1975.00	0.1303E-01	4400.00	0.7478E-02
2000.00	0.1292E-01	4425.00	0.7447E-02
2025.00	0.1282E-01	4450.00	0.7416E-02
2050.00	0.1272E-01	4475.00	0.7386E-02
2075.00	0.1262E-01	4500.00	0.7355E-02
2100.00	0.1252E-01	4525.00	0.7325E-02
2125.00	0.1242E-01	4550.00	0.7295E-02
2150.00	0.1233E-01	4575.00	0.7266E-02
2175.00	0.1224E-01	4600.00	0.7236E-02
2200.00	0.1214E-01	4625.00	0.7207E-02
2225.00	0.1205E-01	4650.00	0.7178E-02
2250.00	0.1196E-01	4675.00	0.7150E-02
2275.00	0.1188E-01	4700.00	0.7121E-02
2300.00	0.1179E-01	4725.00	0.7093E-02
2325.00	0.1171E-01	4750.00	0.7065E-02
2350.00	0.1162E-01	4775.00	0.7038E-02
2375.00	0.1154E-01	4800.00	0.7010E-02
2400.00	0.1146E-01	4825.00	0.6983E-02
2425.00	0.1138E-01	4850.00	0.6956E-02
2450.00	0.1130E-01	4875.00	0.6930E-02
2475.00	0.1123E-01	4900.00	0.6903E-02
2500.00	0.1115E-01	4925.00	0.6877E-02
2525.00	0.1108E-01	4950.00	0.6851E-02
2550.00	0.1100E-01	4975.00	0.6825E-02
2575.00	0.1093E-01	5000.00	0.6799E-02
2600.00	0.1086E-01		

\*\*\*\*\* AERSCREEN MAXIMUM IMPACT SUMMARY \*\*\*\*\*

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	4.13E-02	4.13E-02	3.72E-02	2.48E-02	4.13E-03

DISTANCE FROM SOURCE 216.00 meters

IMPACT AT THE  
AMBIENT BOUNDARY 0.4133E-01 0.4133E-01 0.3719E-01 0.2480E-01 0.4133E-02

DISTANCE FROM SOURCE 216.00 meters

## **APPENDIX C**

Biological Resources Constraints Survey,  
RECON Environmental, Inc.



*An Employee-Owned Company*

June 1, 2023

Mr. Joseph Broadhead  
Principal Water Resource Specialist  
Eastern Municipal Water District  
2270 Trumble Road  
Perris, CA 92572

Reference: Biological Resources Survey for the Steeplechase Booster Pump Station Project  
(RECON Number 9295.16)

Dear Mr. Broadhead:

This letter details the results of a biological resources survey conducted for the Steeplechase Booster Pump Station Project (project). This biological technical letter has been prepared to provide necessary information to the Eastern Municipal Water District (District) for environmental analysis of the project.

## **1.0 Project Description and Location**

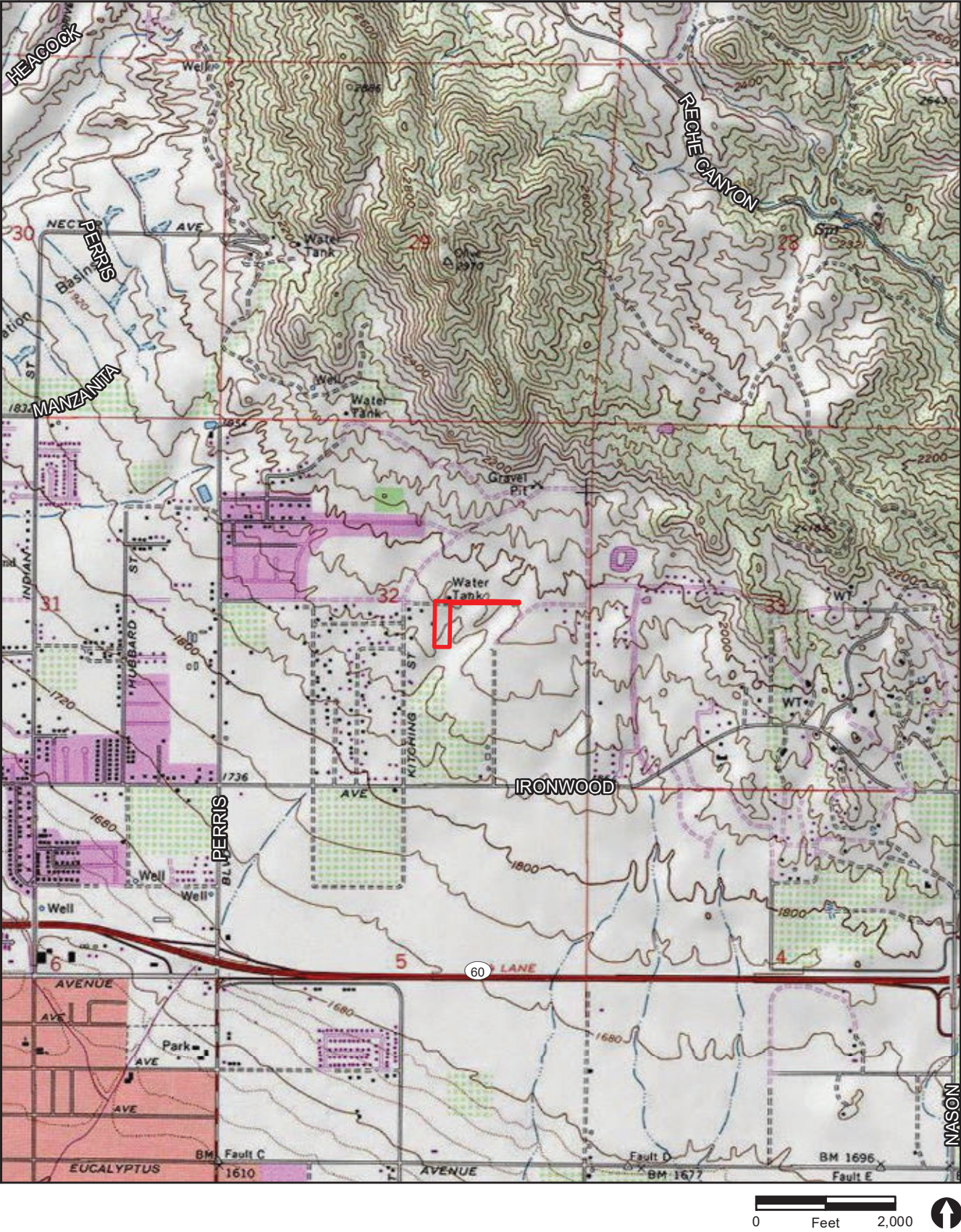
The proposed project would remove existing hardscape and landscaping and construct a new booster pump station enclosed in a masonry block wall building, a retaining wall with a maximum height of 15 feet, three access gates, hardscape, and landscaping. In addition, approximately 1,209 linear feet of 12-inch pipeline would be constructed via trenching within Kalmia Avenue. The project site is located on District property at the District's existing Kalmia Avenue tank site, just west of Kayal Avenue, within the city of Moreno Valley, California (Figures 1 through 3). Access to the site is regionally provided by Interstate 215 (I-215). Local access is provided from I-215 by Ironwood Avenue to the north on Kitching Street, to the east on Kalmia Avenue. The project site is located approximately 5.2 miles from I-215. The project site is in the U.S. Geological Survey (USGS) Sunnymead quadrangle, Township 2 South, Range 3 West (USGS 1980; see Figure 2). The project site is comprised of a partially unimproved lot with an existing District water tank, paved access, and landscaped vegetation, as well as portions of Kalmia Avenue, private residences, and several unimproved lots. The project is primarily surrounded by dense residential development with scattered undeveloped lots.

The project is located within the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) plan area (County of Riverside 2003). No components of the project are within or adjacent to any existing or proposed criteria areas or reserves defined in the MSHCP. The project site is located within the MSHCP survey area for burrowing owl (*Athene cunicularia*). The project site is not located within any other MSHCP survey area for narrow endemic plants or criteria area plants, amphibians, mammals, or any special linkage areas.



FIGURE 1  
Regional Location





 Project Boundary





FIGURE 3  
Project Location on Aerial Photograph

## 2.0 Methods

RECON Environmental, Inc. (RECON) biologist Alex Fromer conducted a general biological survey on February 4, 2022 to evaluate the resources within the project site. A 77.3-acre survey area, including all areas to be potentially impacted (3.93 acres) and a 500-foot buffer, were evaluated to determine the current condition of the biological resources present within and adjacent to the project (see Figure 3). During the general biological survey, Mr. Fromer mapped vegetation communities, recorded vegetation and habitat characteristics, and noted wildlife and plant species apparent at the time of the survey. Vegetation communities were mapped in the field on a 1:600 scale aerial photograph of the survey area. Plants were visually identified in the field and wildlife species were identified visually with the aid of binoculars, based on identification of calls, scat, tracks, or burrows. Private property was surveyed with binoculars from either within the project boundary or public right-of-ways.

In addition, the project site and surrounding 500-foot buffer was evaluated for the potential to support western burrowing owl (*Athene cunicularia hypugaea*), a California species of special concern. Due to the presence of suitable habitat, focused burrowing owl surveys were conducted during the species' breeding season (March 1 through August 31) in suitable habitat in accordance with the guidelines developed by the County of Riverside (Riverside County Transportation and Land Management Agency 2006). A burrowing owl habitat assessment (Step I) was conducted during the general biological survey on February 4, 2022. A focused burrow survey (Step II–Part A), was conducted concurrently with the first focused burrowing owl survey. Focused burrowing owl surveys (Step II–Part B) were conducted on March 3, 9, 16, and 23, 2022, to determine the presence or absence of this species.

## 3.0 Background Research

Prior to conducting field surveys, RECON conducted a search of existing biological data for the project site, including a review of biological databases for sensitive plant and animal species reported within two miles of the project site, and a review of the site's physical characteristics (e.g., location, elevation, soils/substrate, topography). Databases consulted included the California Natural Diversity Database (California Department of Fish and Wildlife [CDFW] 2022) and the U.S. Fish and Wildlife Service (USFWS) All Species Occurrences Database (USFWS 2022a). In addition, a review of the National Wetlands Inventory was conducted to identify any potential wetlands or water resources present in the vicinity of the project site (USFWS 2022b).

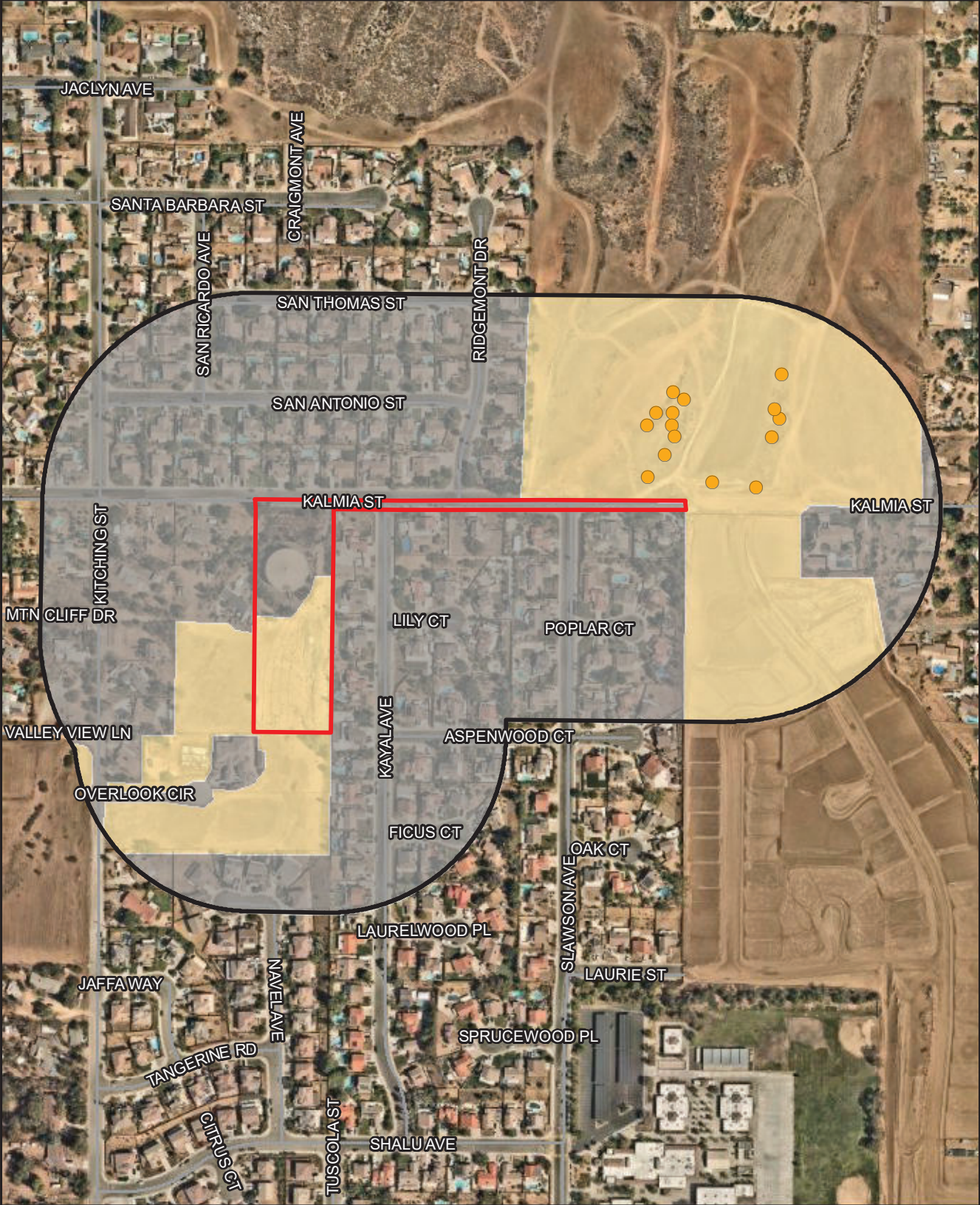
Based on the database search, there are a number of sensitive species known from a 2-mile radius surrounding the project site; however, there are no known occurrences of sensitive species closer than 0.5 mile. The project site is primarily surrounded by residential development with adjacent open space habitat to the north of the eastern portion of the project site. Thus, the potential for many species to occur is evaluated based on the habitats within the project site, as well as within the open space available near the project. The following sensitive species were determined to have some potential to occur within the project vicinity and are discussed further in this report: Parry's spineflower (*Chorizanthe parryi* var. *parryi*), burrowing owl, coastal California gnatcatcher (*Poliophtila californica californica*), and Stephens' kangaroo rat (*Dipodomys stephensi*).

## 4.0 Existing Biological Resources

### 4.1 Vegetation Communities and Land Cover Types

The survey area supports two vegetation communities/land cover types: disturbed habitat and urban/developed (Figure 4). The acreages of these vegetation communities and land cover types are listed in Table 1 and described below.





- Project Boundary
- Survey Area
- Burrows

- Vegetation Community**
- Disturbed Habitat
  - Urban/Developed

0 Feet 400



FIGURE 4  
Existing Biological Resources

The urban/developed consists of paved roads and residential development including ornamental vegetation.

The disturbed habitat is comprised of undeveloped land in the northwestern portion of the survey area and undeveloped lots or portions of private properties in the southwestern and southeastern portions of the survey area. The disturbed land in the northwestern portion of the survey area is dominated by common fiddleneck (*Amsinckia menziesii*) and appears to see frequent disturbance. Brome (*Bromus* sp.), barley (*Hordeum* sp.), and redstem filaree (*Erodium cicutarium*) are also found throughout. Small, sparse patches of brittlebush (*Encelia farinosa*) also exist within the central portion of this area that is predominantly comprised of open ground, with scattered to dense non-native weeds, native wildflowers, and low-lying annual grasses. This area of disturbed land also includes open areas and access roads created by off-road vehicles and a few soil and debris piles. The disturbed land in the southwestern and southeastern portions of the survey area are primarily comprised of open ground, with moderate to dense non-native weeds and low-lying annual grasses in addition to a large patch of bare ground with erosion within the southern portion of the project boundary. The eastern portion of the site contains a small patch of dense deerweed (*Acmispon glaber*) with an understory of non-native ruderal vegetation.

Table 1 Vegetation Communities within Survey Area (Acres)		
Vegetation Communities	Project Site	Survey Area
Disturbed Habitat	1.82	27.22
Urban/developed	2.11	50.10
<b>TOTAL</b>	<b>3.93</b>	<b>77.32</b>

## 4.2 Sensitive Plants

No sensitive plants were detected at the time of the survey and none are expected to occur given the disturbed nature of the project site and soils. The project site also occurs outside of any MSHCP Narrow Endemic Plant Species Survey Area or Criteria Area Plant Species Survey Area. A record of Parry's spineflower is found in the California Natural Diversity Database within two miles of the survey area; however, is not expected to occur within the project site due to the age of the single observation (1950s) of this species, lack of suitable coastal sage scrub, chaparral, cismontane woodland, or grassland habitat, and disturbed nature of the site and soils.

## 4.3 Sensitive Wildlife

**Burrowing Owl.** No burrowing owl individuals or any sign of burrowing owl activity were detected within the 500-foot burrowing owl assessment buffer. However, the disturbed land in the northeastern portion of the survey area supported several squirrel burrows that were large enough to potentially support burrowing owl. The remaining disturbed habitat in the southwestern and southeastern portions of the survey area contains open areas within the 500-foot burrowing owl assessment buffer. While no burrowing owl or burrowing owl sign were detected during surveys, the disturbed habitat within and adjacent to the project area does have potential to support burrowing owl. Therefore, a pre-construction survey would be required prior to the commencement of construction to ensure no burrowing owls have entered the area to avoid direct or indirect impacts to the species or any active nests, if present. A detailed discussion of the results of the survey conducted are provided separately as the Habitat Assessment and Burrowing Owl Focused Survey Results at Steeplechase Booster Pump Station Project (RECON 2022).

**Stephens' Kangaroo Rat.** This species has low potential to occur due to the high level of soil disturbance and lack of suitable grassland habitat within the survey area. The survey area is located outside the core areas for this species

identified within the MSHCP (County of Riverside 2003). Additionally, this species is not known to occur within one mile of the survey area.

*Coastal California Gnatcatcher.* This species is not expected to occur due to a lack of suitable coastal sage scrub habitat. While some small patches of native shrubs (e.g., brittlebush, deerweed) exist within the survey area, none of the patches are large enough or provide the appropriate vegetation structure to support breeding coastal California gnatcatcher.

*Migratory and Nesting Birds.* The majority of the survey area, including the man-made structures and ornamental vegetation found within the urban/developed lands and disturbed habitat, has potential to support migratory and nesting bird species. Urban adapted species in particular have been known to nest within ornamental vegetation or the eaves of houses or openings in structures. In addition, several ground nesting species have the potential to nest within the open areas found within the disturbed habitat and urban/developed lands within the survey area.

#### **4.4 Aquatic Resources**

No potential jurisdictional wetlands or waters, including riparian/riverine areas or vernal pools, were observed within or adjacent to the project site.

#### **4.5 Wildlife Movement Corridors and Nursery Sites**

The project site is located on partially unimproved lots and roadways that are primarily surrounded by dense residential development. No components of the project are within existing or proposed criteria areas or reserves defined by the MSHCP. Though the project site likely provides habitat for urban-adapted species, the project site does not provide a throughway for wildlife movement due to the site's location in a developed area and lack of connectivity to off-site areas of open space. Also, the project site is unlikely to support wildlife nursery sites or large roosting or breeding colonies due to the disturbed nature of the site.

### **5.0 Project Impacts and Proposed Avoidance, Minimization, and Mitigation Measures**

As discussed above, project impacts to disturbed habitat and urban/developed lands would be less than significant and would not require mitigation. The project would also not impact any sensitive plant species, potential jurisdictional wetlands/waters, wildlife movement corridors, or nursery sites; therefore, no mitigation would be required. Potential direct and/or indirect impacts to burrowing owl and migratory and nesting birds would be addressed through the following avoidance, minimization, and mitigation measures below.

#### **5.1 Vegetation Communities and Land Cover Types**

The project would result in a total of 1.82 acres of direct impacts to disturbed habitat and 2.11 acres of urban/developed land (see Figure 4). Impacts to disturbed habitat and urban/developed land are not considered significant as these land cover types are not considered sensitive. Thus, no mitigation is required for impacts to vegetation communities as a result of the project.

#### **5.2 Sensitive Wildlife**

The project has a low potential to impact burrowing owl, a CDFW Species of Special Concern, and migratory and nesting birds, which are protected under both federal and state regulations. The following avoidance and minimization measures are proposed to reduce these impacts to less than significant.



### **AMM-BIO-1: Pre-Construction Special-Status Species Sensitivity Training**

Prior to the start of construction activities, a qualified biologist shall prepare a Worker Environmental Awareness Program (WEAP) that provides a description of the potentially occurring special-status species that could be affected by the proposed project. The WEAP training shall:

- Include information on identifying special-status species.
- Include measures to avoid special-status species during construction activities.
- Be provided to all construction personnel by a qualified biologist.
- Be documented for all construction personnel on a sign-in sheet maintained on-site at all times during construction activities.

When applicable, the qualified biologist shall also verify fencing or marking limits of disturbance (marking habitat suitable to support special-status species and sensitive vegetation communities) prior to the start of construction activities.

*Burrowing Owl.* Burrowing owl is a CDFW Species of Special Concern. To avoid indirect impacts to burrowing owls, a pre-construction take avoidance survey would be necessary within 500 feet of work areas prior to the commencement of any construction to verify no burrowing owls occur within or immediately adjacent to work areas in accordance with the CDFW Staff Report on Burrowing Owl Mitigation. If burrowing owls are present, avoidance measures (e.g., buffers, best management practices, monitoring) would be required based on the proposed level of disturbance at the discretion of a qualified biologist to demonstrate there are no indirect impacts from adjacent construction. While the results of the focused surveys for burrowing owl were negative, suitable burrows were identified during the MSHCP protocol habitat assessment and focused surveys. Measures to avoid impacts to burrowing owl are described below.

### **AMM-BIO-2: Western Burrowing Owl**

A pre-construction take avoidance survey for this species would be required within all suitable habitat located inside the burrowing owl survey area (suitable habitat within the project footprint, plus a 500-foot buffer). Per the Staff Report on Burrowing Owl Mitigation (CDFW 2012), take avoidance surveys require an initial survey no less than 14 days prior to the start of ground disturbance activities and a final survey conducted within 24 hours of ground disturbance. If burrowing owls are detected, the CDFW must be notified within 48 hours and avoidance measures and/or mitigation would be required.

If active burrowing owl burrows are identified within or adjacent to the impact area, the project shall avoid disturbing active burrowing owl burrows (nesting sites) and burrowing owl individuals. The following measures will be implemented and incorporated into the WEAP, upon authorization from CDFW:

- Buffers shall be established around occupied burrows in accordance with guidance provided in the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) based on the proposed level of disturbance. For low disturbance projects, initial setback distances for avoidance of active burrows shall be 200 meters (approximately 656 feet) from April 1 to October 15 and 50 meters (164 feet) from October 16 to March 31. Exceptions can be made to the avoidance distance for areas with natural (hills, trees) or artificial (buildings, walls) barriers in place. The final avoidance buffer shall be at the discretion of the biologist.
- If, after consideration of a reduced buffer, an adequate avoidance buffer cannot be provided between an occupied burrow and required ground-disturbing activities, then passive relocation activities during the

non-breeding season (September 1 through January 31) may be authorized in consultation with CDFW, which would include preparation, approval, and implementation of a Burrowing Owl Exclusion Plan in accordance with protocol described in the CDFW Staff Report on Burrowing Owl Mitigation.

*Migratory & Nesting Birds.* Direct impacts to nesting and migratory birds could potentially result should vegetation removal or grading within the project impact footprint occur during the general avian breeding season (January 15 through August 31). These species are protected by the California Fish and Game Code Section 3503.5, and direct impacts to nesting individuals would need to be avoided. Measures to avoid impacts to nesting and migratory birds are described below.

### **AMM-BIO-3: Migratory and Nesting Birds**

When construction activities occur during the nesting season (January 15 through August 31) pre-construction surveys for breeding and nesting birds and raptors are required. Beginning 14 days prior to construction activities, a qualified biologist shall conduct weekly surveys within 500 feet of the construction limits to determine and map the location and extent of breeding birds that could be affected by the project. Surveys shall include the following:

- Conduct surveys at appropriate nesting times.
- Concentrate on potential roosting or perch sites.
- Conduct surveys on a weekly basis with the last survey conducted not more than three days prior to the start of construction activities.

When an active nest is located the following shall be implemented to minimize potential impacts:

- Clearing and construction activities, within appropriate buffers as determined by a qualified biologist, shall be postponed until the nest is vacated, the juveniles have fledged, and there is no evidence of a second attempt at nesting.
- The buffer zone will be established in the field with flagging and stakes.
- Temporary fencing and signage shall be maintained during the duration of the project.
- Construction personnel shall be instructed on the sensitivity of the area and be advised not to work, trespass, or engage in activities that would disturb nesting birds near or inside the buffer.
- On-site monitoring may be required to ensure that no direct or indirect impacts occur to the active nests.
- Project activities may encroach into the buffer only at the discretion of the qualified biologist.

If you have any questions or concerns about this project, please call me at (619) 308-9333, extension 193.

Sincerely,



Alexander Fromer  
Biologist

APF:jg

## References Cited

California Department of Fish and Wildlife (CDFW)

2012 Staff Report on Burrowing Owl Mitigation. March.

2022 Natural Diversity Data Base. RareFind Version 5. Commercial Version – Dated May 1, 2021 – Biogeographic Data Branch; accessed May 26, 2021.

RECON Environmental, Inc. (RECON)

2022 Habitat Assessment and Burrowing Owl Focused Survey Results at Steeplechase Booster Pump Station Project. May 11.

Riverside, County of

2003 Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Prepared by Dudek and Associates. Approved June 17. [https://www.wrc-rca.org/Permit\\_Docs/MSHCP/MSHCP-Volume%201.pdf](https://www.wrc-rca.org/Permit_Docs/MSHCP/MSHCP-Volume%201.pdf).

Riverside County Transportation and Land Management Agency

2006 Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area. [https://www.wrc-rca.org/species/survey\\_protocols/burrowing\\_owl\\_survey\\_instructions.pdf](https://www.wrc-rca.org/species/survey_protocols/burrowing_owl_survey_instructions.pdf).

U.S. Fish and Wildlife Service (USFWS)

2022a All Species Occurrences GIS Database. Carlsbad Fish and Wildlife Office. Accessed May.

2022b National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. <http://www.fws.gov/wetlands/>.

## **APPENDIX D**

Habitat Assessment and Burrowing Owl Focused Survey  
Results, RECON Environmental, Inc.



An Employee-Owned Company

May 11, 2022

Mr. Joe Broadhead  
Principal Water Resource Specialist  
Eastern Municipal Water District  
2270 Trumble Road  
Perris, CA 92572

Reference: Habitat Assessment and Burrowing Owl Focused Survey Results at Steeplechase Booster Pump Station Project (RECON Number 9295.16)

Dear Mr. Broadhead:

This letter summarizes the results of the 2022 focused surveys for the burrowing owl (*Athene cunicularia*) conducted within the Steeplechase Booster Pump Station Project (project area; Assessor Parcel Numbers 474660025, 474660026, 474170016, 474171016, 474171015, 474171014, 474110014, 474675015, 474675016, 474675017, 474671001, 474170002, 474170009, 474200014, 474170004, 474170008, 474180013, 474675013, 474675014, 474675022, 474675021). The project area is in the city of Moreno Valley, in western Riverside County, California (Figures 1 through 3). The project area is in the U.S. Geological Survey (USGS) Sunnymead quadrangle, Township 2 South, Range 3 West (USGS 1980; see Figure 2).

A RECON biologist conducted focused burrowing owl surveys during the species' breeding season (March 1–August 31) in suitable habitat in accordance with the guidelines developed by the County of Riverside (Riverside County Transportation and Land Management Agency [RCTLMA] 2006). Step I, Step II–Part A, and Step II–Part B were conducted to determine the presence or absence of this species. For the purposes of this report, the “survey area” includes the project’s proposed ground disturbance footprint (project area) and a 500-foot buffer (Figure 4). No burrowing owl individuals or any sign of burrowing owl activity were detected within the survey area. A discussion of the results of the survey conducted is provided below.

## Survey Methods

RECON Environmental, Inc. biologist Alex Fromer conducted burrowing owl surveys in accordance with the guidelines developed by the County of Riverside (RCTLMA 2006). Surveys included a habitat assessment (Step I), a focused burrow survey (Step II, Part A), and four focused burrowing owl surveys (Step II, Part B). Meandering transects were walked through all suitable habitat identified within the project area and 500-foot buffer. All wildlife species observed during the surveys were noted. Survey dates, times, and weather conditions are provided in Table 1.

Table 1 Survey Information				
Date	Survey Type	Surveyors	Beginning Conditions	Ending Conditions
2/4/2022	Step I Habitat Assessment	A. Fromer	9:45 a.m.; 58°F; 0–1 mph; <5% cc	11:25 a.m.; 58°F; 3–5 mph; <5% cc
3/3/2022	Step II–Part A Burrow Survey Step II–Part B Owl Survey #1	A. Fromer	5:45 a.m.; 53°F; 0–1 mph; 50% cc	8:10 a.m.; 64°F; 1–3 mph; 30% cc



Table 1 Survey Information				
Date	Survey Type	Surveyors	Beginning Conditions	Ending Conditions
3/9/2022	Step II–Part B Owl Survey #2	A. Fromer	6:05 a.m.; 44°F; 0–1 mph; 0% cc	8:05 a.m.; 48°F; 0–3 mph; 0% cc
3/16/2022	Step II–Part B Owl Survey #3	A. Fromer	6:50 a.m.; 45°F; 0–1 mph; 0% cc	8:50 a.m.; 56°F; 0–2 mph; 0% cc
3/23/2022	Step II–Part B Owl Survey #4	A. Fromer	6:45 a.m.; 63°F; 0–1 mph; 0% cc	8:45 a.m.; 71°F; 0–1 mph; 0% cc
°F = degrees Fahrenheit; mph = miles per hour; % = percent; cc = cloud cover				

## Habitat Assessment (Step I) Results

### *Existing Conditions*

A burrowing owl habitat assessment was conducted for the project on February 4, 2022. The survey area is situated within residential development with an area of undeveloped land in the eastern portion of the survey area (see Figure 4). Five soil types occur within the project area: Hanford loamy fine sand, Hanford coarse sandy loam, Moserate sandy loam, Ramona sandy loam, and terrace escarpments (U.S. Department of Agriculture 2022). Elevation range is approximately 1,910–1,990 feet above sea level.

### *Suitable Burrowing Owl Habitat*

The survey area supports two vegetation communities/land cover types: disturbed habitat (31.1 acres), and urban/developed (56.7 acres) (see Figure 4). The urban/developed consists of paved roads and residential development including ornamental vegetation. The disturbed habitat in the eastern portion of the survey area is considered suitable habitat for burrowing owl and is discussed in further detail below.

The disturbed habitat is comprised of undeveloped land in the northwestern portion of the survey area and undeveloped lots or portions of private properties in the southwestern and southeastern portions of the survey area. The disturbed habitat in the northwestern portion of the survey area is dominated by common fiddleneck (*Amsinckia menziesii*) and appears to see frequent disturbance. Brome (*Bromus* sp.) and barley (*Hordeum* sp.) are also found throughout, with redstem filaree (*Erodium cicutarium*) also present. Small, sparse patches of brittlebush (*Encelia farinosa*) also exist within the central portion of this area that is predominantly comprised of open ground, with scattered to dense non-native weeds, native wildflowers, and low-lying annual grasses. This area of disturbed habitat also includes open areas created by off-road vehicles and access roads and a few soil and debris piles. Potential areas for burrows were investigated in sparsely vegetated areas in this area. The disturbed habitat in the southwestern and southeastern portions of the survey area are primarily comprised of open ground, with moderate to dense non-native weeds and low-lying annual grasses in addition to a large patch of bare ground within the southern portion of the project boundary.

## Focused Burrow Survey (Step II, Part A) Results

A focused burrow survey was conducted concurrently with the first focused survey throughout the project area and within the 500-foot buffer, via binoculars. Small-mammal burrows were present throughout the non-native grassland and disturbed habitat (see Figure 4). Burrows are likely from California ground squirrel (*Spermophilus beecheyi*), which was observed during the focused burrow survey and subsequent owl surveys.

Mr. Joe Broadhead  
Page 3  
May 11, 2022

No sign of active burrows used by burrowing owls were detected during the focused burrow survey. Although many burrows appeared to be the appropriate size and shape for burrowing owl use, many burrows appeared abandoned due to the presence of leaf litter, desiccated grass, and cobwebs. While some whitewash was present near a few burrows, most was found at higher perches than the burrows themselves and were likely signs of use by other avian species. No other sign, such as feathers, pellets, or bones, were observed within or adjacent to burrows.

### **Focused Burrowing Owl Surveys (Step II, Part B) Results**

Focused burrowing owl surveys were conducted on four separate dates: March 3, 9, 16, and 23, 2022. All surveys were conducted between one hour before sunrise and two hours after sunrise. Meandering transects were walked through all suitable habitat identified within the project area and the majority of the 500-foot buffer. A small portion within the buffer in the southeastern portion of the survey area was surveyed using binoculars as no access was granted. No burrowing owls or significant whitewash, feathers, pellets, or bones were observed within or adjacent to burrows during these focused surveys.

### **Pre-construction Survey Requirement**

A pre-construction survey will be required within 30 days prior to ground disturbance to ensure no burrowing owls have entered the area to avoid direct take of species and any active nests, if present. The survey will include all areas where suitable habitat is present within the survey area (RCTLMA 2006).

If you have any questions concerning the contents of this letter, please contact me at (619) 308-9333, extension 193.

Sincerely,

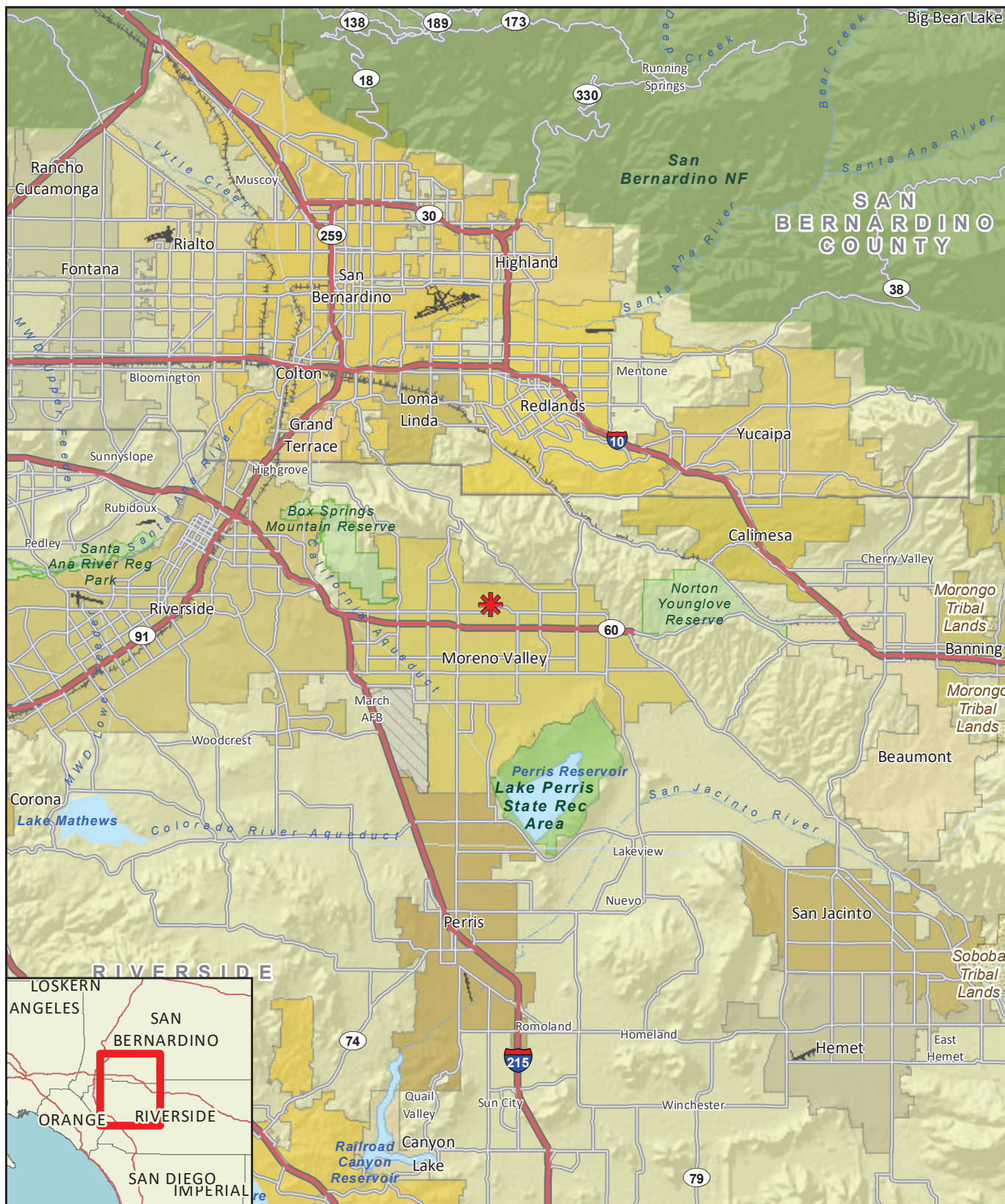


Alexander Fromer  
Biologist

APF:jg

### **References Cited**

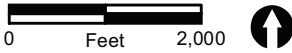
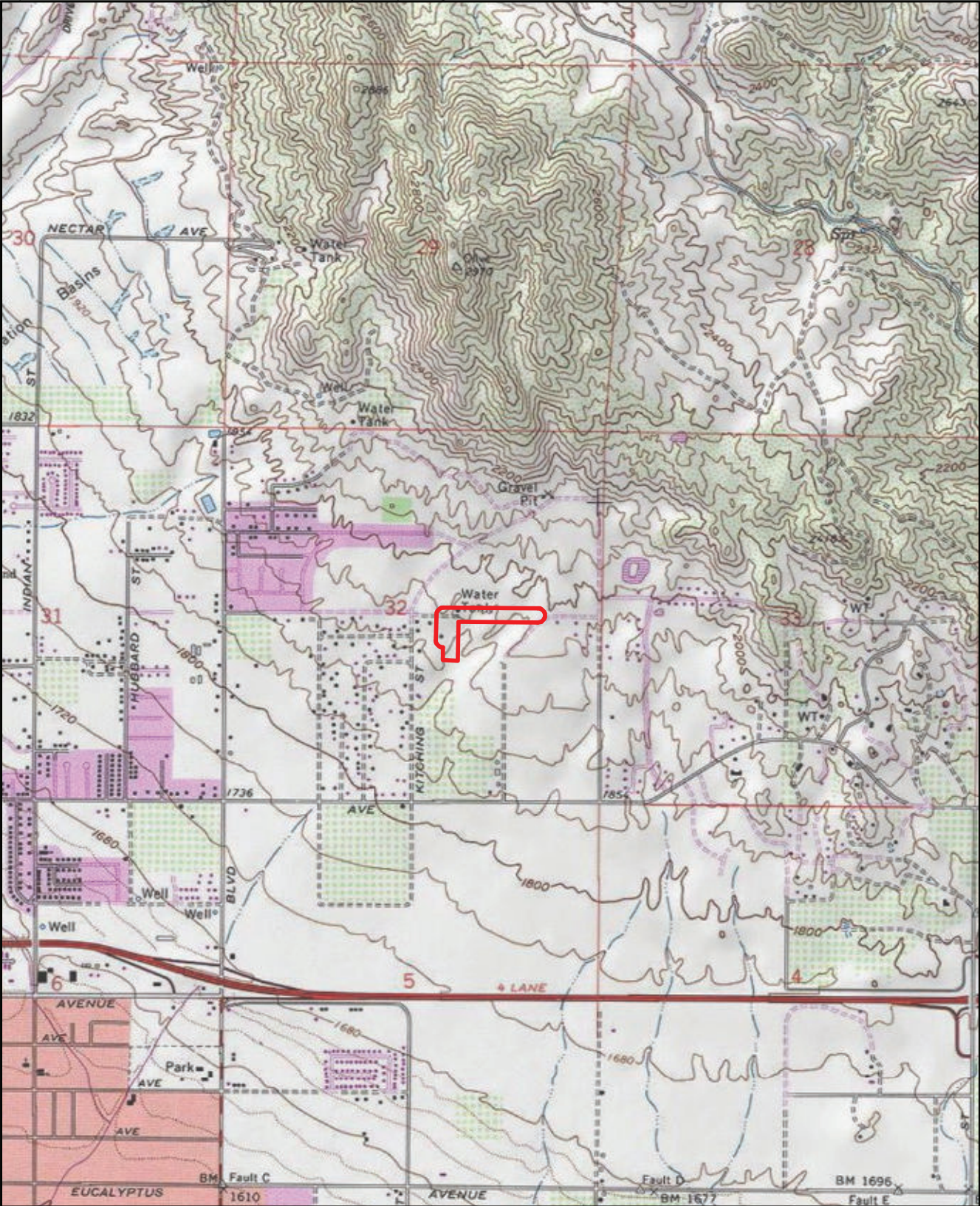
- Riverside County Transportation & Land Management Agency (RCTLMA)  
2006 Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area. [https://www.wrc-rca.org/species/survey\\_protocols/burrowing\\_owl\\_survey\\_instructions.pdf](https://www.wrc-rca.org/species/survey_protocols/burrowing_owl_survey_instructions.pdf)
- U.S. Department of Agriculture  
2022 Web Soil Survey. <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.
- U.S. Geological Survey  
1980 7.5-minute topographic map, Sunnymead, California quadrangle.



✱ Project Location

FIGURE 1  
Regional Location





 Project Boundary

FIGURE 2  
Project Location on USGS Map



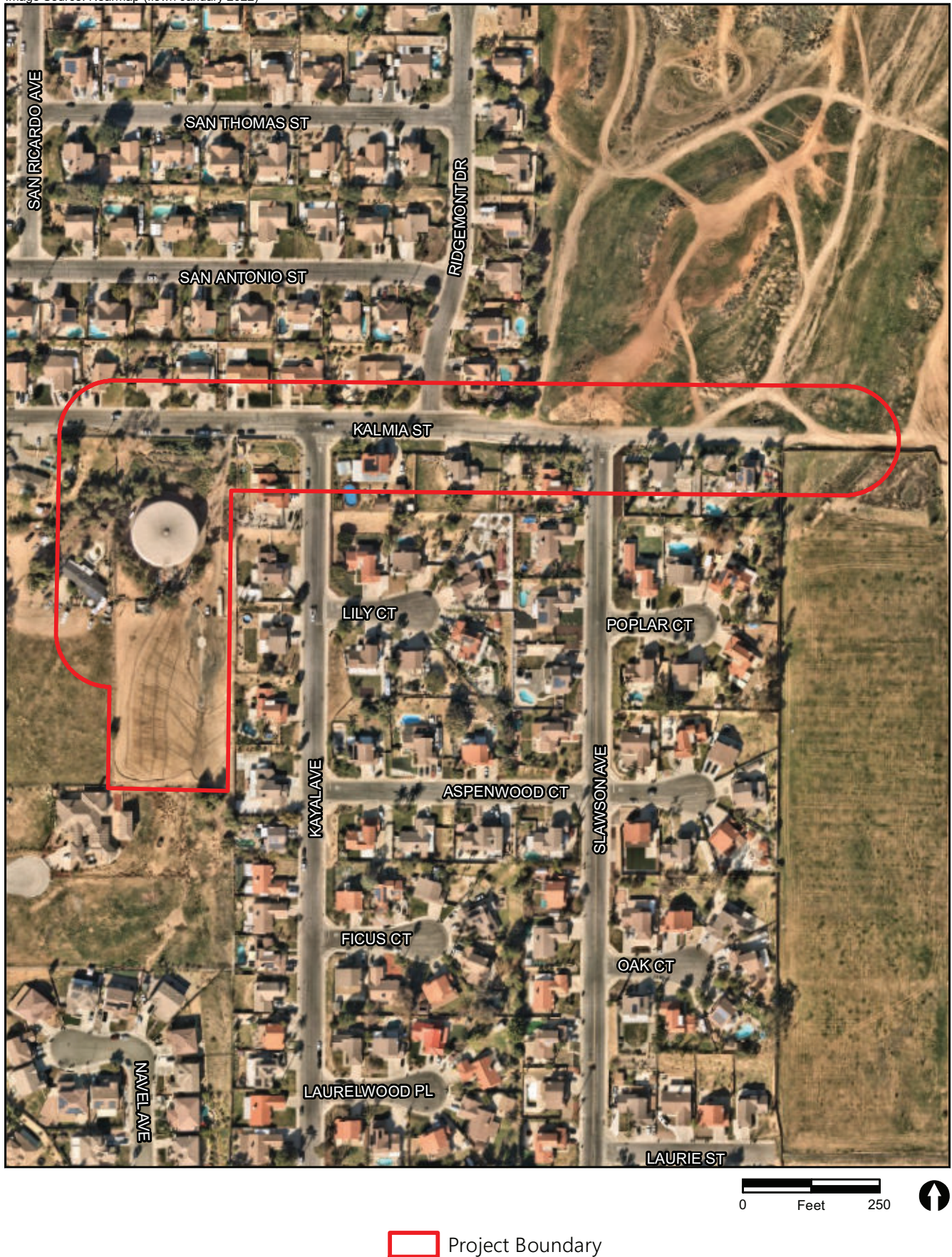


FIGURE 3  
Project Location on Aerial Photograph



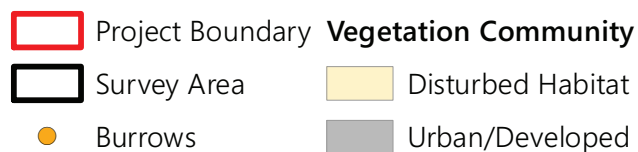
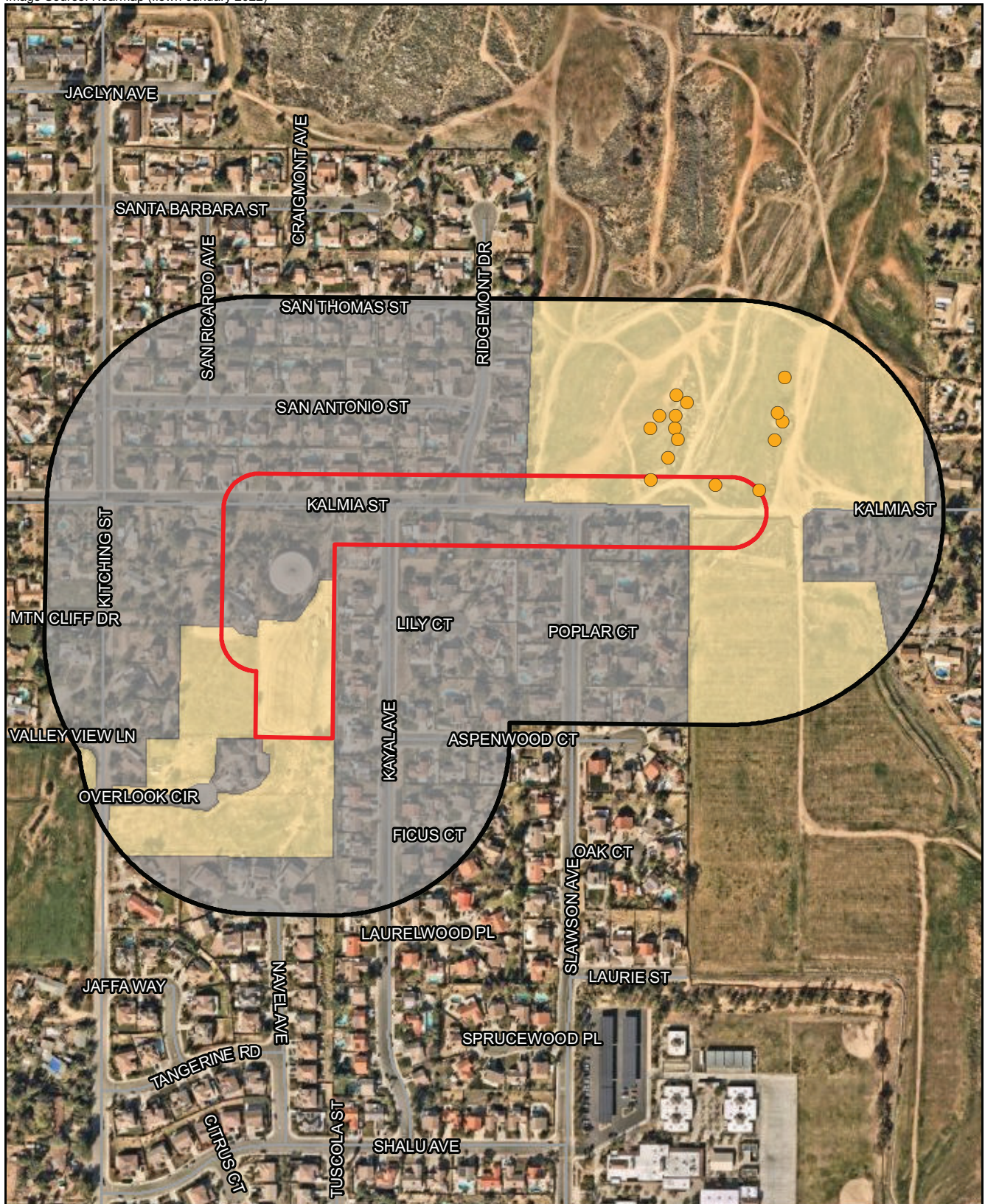


FIGURE 4  
Existing Biological Resources

## **APPENDIX E**

Cultural Resources Constraints Survey,  
RECON Environmental, Inc.



*An Employee-Owned Company*

January 6, 2023

Mr. Joseph Broadhead  
Principal Water Resource Specialist  
Eastern Municipal Water District  
2270 Trumble Road  
Perris, CA 92572

Reference: Cultural Resources Survey for the Steeplechase and Kalmia Booster Pump Station Project  
(RECON Number 9295-16)

Dear Mr. Broadhead:

This letter details the results of a cultural resources survey conducted for the Steeplechase and Kalmia Booster Pump Station Project (project). RECON Environmental, Inc. (RECON) conducted background research, reviewed historic aerial photographs, and conducted a pedestrian survey to provide necessary information to identify potentially significant cultural resources impacts from the project.

## **PROJECT DESCRIPTION**

The project consists of the construction of a new booster pump station that would increase pumping capacity to provide system capacity/reliability. The new booster pump station would be fenced. The project is located in the city of Moreno Valley, California at 25565 Kalmia Avenue (Figures 1 through 3). Access to the project area is regionally provided by Interstate 215 (I-215). Local access from I-215 is provided by Ironwood Avenue to north on Kitching Street, to east on Kalmia Avenue. The project area is approximately 5.2 miles from I-215. The new booster pump station would replace the existing Steeplechase Kalmia booster pump station at 11515 Steeplechase Drive and would draw suction from the Kalmia Reservoir. The project includes approximately 1,400 linear feet of 12-inch piping from the proposed project area to the existing check valve located east of Slawson Avenue.

## **METHODS**

In order to determine if the project would adversely impact significant cultural resources, background research, review of historic aerial photographs and an on-foot survey of the project area were completed. Prior to the survey, a records search from the Eastern Information Center was reviewed to identify any previously recorded cultural resources recorded within a one-mile radius of the project areas. RECON archaeologist Carmen Zepeda-Herman, M.A., conducted a pedestrian survey on May 3, 2021. Ms. Zepeda-Herman served as principal investigator and field archaeologist. Ms. Zepeda-Herman is a member of the Register of Professional Archaeologists and meets the Secretary of the Interior Standards for Archeology and Historic Preservation.

The primary goal of this survey was to determine (1) if there are previously unrecorded cultural resources present, and if so, document the resources' locations and what they consist of, and (2) to update conditions of previously recorded cultural resources. The project area was inspected for evidence of archaeological materials such as flaked and ground stone tools or fragments, ceramics, milling features, and human remains. Photographs were taken to document the environmental setting and general conditions.



In addition, a letter was sent on May 7, 2021 to the Native American Heritage Commission (NAHC) requesting they search their files to identify spiritually significant and/or sacred sites or traditional use areas in the project vicinity (Attachment 1). The NAHC was also asked to provide a list of local Native American tribes, bands, or individuals that may have concerns or interests regarding cultural resources potentially occurring within the area of potential effect.

## **BACKGROUND RESEARCH**

RECON conducted an in-house records search from data provided by the Eastern Information Center on August 3, 2020 for a project in the vicinity of the current project area. Within one mile of the project area, there are 12 cultural resources consisting of 11 prehistoric sites and 1 prehistoric isolated artifact (Confidential Attachment 1). The majority of the prehistoric sites are bedrock milling features; two sites consist of lithic and ground stone scatters. None of these resources are within the project area. As part of the background research, RECON also sent a sacred lands search request to the NAHC on May 7, 2021. A response was received from the NAHC on May 20, 2021 indicating that the results were negative (see Attachment 1).

RECON reviewed historic aerial photographs of the project site. The earliest photograph dates to 1966. In 1966, the project site was not developed and looked to be in an alluvial area. Similar conditions were noted until the 1997 photograph when the existing pad had been graded and the tank installed. The next change was the installation of the existing concrete pad in the 2012 photograph (Nationwide Environmental Title Research, LLC [NETR] 2021).

## **RESULTS OF SURVEY**

On May 3, 2021, Ms. Zepeda-Herman conducted a pedestrian survey of project area and no cultural resources were identified. The project area has been completely developed and covered in what appears to be imported fill and road gravel. A cement drainage ditch run along the west side of the project area.

## **REGULATORY CONTEXT**

### **National Register of Historic Places Eligibility Criteria**

A cultural resource that qualifies for the National Register of Historic Places (National Register) is considered significant in terms of the planning process under the National Historic Preservation Act, National Environmental Policy Act, and other federal mandates. The National Register Criteria for Evaluation (36 Code of Federal Regulations [CFR] 60.4) provides guidance in determining a cultural resource's eligibility for listing on the National Register. This states that the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. is associated with events that have made a significant contribution to the broad patterns of our history; or
- B. is associated with the lives of persons significant in our past; or,
- C. embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction; or
- D. has yielded, or may be likely to yield, information important in prehistory or history [36 CFR 60.4].

## California Environmental Quality Act

The regulatory framework and methods for determining impacts on cultural resources include compliance with California Environmental Quality Act (CEQA) requirements as defined in Section 15064.5 of the CEQA Guidelines, Determining the Significance of Impacts to Archaeological and Historical Resources. These guidelines require the identification of cultural resources that could be affected by the proposed project, the evaluation of the significance of such resources, an assessment of the proposed project impacts on significant resources, and a development of a research design and data recovery program to avoid or address adverse effects to significant resources. Significant resources, also called historical resources, are those cultural resources (whether prehistoric or historic) that have been evaluated and determined to be eligible for listing in the California Register of Historical Resources.

According to CEQA Section 15064.5(a), a historical resource includes the following:

1. A resource listed in, or determined to be eligible for listing on, the California Register of Historical Resources.
2. A resource included in the local register.
3. A resource which an agency determines to be historically significant. Generally a resource shall be considered to be "historically significant," if the resource meets the criteria for listing on the California Register of Historical Places (Public Resources Code Section 5024.1 Title 14 California Code of Regulations, Section 4852) including the following:
  - A. Is associated with events that have made a significant contribution to the broad patterns of California's history or cultural heritage;
  - B. Is associated with the lives of persons important in our past;
  - C. Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of an important creative individual, or possesses high artistic values; or
  - D. Has yielded, or maybe likely to yield, information important to prehistory or history.
4. The fact that a resource is not listed in or determined to be eligible for listing in the California Register of Historical Resources or a local register does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1.

A resource must meet one of the above criteria and must have integrity; that is, it must evoke the resource's period of significance or, in the case of Criterion D, it may be disturbed, but it must retain enough intact and undisturbed deposits to make a meaningful data contribution to regional research issues.

## MANAGEMENT RECOMMENDATIONS

No prehistoric or historic cultural resources were observed during the survey of the project area. Because the project area has been completely developed, the possibility of intact buried significant cultural resources being present within the project area is considered low. The project will not result in a significant impact to cultural resources. RECON recommends no further cultural resources work for this project.

Mr. Joseph Broadhead

Page 4

January 6, 2023

If you have any questions or concerns about this project, please call me at (619) 308-9333, extension 133.

Sincerely,

A handwritten signature in black ink that reads "Carmen Zepeda-Herman". The script is cursive and fluid.

Carmen Zepeda-Herman

Project Archaeologist

CZH:jg:sh

Attachment

#### REFERENCE CITED

Nationwide Environmental Title Research, LLC (NETR)

2021 Historic Aerials. <http://www.historicaerials.com/>. Accessed on May 5, 2021.



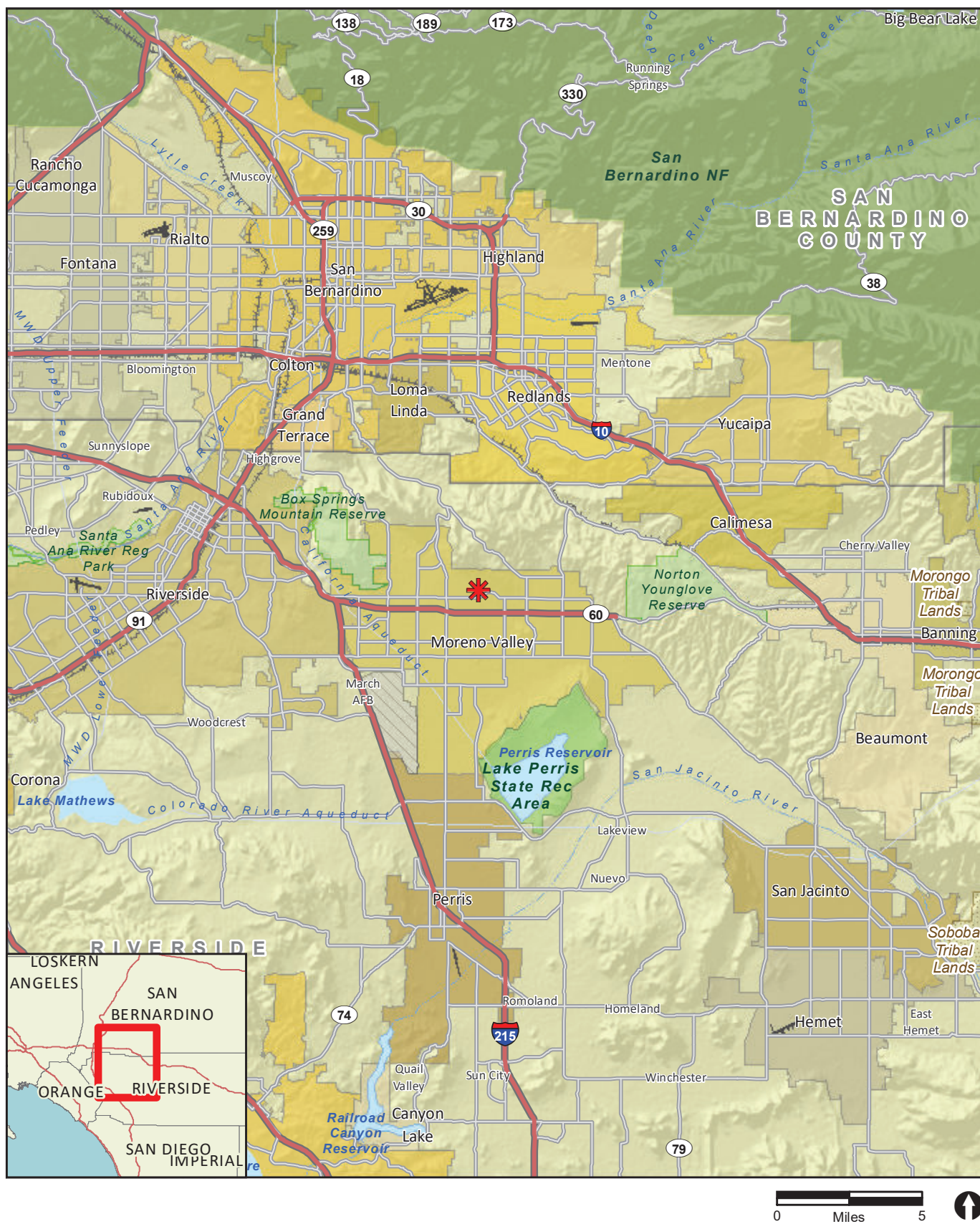
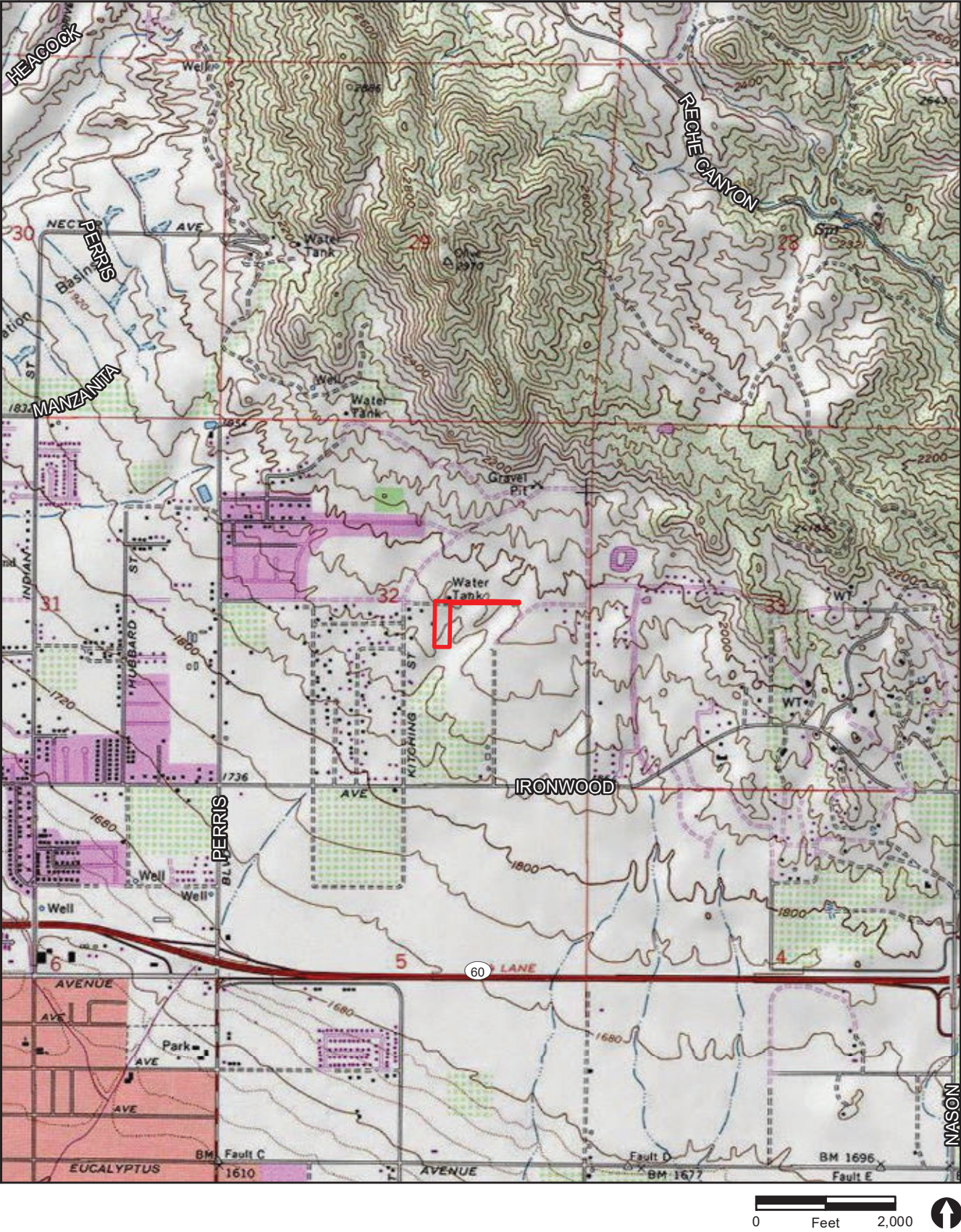


FIGURE 1  
Regional Location





 Project Boundary





FIGURE 3  
Project Location on Aerial Photograph

## **ATTACHMENT 1**

Native American Heritage Commission Correspondence

## NATIVE AMERICAN HERITAGE COMMISSION

May 20, 2021

Carmen Zepeda-Herman  
RECON Environmental, Inc.Via Email to: [czepeda@reconenvironmental.com](mailto:czepeda@reconenvironmental.com)**Re: Steeplechase RECON #9526.16 Project, Riverside County**

Dear Ms. Zepeda-Herman:

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 me. 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: [Andrew.Green@nahc.ca.gov](mailto:Andrew.Green@nahc.ca.gov).

Sincerely,

Andrew Green  
Cultural Resources Analyst

Attachment

CHAIRPERSON  
**Laura Miranda**  
LuiseñoVICE CHAIRPERSON  
**Reginald Pagaling**  
ChumashSECRETARY  
**Merri Lopez-Keifer**  
LuiseñoPARLIAMENTARIAN  
**Russell Attebery**  
KarukCOMMISSIONER  
**William Mungary**  
Paiute/White Mountain  
ApacheCOMMISSIONER  
**Julie Tumamait-Stenslie**  
ChumashCOMMISSIONER  
[Vacant]COMMISSIONER  
[Vacant]COMMISSIONER  
[Vacant]EXECUTIVE SECRETARY  
**Christina Snider**  
Pomo**NAHC HEADQUARTERS**  
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California 95691  
(916) 373-3710  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)  
[NAHC.ca.gov](http://NAHC.ca.gov)



**Native American Heritage Commission  
Native American Contact List  
Riverside County  
5/20/2021**

***Agua Caliente Band of Cahuilla Indians***

Jeff Grubbe, Chairperson  
5401 Dinah Shore Drive Cahuilla  
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Phone: (760) 699 - 6800  
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Fax: (760) 782-0712

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***Morongo Band of Mission Indians***

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sgaughen@palatribe.com

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***Pechanga Band of Luiseno Indians***

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pmacarro@pechanga-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Steeplechase RECON #9526.16 Project, Riverside County.

**Native American Heritage Commission  
Native American Contact List  
Riverside County  
5/20/2021**

***Pechanga Band of Luiseno Indians***

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epreston@pechanga-nsn.gov

***Quechan Tribe of the Fort Yuma Reservation***

Jill McCormick, Historic  
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historicpreservation@quechantribe.com

***Quechan Tribe of the Fort Yuma Reservation***

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Kw'ts'an Cultural Committee  
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***Ramona Band of Cahuilla***

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***Rincon Band of Luiseno Indians***

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***Rincon Band of Luiseno Indians***

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***San Manuel Band of Mission Indians***

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***Santa Rosa Band of Cahuilla Indians***

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***Soboba Band of Luiseno Indians***

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jontiveros@soboba-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Steeplechase RECON #9526.16 Project, Riverside County.

**Native American Heritage Commission  
Native American Contact List  
Riverside County  
5/20/2021**

***Soboba Band of Luiseno  
Indians***

Isaiah Vivanco, Chairperson  
P. O. Box 487  
San Jacinto, CA, 92581  
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ivivanco@soboba-nsn.gov

Cahuilla  
Luiseno

***Torres-Martinez Desert Cahuilla  
Indians***

Michael Mirelez, Cultural  
Resource Coordinator  
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mmirelez@tmdci.org

Cahuilla

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Steeplechase RECON #9526.16 Project, Riverside County.

# CONFIDENTIAL ATTACHMENT 1

(Not for Public Review)

## **APPENDIX F**

Geotechnical Investigation Report - Pipeline,  
Converse Consultants





**Converse Consultants**

Geotechnical Engineering  
Environmental & Groundwater Science  
Inspection & Testing Services

# GEOTECHNICAL INVESTIGATION REPORT

## APPROXIMATELY 2,400 LINEAR FEET OF PIPELINE CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

CONVERSE PROJECT No. 20-81-256-03



*Prepared For:*  
**GANNETT FLEMING, INC.**  
20 Pacifica, Suite 430  
Irvine, CA 92618

*Presented By:*  
**CONVERSE CONSULTANTS**  
2021 Rancho Drive, Suite 1  
Redlands, CA 92373  
909-796-0544

March 2, 2022



# Converse Consultants

Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services

March 2, 2022

Mr. Jerry Pascoe, PE, GE  
Principal Engineer  
Gannett Fleming, Inc.  
20 Pacifica, Suite 430  
Irvine, CA 92618

**Subject: GEOTECHNICAL INVESTIGATION REPORT**  
**Approximately 2,400 Linear Feet of Pipeline**  
City of Moreno Valley, Riverside County, California  
Converse Project No. 20-81-256-03

Dear Mr. Pascoe:

Converse Consultants (Converse) is pleased to submit this Geotechnical Investigation Report to assist with the design and construction of approximately 2,400 linear feet of pipeline project, located at Kalmia Avenue in the City of Moreno Valley, Riverside County, California. This report was prepared in accordance with our proposal dated October 12, 2020, and your Agreement Between Consultant and Subconsultant. dated May 4, 2021.

Based upon our field investigation, laboratory data, and analyses, the proposed project is considered feasible from a geotechnical standpoint, provided the recommendations presented in this report are incorporated into the design and construction of the project.

We appreciate the opportunity to be of service to Gannett Fleming, Inc. and Eastern Municipal Water District (EMWD). Should you have any questions, please do not hesitate to contact us at 909-796-0544.

## CONVERSE CONSULTANTS

Hashmi S. E. Quazi, PhD, PE, GE  
Principal Engineer

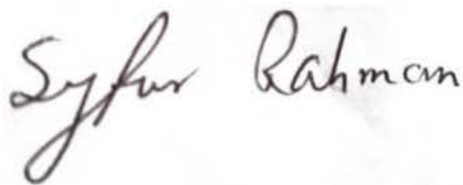
Dist.: 1/Electronic pdf  
HSQ/SR/CN/kvg



## PROFESSIONAL CERTIFICATION

This report has been prepared by the following professionals whose seals and signatures appear herein.

The findings, recommendations, specifications, and professional opinions contained in this report were prepared in accordance with the generally accepted professional engineering and engineering geologic principle and practice in this area of Southern California. We make no other warranty, either expressed or implied.



---

Sk Syfur Rahman, PhD, EIT  
Senior Staff Engineer



---

Catherine Nelson, GIT  
Senior Staff Geologist



---

Hashmi S. E. Quazi, PhD, PE, GE  
Principal Engineer



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## APPENDICES

Appendix A.....	<i>Field Exploration</i>
Appendix B.....	<i>Laboratory Testing Program</i>





## **1.0 INTRODUCTION**

This report presents the results of our geotechnical investigation performed for Approximately 2,400 Linear Feet of Pipeline project, located on Kalmia Avenue in the City of Moreno Valley, Riverside County, California. The project location is shown in Figure No. 1, *Approximate Alignment Location Map*.

The purposes of this investigation were to determine the nature and engineering properties of the subsurface soils, and to provide design and construction recommendations for the project.

This report is prepared for the project described herein and is intended for use solely by Gannett Fleming, Inc. and their authorized agents for design purposes. It should not be used as a bidding document but may be made available to the potential contractors for information on factual data only. For bidding purposes, the contractors should be responsible for making their own interpretation of the data contained in this report.

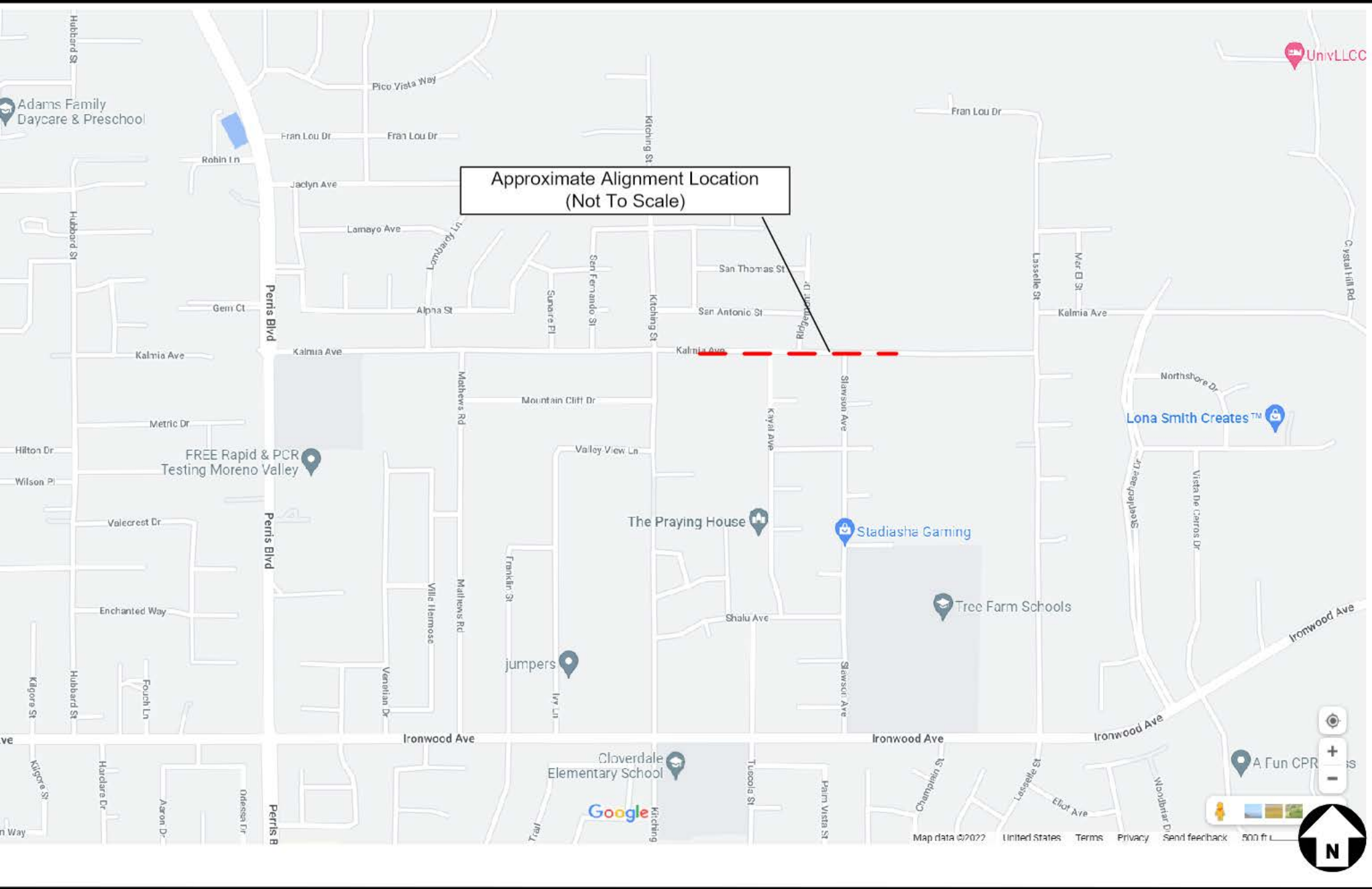
## **2.0 PROJECT DESCRIPTION**

Based on the information provided by Gannett Fleming, Inc., the project will consist of the construction of approximately 2,400 linear feet of 12-inch diameter pipe along Kalmia Avenue starting from the proposed Steeplechase and Kalmia Booster Pump Station (BPS) site to Dale Pressure Zone. We anticipate that the maximum depth to pipe invert for the pipeline will be about 10.0 feet below existing ground surface and it will be installed using open cut and cover technique.

## **3.0 ALIGNMENT CONDITION**

Within the project limit, Kalmia Avenue is mostly bounded on the north and south by residential development. It is a paved road with single lane in each direction. No overhead utilities or overhanging streetlights is located within the project limit. Light traffic was observed outside school starting and ending times, heavy traffic was observed during school hours. Photograph No. 1 depicts the present alignment conditions.





Project: Approximately 2,400 Linear Feet of Pipeline  
 Location: City of Moreno Valley, Riverside County, California  
 Preparer: Gannett Fleming, Inc.

## Approximate Alignment Location Map

Project No.  
20-81-256-03





*Photograph No. 1: Pipeline alignment along Kalmia Avenue, facing east.*

## **4.0 SCOPE OF WORK**

The scope of this investigation included project set-up, subsurface exploration, laboratory testing, engineering analysis, and preparation of this report, as described in the following sections.

### **4.1 Project Set-up**

As part of the project set-up, our staff performed the following tasks.

- Conducted a field reconnaissance and marked the boring locations selected by Ms. Carolina Cubides with Gannett Fleming, Inc. such that drill rig access to all the locations was available.
- Notified Underground Service Alert (USA) at least 48 hours prior to drilling to clear the boring locations of any conflict with existing underground utilities.
- Conducted 3 site visits for utility meet and mark requirements.
- Engaged a California-licensed driller to drill exploratory borings.
- Engaged a California-licensed professional traffic control company.



## **4.2 Subsurface Exploration**

Two exploratory borings (BH-04 and BH-05) were drilled on January 27, 2022, to investigate the subsurface conditions. The borings were drilled using an 8-inch diameter hollow stem auger to depth of 15.4 and 16.5 feet below existing ground surface (bgs).

Approximate boring locations are indicated in Figure No. 2, *Approximate Boring Locations Map*. For a description of the field exploration and sampling program, see Appendix A, *Field Exploration*.

## **4.3 Laboratory Testing**

Representative soil samples were tested in the laboratory to aid in the soils classification and to evaluate the relevant engineering properties of the soils. These tests included the following.

- *In-situ* moisture contents and dry density (ASTM D2216 and ASTM D2937)
- Sand equivalent (ASTM D2419)
- Soil corrosivity (California Tests 422, 417, and 643)
- Grain size distribution (ASTM D6913)
- Maximum dry density and optimum moisture content (ASTM D1557)
- Direct shear (ASTM D3080)

For *in-situ* moisture and dry density data, see the Logs of Borings in Appendix A, *Field Exploration*. For a description of the laboratory test methods and test results, see Appendix B, *Laboratory Testing Program*.

## **4.4 Analysis and Report Preparation**

Data obtained from the field exploration and laboratory testing program was compiled and evaluated. Geotechnical analyses of the compiled data were performed, and this report was prepared to present our findings, conclusions, and recommendations for the project.

# **5.0 LABORATORY TEST RESULTS**

Results of physical and chemical tests performed for this project are presented below.

## **5.1 Physical Testing**

Results of the various laboratory tests are presented in Appendix B, *Laboratory Testing Program*, except for the results of in-situ moisture and dry density tests which are presented on the Log of Borings in Appendix A, *Field Exploration*. The results are also discussed in the following page.



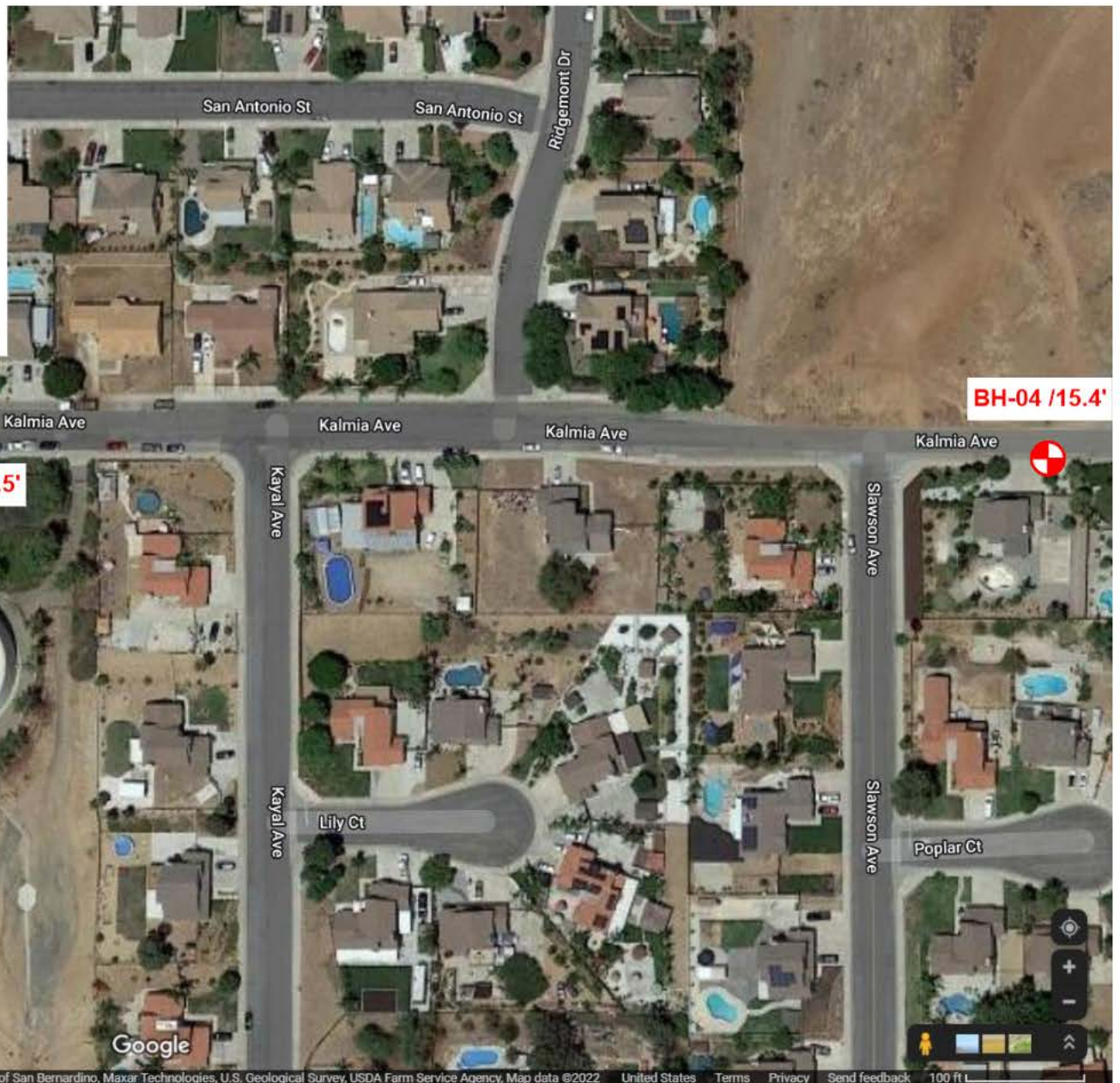


BH-05/16.5'

## EXPLANATION

Number and Depth (ft) of  
Approximate Locations of  
Exploratory Borings

0' 100'



Project: Approximately 2,400 Linear Feet of Pipeline  
Location: City of Moreno Valley, Riverside County, California  
Prepared by: Gannett Fleming, Inc.

## Approximate Boring Locations Map

Project No.  
20-81-256-03



**Converse Consultants**

Figure No.

2



- In-situ Moisture and Dry Density – *In-situ* dry densities and moisture contents of the alignment soils were determined in accordance with ASTM Standard D2216 and D2937. Dry densities of upper 10 feet of alluvium soils ranged from 110 to 131 pounds per cubic foot (pcf) with moisture contents of 4 to 10 percent.
- Sand Equivalent (SE) – Two representative bulk soil samples were tested to evaluate sand equivalent (SE) in accordance with the ASTM Standard D2419 test method. The measured sand equivalent test results were 19.
- Grain Size Analysis – Two representative samples were tested to determine the relative grain size distribution in accordance with the ASTM Standard D6913. The test results are graphically presented in Drawing No. B-1, *Grain Size Distribution Results*.
- Maximum Dry Density and Optimum Moisture Content – Typical moisture-density relationship test was performed on a representative sample in accordance with ASTM D1557. The results are presented in Drawing No. B-2, *Moisture-Density Relationship Results*, in Appendix B, *Laboratory Testing Program*. The laboratory maximum dry density was 137.5 pcf and the optimum moisture content of 6.5 percent.
- Direct Shear – One direct shear test was performed on undisturbed representative ring samples under soaked moisture condition in accordance with ASTM Standard D3080. The results are presented in Drawings No. B-3, *Direct Shear Test Results* in Appendix B, *Laboratory Testing Program*.

## 5.2 Chemical Testing - Corrosivity Evaluation

Two representative soil samples were tested to determine minimum electrical resistivity, pH, and chemical content, including soluble sulfate and chloride concentrations. The purposes of these tests were to determine the corrosion potential of alignment soils when placed in contact with common pipe materials. These tests were performed by AP Engineering and Testing, Inc. (Pomona, CA) in accordance with California Tests 643, 422, and 417. The test results are presented in Appendix B, *Laboratory Testing Program* and summarized below.

- The pH measurements of the tested samples were 8.9 and 8.1.
- The sulfate contents of the tested samples were 0.0026 and 0.0032 percent by weight (26 and 32 ppm).
- The chloride concentrations of the tested samples were 19 and 21ppm.
- The minimum electrical resistivities when saturated were 8,031 and 8,423 ohm-cm.

## 6.0 SUBSURFACE CONDITIONS

A general description of the subsurface conditions, various materials and groundwater conditions encountered at each location during our field exploration is discussed below.



## **6.1 Subsurface Profile**

Based on the exploratory borings and laboratory test results, the subsurface soils along the alignments consisted primarily of a mixture of sand, silt, trace clay and gravel up to 0.5 inches in maximum dimension.

For a detailed description of the subsurface materials encountered in the exploratory borings, see Drawings No. A-2 and A-3 *Logs of Borings*, in Appendix A, *Field Exploration*.

## **6.2 Groundwater**

Groundwater was not encountered in any of the borings to the maximum explored depth of 16.5 feet bgs. The coordinates of 33.953058N, 117.215849W were used to research and identify comparable groundwater levels.

The State Water Resources Control Board's GeoTracker Database (SWRCB, 2021) was reviewed to establish current and historic groundwater levels. Within a 1.0-mile radius of the centralized coordinates, no site with groundwater data was identified.

The National Water Information System (USGS, 2021) was reviewed to establish current and historic groundwater levels. Within a 1.0-mile radius of the centralized coordinates, no site with groundwater data was identified.

The California Department of Water Resources database (DWR, 2021) was reviewed to establish current and historic groundwater levels. Within a 1.0-mile radius of the centralized coordinates, no site with groundwater data was identified.

Based on available data, current groundwater is expected to be deeper than about 16.5 feet bgs. Groundwater is not expected to be encountered during the construction of the project. It should be noted that the groundwater level could vary depending upon the seasonal precipitation and possible groundwater pumping activity in the site vicinity. Shallow perched groundwater may be present locally, particularly following precipitation.

## **6.3 Excavability**

The surface and subsurface soil materials along the alignment are expected to be excavatable by conventional heavy-duty earth moving and trenching equipment. However, excavation will be difficult if concentration of gravel is encountered.

The phrase "conventional heavy-duty excavation equipment" is intended to include commonly used equipment such as excavators and trenching machines. It does not include hydraulic hammers ("breakers"), jackhammers, blasting, or other specialized equipment and techniques used to excavate hard earth materials. Selection of an





appropriate excavation equipment model should be done by an experienced earthwork contractor and may require test excavations in representative areas.

#### **6.4 Subsurface Variations**

Based on results of the subsurface exploration and our experience, some variations in the continuity and nature of subsurface conditions within the alignments should be anticipated. Because of the uncertainties involved in the nature and depositional characteristics of the earth material, care should be exercised in interpolating or extrapolating subsurface conditions between or beyond the boring locations.

### **7.0 ENGINEERING GEOLOGY**

The regional and local geology within the proposed pipeline alignment is discussed below.

#### **7.1 Regional Geology**

The proposed alignment is located within the northern Peninsular Ranges Geomorphic Province of Southern California. The Peninsular Ranges Geomorphic Province consists of a series of northwest-trending mountain ranges and valleys bounded on the north by the San Bernardino and San Gabriel Mountains, on the west by the Los Angeles Basin, and on the southwest by the Pacific Ocean.

The province is a seismically active region characterized by a series of northwest-trending strike-slip faults. The most prominent of the nearby fault zones include the San Jacinto, Elsinore, and San Andreas fault zones (CGS, 2007), all of which have been known to be active during Quaternary time.

Topography within the province is generally characterized by broad alluvial valleys separated by linear mountain ranges. This northwest-trending linear fabric is created by the regional faulting within the granitic basement rock of the Southern California Batholith. Broad, linear, alluvial valleys have been formed by erosion of these principally granitic mountain ranges.

The proposed alignment is located within the north-central portion of the Perris Block region of the Peninsular Ranges province. The Perris Block is a relatively stable structural block bounded by the active Elsinore and San Jacinto fault zones to the west and east, and the Chino and Temecula basins to the north and south, respectively. The Perris Block has low relief and is roughly rectangular in shape.



## 7.2 Local Geology

- The proposed alignment is anticipated to be primarily underlain by middle to early Pleistocene, very old alluvial fan deposits (Qvof). These deposits are mostly moderately to well consolidated silt, sand, gravel, and conglomerate.
- Tonalite granite (bedrock) is exposed approximately 1,500 feet northwest of the project site and is potentially present at shallow depths nearby.

## 8.0 CBC SEISMIC DESIGN PARAMETERS

Seismic parameters based on the 2019 California Building Code (CBSC, 2019) are provided in the following table. These parameters were determined using the generalized coordinates (33.953058N, 117.215849W) and the Seismic Design Maps ATC online tool.

**Table No. 1, CBC Seismic Design Parameters**

Seismic Parameters	
Site Coordinates	33.953058N, 117.215849W
Site Class	D
Mapped Short period (0.2-sec) Spectral Response Acceleration, $S_s$	III
Mapped 1-second Spectral Response Acceleration, $S_1$	2.029g
Site Coefficient (from Table 11.4-1), $F_a$	0.804g
Site Coefficient (from Table 11.4-2), $F_v$	1
MCE 0.2-sec period Spectral Response Acceleration, $S_{MS}$	1.7
MCE 1-second period Spectral Response Acceleration, $S_{M1}$	2.029g
Design Spectral Response Acceleration for short period $S_{DS}$	1.367g
Design Spectral Response Acceleration for 1-second period, $S_{D1}$	1.353g
Site Modified Maximum Peak Ground Acceleration, $PGA_M$	0.911g

## 9.0 EARTHWORK RECOMMENDATIONS

Earthwork for the project will include trench excavation, pipe subgrade preparation, pipeline bedding placement, and trench backfill following the placement of the pipe.

### 9.1 General

Prior to the start of construction, all underground existing utilities and appurtenances should be located along and adjacent to the proposed alignment. Such utilities should either be protected in-place or removed and replaced during construction as required by





the project specifications. All excavations should be conducted in such a manner as not to cause loss of bearing and/or lateral support of existing structures or utilities.

All debris, deleterious material and surficial soils containing roots and perishable materials (if any) should be stripped and removed from the alignment. Deleterious material, including organics, concrete, and debris generated during excavation, should not be placed as fill.

Migration of fines from the surrounding native soils, in the case of water leaks from the pipe, must be considered in selecting the gradation of the materials placed within the trench, including bedding, pipe zone and trench zone backfill, as defined in the following sections. Such migration of fines may deteriorate pipe support and may result in settlement/ground loss at the surface.

## **9.2 Pipeline Subgrade Preparation**

The final subgrade surface should be level, firm, uniform, free of loose materials, and properly graded to provide uniform bearing and support to the entire section of the pipe placed on bedding material. Protruding oversize particles, larger than 3 inches in dimension, if any, should be removed from the trench bottom and replaced with compacted on-site materials.

Any loose, soft and/or unsuitable materials encountered at the pipe sub-grade should be removed and replaced with an adequate bedding material.

During the digging of depressions for proper sealing of the pipe joints, the pipe should rest on a prepared bottom for as near its full length as is practicable.

## **9.3 Pipe Bedding**

Bedding is defined as the material supporting and surrounding the pipe to one foot above the pipe. Pipe bedding should follow EMWD or City of Moreno Valley Standards, whichever is applicable. If additional recommendations, beyond EMWD or City of Moreno Valley Standards are needed, the following specifications can be used during the placement of pipe bedding.

To provide uniform and firm support for the pipe, compacted granular materials such as clean sand, gravel or ¾-inch crushed aggregate, or crushed rock may be used as pipe bedding material. The sand equivalent of the site soils was found 19. Typically, soils with sand equivalent value of 30 or more are used as pipe bedding material. The pipe designer should determine if the soils are suitable as pipe bedding material.

The type and thickness of the granular bedding placed underneath and around the pipe, if any, should be selected by the pipe designer. The load on the rigid pipes and deflection





of flexible pipes and, hence, the pipe design, depends on the type and the amount of bedding placed underneath and around the pipe.

Bedding materials should be vibrated in-place to achieve compaction. Care should be taken to densify the bedding material below the springline of the pipe. Prior to placing the pipe bedding material, the pipe subgrade should be uniform and properly graded to provide uniform bearing and support to the entire section of the pipe placed on bedding material. During the digging of depressions for proper sealing of the pipe joints, the pipe should rest on a prepared bottom for as near its full length as is practicable.

Based on the ground water data, migration of fines from the surrounding native and/or fill soils may not be considered in selecting the gradation of any imported bedding material.

#### **9.4 Backfill Materials**

No fill or aggregate base should be placed until excavation and/or natural ground preparation have been observed by the geotechnical consultant. The native soils encountered within the project alignments, free of debris or organic matter are suitable as compacted fill after proper processing and removal of oversize materials to meet the following criteria.

- No particles larger than 3 inches in largest dimension.
- Rocks larger than 1 inch should not be placed within the upper 12 inches of subgrade soils.
- Free of all organic matter, debris, or other deleterious material.
- Expansion index should be 20 or less.
- Sand Equivalent greater than 15 (greater than 30 for pipe bedding).
- Contain less than 30 percent by weight retained in 3/4-inch sieve.
- Contain less than 40 percent fines (passing #200 sieve).

Based on field investigation and laboratory testing results, on-site soils may be suitable as fill materials.

Imported soils, if used as fill, should be predominantly granular and meet the above criteria. Any imported fill should be tested and approved by geotechnical representative prior to delivery to the alignment.

#### **9.5 Compacted Fill Placement**

Fill soils should be thoroughly mixed, and moisture conditioned to within  $\pm 3$  percent of optimum moisture content for coarse soils and 0 to 2 percent above optimum moisture content for fine soils and compacted to at least 90 percent of the laboratory maximum dry density. The thickness of uncompacted layers should not exceed 8 inches. Each layer



should be evenly spread, moistened, or dried as necessary, and then tamped or rolled until the specified density has been achieved.

Fill materials should not be placed, spread, or compacted during unfavorable weather conditions. When work is interrupted by heavy rain, filling operations should not resume until the geotechnical consultant approves the moisture and density conditions of the previously placed fill.

## **9.6 Trench Zone Backfill**

The trench zone is defined as the portion of the trench above the pipe bedding extending up to the final grade level of the trench surface. Excavated on-site soils free of oversize particles and deleterious matter may be used to backfill the trench zone. Trench zone backfill should follow EMWD or City of Moreno Valley Standards, whichever is applicable. If additional recommendations beyond EMWD or City of Moreno Valley Standards are needed, the following specifications can be used for trench backfills.

- Trench excavations to receive backfill should be free of trash, debris or other unsatisfactory materials at the time of backfill placement.
- Trench zone backfill should be compacted to at least 90 percent of the laboratory maximum dry density as per ASTM D1557 test method. At least the upper 1 foot of trench backfill underlying pavement should be compacted to at least 95 percent of the laboratory maximum dry density as per ASTM D1557 test method.
- Particles larger than 1 inch should not be placed within 12 inches of the pavement subgrade. No more than 30 percent of the backfill volume should be larger than ¾-inch in the largest dimension. Gravel should be well mixed with finer soil. Rocks larger than 3 inches in the largest dimension should not be placed as trench backfill.
- Trench backfill should be compacted by mechanical methods, such as sheepfoot, vibrating or pneumatic rollers or mechanical tampers to achieve the density specified herein. The backfill materials should be brought to within  $\pm 3$  percent of optimum moisture content for coarse-grained soil, and between optimum and 2 percent above optimum for fine-grained soil, then placed in horizontal layers. The thickness of uncompacted layers should not exceed 8 inches. Each layer should be evenly spread, moistened or dried as necessary, and then tamped or rolled until the specified density has been achieved.
- The contractor should select the equipment and processes to be used to achieve the specified density without damage to adjacent ground, structures, utilities and completed work.
- The field density of the compacted soil should be measured by the ASTM D1556 (Sand Cone) or ASTM D6938 (Nuclear Gauge) or equivalent.
- Trench backfill should not be placed, spread or rolled during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations should not





resume until field tests by the project's geotechnical consultant indicate that the moisture content and density of the fill are in compliance with project specifications.

## 10.0 DESIGN RECOMMENDATIONS

General design recommendations, resistance to lateral loads, pipe design parameters, bearing pressures, and soil corrosivity are discussed in the following subsections.

### 10.1 General

Where pipes connect to rigid structures and are subjected to significant loads as the backfill is placed to finish grade, we recommend that provisions be incorporated in the design to provide support of these pipelines where they exit the structures. Consideration can be given to flexible connections, concrete slurry support beneath the pipes where they exit the structures, overlaying the pipes with a few inches of compressible material, (i.e., Styrofoam, or other materials), or other techniques.

The various design recommendations provided in this section are based on the assumption that the above earthwork recommendations will be implemented.

### 10.2 Resistance to Lateral Loads

Resistance to lateral loads can be assumed to be provided by passive earth pressures and friction between construction materials and native soils. The resistance to lateral loads were estimated by using on-site native soils strength parameters obtained from laboratory testing. The resistance to lateral loads recommended for use in design of the thrust blocks are presented in the following table.

**Table No. 2, Resistance to Lateral Loads**

Soil Parameters	Value
Passive earth pressure (psf per foot of depth)	300
Maximum allowable bearing pressure against native soils (psf)	2,500
*Coefficient of friction between CML&C steel pipe and native soils, fs	0.25
Note: * Pipe material is not known at this time	

### 10.3 Soil Parameters for Pipe Design

Structural design requires proper evaluation of all possible loads acting on pipe and structure. The stresses and strains induced on buried pipe and walls depend on many factors, including the type of soil, density, bearing pressure, angle of internal friction, coefficient of passive earth pressure, and coefficient of friction at the interface between



the backfill and native soils. The recommended values of the various soil parameters for design of the pipeline are provided in the following table.

**Table No. 3, Soil Parameters for Pipe Design**

Soil Parameters	Value
Average compacted fill total unit weight (assuming 92 percent of relative compaction), $\gamma$ (pcf)	135
Soil cohesion, $c$ (psf)	0
Angle of internal friction of soils, $\phi$	32
Coefficient of friction between concrete and native soils, $f_s$	0.35
*Coefficient of friction between CML&C steel pipe and native soils, $f_s$	0.25
Bearing pressure against native soils (psf)	2,500
Coefficient of passive earth pressure, $K_p$	3.25
Coefficient of active earth pressure, $K_a$	0.31
Modulus of Soil Reaction $E'$ (psi)	1,500
Note: * Pipe material is not known at this time	

#### **10.4 Bearing Pressure for Anchor and Thrust Blocks**

An allowable net bearing pressure presented in Table No. 3, *Soil Parameters for Pipe Design* may be used for anchor and thrust block design against alluvial soils. Such thrust blocks should be at least 18 inches wide.

If normal code requirements are applied for design, the above recommended bearing capacity and passive resistances may be increased by 33 percent for short duration loading such as seismic or wind loading.

#### **10.5 Soils Corrosivity**

Two representative soil samples were evaluated for corrosivity with respect to common construction materials such as concrete and steel. The test results are presented in Appendix B, *Laboratory Testing Program* and design recommendations pertaining to soil corrosivity are presented below.

The sulfate contents of the sampled soils correspond to American Concrete Institute (ACI) exposure category S0 for these sulfate concentrations (ACI 318-14, Table 19.3.1.1). No concrete type restrictions are specified for exposure category S0 (ACI 318-14, Table 19.3.2.1). A minimum compressive strength of 2,500 psi is recommended.





We anticipate that concrete structures such as footings, slab, and pavement will be exposed to moisture from precipitation and irrigation. Based on the alignment locations and the results of chloride testing of the alignment soils, we do not anticipate that concrete structures will be exposed to external sources of chlorides, such as deicing chemicals, salt, brackish water, or seawater. ACI specifies exposure category C1 where concrete is exposed to moisture, but not to external sources of chlorides (ACI 318-14, Table 19.3.1.1). ACI provides concrete design recommendations in ACI 318-14, Table 19.3.2.1, including a compressive strength of at least 2,500 psi and a maximum chloride content of 0.3 percent.

According to Romanoff, 1957, the following table provides general guideline of soil corrosion based on electrical resistivity.

**Table No. 4, Correlation Between Resistivity and Corrosion**

Soil Resistivity (ohm-cm) per Caltrans CT 643	Corrosivity Category
Over 10,000	Mildly corrosive
2,000 – 10,000	Moderately corrosive
1,000 – 2,000	corrosive
Less than 1,000	Severe corrosive

The measured values of the minimum electrical resistivities of the samples when saturated were 8,031 and 8,423 ohm-cm for the alignment. This indicates that the soil tested is moderately corrosive to ferrous metals in contact with the soil. Converse does not practice in the area of corrosion consulting. If needed, a qualified corrosion consultant should provide appropriate corrosion mitigation measures for any ferrous metals in contact with the alignment soils.

## **10.6 Asphalt Concrete Pavement**

Based on the soil type and experience with similar type of projects, an R-value of 30 was assumed and design Traffic Indices (TIs) ranging from 5 to 8.

Based on the above information, asphalt concrete and aggregate base thickness was calculated using the Caltrans Highway Design Manual (Caltrans, 2020), Chapter 630 with a safety factor of 0.2 for asphalt concrete/aggregate base section and 0.1 for full depth asphalt concrete section. Preliminary asphalt concrete pavement sections are presented in the table below.





**Table No. 5, Recommended Preliminary Pavement Sections**

Design R-value 30	Traffic Index (TI)	Pavement Section		
		Option 1		Option 2
		Asphalt Concrete (inches)	Aggregate Base (inches)	Full AC Section (inches)
	5	3.0	5.0	6.0
	6	3.5	7.0	7.0
	7	4.0	9.5	8.5
	8	5.0	11.0	10

At or near the completion of grading, subsurface samples should be tested to evaluate the actual subgrade R-value for final pavement design.

Prior to placement of aggregate base, at least the upper 12 inches of subgrade soils should be scarified, moisture-conditioned if necessary, and recompacted to at least 95 percent of the laboratory maximum dry density as defined by ASTM Standard D1557 test method.

Base materials should conform with the City of Moreno Valley Standards should be placed in accordance with corresponding section of the Public Works Standards "Greenbook" latest version.

Asphaltic concrete materials should conform to the City of Moreno Valley Standards or corresponding section of the Greenbook and should be placed accordingly.

### **10.7 Pavement Repair**

Pavement repairs due to the installation of pipeline should be based on the City of Moreno Valley Standards or Table No. 5 *Recommended Preliminary Pavement Sections* whichever is applicable.

## **11.0 CONSTRUCTION RECOMMENDATIONS**

Temporary sloped excavation and shoring design recommendations are presented in the following sections.



## 11.1 General

Prior to the start of construction, all existing underground utilities should be located at the project alignment. Such utilities should either be protected in-place or removed and replaced during construction as required by the project specifications.

Sloped excavations may not be feasible in locations adjacent to existing utilities, pavement, or structures. Recommendations pertaining to temporary excavations are presented in this section.

Excavations near existing structures may require vertical side wall excavation. Where the side of the excavation is a vertical cut, it should be adequately supported by temporary shoring to protect workers and any adjacent structures.

All applicable requirements of the California Construction and General Industry Safety Orders, the Occupational Safety and Health Act, and the Construction Safety Act should be met. The soils exposed in cuts should be observed during excavation by the geotechnical consultant and the competent person designated by the contractor. If potentially unstable soil conditions are encountered, modifications of slope ratios for temporary cuts may be required.

## 11.2 Temporary Sloped Excavations

Temporary open-cut trenches may be constructed with side slopes as recommended in the following table. Temporary cuts encountering soft and wet fine-grained soils; dry loose, cohesionless soils or loose fill from trench backfill may have to be constructed at a flatter gradient than presented below.

**Table No. 6, Slope Ratios for Temporary Excavations**

Soil Type	OSHA Soil Type	Depth of Cut (feet)	Recommended Maximum Slope (Horizontal: Vertical) <sup>1</sup>
Silty Sand (SM)	C	0-10	1.5:1

<sup>1</sup> Slope ratio assumed to be uniform from top to toe of slope.

For shallow excavations up to 4 feet bgs, excavation can be vertical. For steeper temporary construction slopes or deeper excavations, or unstable soil encountered during the excavation, shoring or trench shields should be provided by the contractor to protect the workers in the excavation.





Surfaces exposed in slope excavations should be kept moist but not saturated to retard raveling and sloughing during construction. Adequate provisions should be made to protect the slopes from erosion during periods of rainfall. Surcharge loads, including construction materials, should not be placed within 5 feet of the unsupported slope edge. Stockpiled soils with a height higher than 6 feet will require greater distance from trench edges.

### 11.3 Shoring Design

Temporary shoring will be required where open sloped excavations will not be feasible due to unstable soils or due to nearby existing structures or facilities. Temporary shoring may consist of conventional soldier piles and lagging or sheet piles or any piles selected by contractor. The shoring for the pipe excavations may be laterally supported by walers and cross bracing or may be cantilevered. Drilled excavations for soldier piles will require the use of drilling fluids to prevent caving and to maintain an opened hole for pile installation.

The active earth pressure behind any shoring depends primarily on the allowable movement, type of backfill materials, backfill slopes, wall inclination, surcharges, and any hydrostatic pressures.

The lateral earth pressures to be used in the design of shoring is presented in the following table.

**Table No. 7, Lateral Earth Pressures for Temporary Shoring**

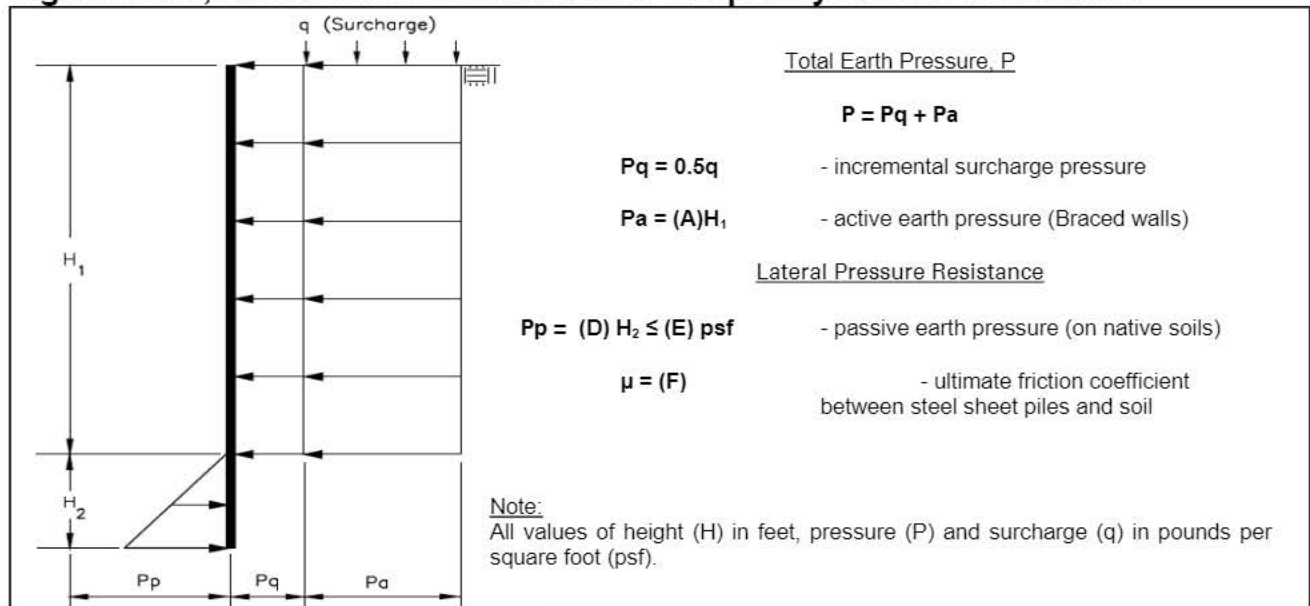
Lateral Resistance Soil Parameters*	Value
Active Earth Pressure (Braced Shoring) (psf) (A)	26
Active Earth Pressure (Cantilever Shoring) (psf) (B)	40
At-Rest Earth Pressure (Cantilever Shoring) (psf) (C)	60
Passive earth pressure (psf per foot of depth) (D)	300
Maximum allowable bearing pressure against native soils (psf) (E)	2,500
Coefficient of friction between sheet pile and native soils, $f_s$ (F)	0.25

\* Parameters A through F are used in Figures No. 3 and 4 below.

Restrained (braced) shoring systems should be designed based on Figure No. 3, *Lateral Earth Pressures for Temporary Braced Excavation* to support a uniform rectangular lateral earth pressure.

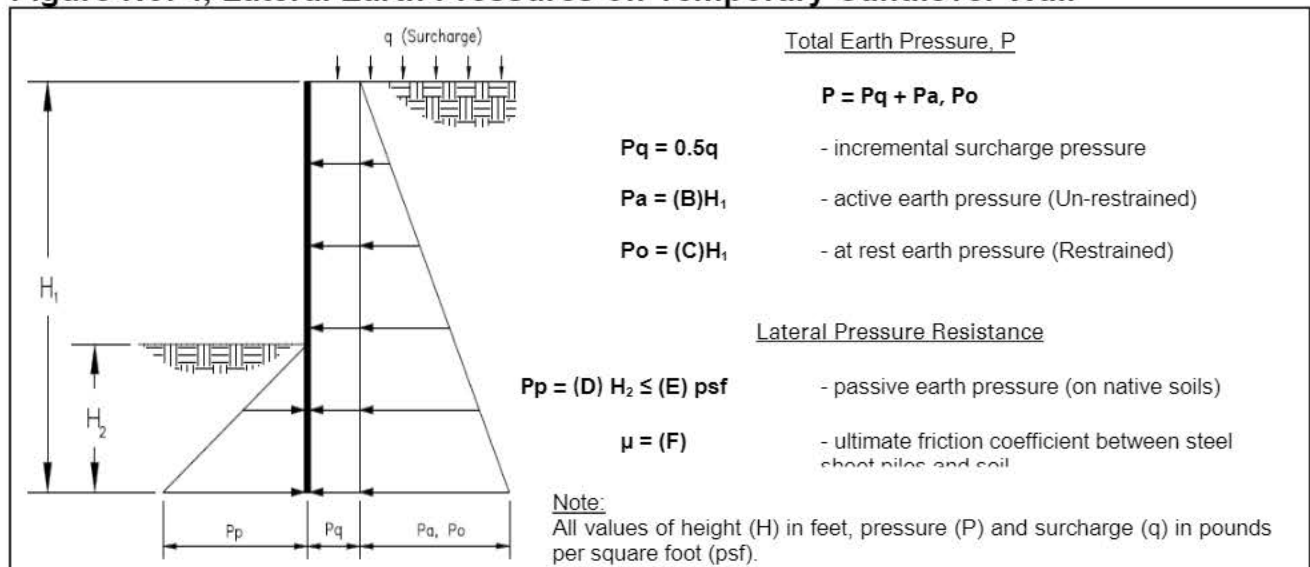


**Figure No. 3, Lateral Earth Pressures for Temporary Braced Excavation**



Unrestrained (cantilever) design of cantilever shoring consisting of soldier piles spaced at least two diameters on-center or sheet piles, can be based on Figure No. 4, *Lateral Earth Pressures on Temporary Cantilever Wall*.

**Figure No. 4, Lateral Earth Pressures on Temporary Cantilever Wall**



The provided pressures assume no hydrostatic pressures. If hydrostatic pressures are allowed to build up, the incremental earth pressures below the ground-water level should be reduced by 50 percent and added to hydrostatic pressure for total lateral pressure.





Passive resistance includes a safety factor of 1.5. The upper 1 foot for passive resistance should be ignored unless the surface is confined by a pavement or slab.

In addition to the lateral earth pressure, surcharge pressures due to miscellaneous loads, such as soil stockpiles, vehicular traffic or construction equipment located adjacent to the shoring, should be included in the design of the shoring. A uniform lateral pressure of 100 psf should be included in the upper 10 feet of the shoring to account for normal vehicular and construction traffic within 10 feet of the trench excavation. As previously mentioned, all shoring should be designed and installed in accordance with state and federal safety regulations.

The contractor should have provisions for soldier pile and sheet pile removal. All voids resulting from removal of shoring should be filled. The method for filling voids should be selected by the contractor, depending on construction conditions, void dimensions, and available materials. The acceptable materials, in general, should be non-deleterious, and able to flow into the voids created by shoring removal (e.g., concrete slurry, "pea" gravel, etc.).

Excavations for the proposed pipeline should not extend below a 1:1 horizontal: vertical (H: V) plane extending from the bottom of any existing structures, utility lines or streets. Any proposed excavation should not cause loss of bearing and/or lateral supports of the existing utilities or streets.

If the excavation extends below a 1:1 (H: V) plane extending from the bottom of the existing structures, utility lines or streets, a maximum of 10 feet of slope face parallel to the existing improvement should be exposed at a time to reduce the potential for instability. Backfill should be accomplished in the shortest period and in alternating sections.

## **12.0 GEOTECHNICAL SERVICES DURING CONSTRUCTION**

The project geotechnical consultant should review plans and specifications as the project design progresses. Such review is necessary to identify design elements, assumptions, or new conditions which require revisions or additions to our geotechnical recommendations.

The project geotechnical consultant should be present to observe conditions during construction. Geotechnical observation and testing should be performed as needed to verify compliance with project specifications. Additional geotechnical recommendations may be required based on subsurface conditions encountered during construction.





## 13.0 CLOSURE

This report is prepared for the project described herein and is intended for use solely by Gannett Fleming, Inc. to assist in the design and construction of the proposed project. Our findings and recommendations were obtained in accordance with generally accepted professional principles practiced in geotechnical engineering. We make no other warranty, either expressed or implied.

Converse Consultants is not responsible or liable for any claims or damages associated with interpretation of available information provided to others. Field exploration identifies actual soil conditions only at those points where samples are taken, when they are taken. Data derived through sampling and laboratory testing is extrapolated by Converse employees who render an opinion about the overall soil conditions. Actual conditions in areas not sampled may differ. In the event that changes to the project occur, or additional, relevant information about the project is brought to our attention, the recommendations contained in this report may not be valid unless these changes and additional relevant information are reviewed, and the recommendations of this report are modified or verified in writing. In addition, the recommendations can only be finalized by observing actual subsurface conditions revealed during construction. Converse cannot be held responsible for misinterpretation or changes to our recommendations made by others during construction.

As the project evolves, continued consultation and construction monitoring by a qualified geotechnical consultant should be considered an extension of geotechnical investigation services performed to date. The geotechnical consultant should review plans and specifications to verify that the recommendations presented herein have been appropriately interpreted, and that the design assumptions used in this report are valid. Where significant design changes occur, Converse may be required to augment or modify the recommendations presented herein. Subsurface conditions may differ in some locations from those encountered in the explorations, and may require additional analyses and, possibly, modified recommendations.

Design recommendations given in this report are based on the assumption that it will be implemented. Additional consultation may be prudent to interpret Converse's findings for contractors, or to possibly refine these recommendations based upon the review of the actual alignment conditions encountered during construction. If the scope of the project changes, if project completion is to be delayed, or if the report is to be used for another purpose, this office should be consulted.



## 14.0 REFERENCES

- AMERICAN CONCRETE INSTITUTE (ACI), 2014, Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary, October 2014.
- AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE), 2017, Minimum Design Loads for Buildings and Other Structures, SEI/ASCE Standard No. 7-16, dated January 1, 2022.
- CALIFORNIA BUILDING STANDARDS COMMISSION (CBSC), 2019, California Building Code (CBC).
- CALIFORNIA DEPARTMENT OF WATER RESOURCES (DWR), 2020, Water Data Library (<http://wdl.water.ca.gov/waterdatalibrary/>), accessed in May 2021.
- CALIFORNIA GEOLOGICAL SURVEY (CGS), 2007, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Faulting Zoning Act with Index to Earthquake Fault Zone Maps, Special Publication 42, revised 2007.
- CALIFORNIA STATE WATER RESOURCES CONTROL BOARD (SWRCB), 2022, GeoTracker database (<http://geotracker.waterboards.ca.gov/>), accessed in May 2021.
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- PUBLIC WORKS STANDARDS, INC., 2018, Standard Specifications for Public Works Construction ("Greenbook"), 2018.
- ROMANOFF, MELVIN, 1957, Underground Corrosion, National Bureau of Standards Circular 579, dated April 1957.
- U.S. GEOLOGICAL SURVEY (USGS), 2021, National Water Information System: Web Interface (<http://nwis.waterdata.usga.gov/nwis/gwlevels>), accessed in May 2021.



# Appendix A

Field Exploration





## APPENDIX A

### FIELD EXPLORATION

Our field investigation included an alignment reconnaissance and a subsurface exploration program consisting of drilling soil borings. During the alignment reconnaissance, the surface conditions were noted, and the borings were marked at the locations selected by Ms. Carolina Cubides with Gannett Fleming, Inc. The approximate boring locations were established in the field with reference to existing street centerlines and other visible features. The locations should be considered accurate only to the degree implied by the method used.

Boring BH-01 through BH-03 were drilled within the pump station site. Two exploratory borings (BH-04 and BH-05) were drilled on January 27, 2022, to investigate the subsurface conditions along the pipe alignment. The borings were drilled using an 8-inch diameter hollow stem auger to depth of 15.4 and 16.5 feet below existing ground surface (bgs).

The borings were advanced using a truck-mounted drill rig equipped with 8-inch diameter hollow-stem augers for soils sampling. Encountered materials were continuously logged by a Converse geologist and classified in the field by visual classification in accordance with the Unified Soil Classification System. Where appropriate, the field descriptions and classifications have been modified to reflect laboratory test results.

Relatively undisturbed samples were obtained using California Modified Samplers (2.4 inches inside diameter and 3.0 inches outside diameter) lined with thin sample rings. The steel ring sampler was driven into the bottom of the borehole with successive drops of a 140-pound driving weight falling 30 inches. Blow counts at each sample interval are presented on the boring logs. Samples were retained in brass rings (2.4 inches inside diameter and 1.0 inch in height) and carefully sealed in waterproof plastic containers for shipment to the Converse laboratory. Bulk samples of typical soil types were also obtained.

The exact depths at which material changes occur cannot always be established accurately. Unless a more precise depth can be established by other means, changes in material conditions that occur between drive samples are indicated on the logs at the top of the next drive sample.

Following the completion of logging and sampling, the borings were backfilled with soil cuttings mixed with cement, compacted by pushing down with an auger using the drill rig weight and surface patched with black dyed cement. If construction is delayed, the surface may settle over time. We recommend the owner monitor the boring locations and backfill any depressions that might occur or provide protection around the boring locations to prevent trip and fall injuries from occurring near the area of any potential settlement.



For a key to soil symbols and terminology used in the boring logs, refer to Drawing No. A-1a and A-1b, *Unified Soil Classification and Key to Boring Log Symbols*. For logs of borings, see Drawings No. A-2 and A-3, *Logs of Borings*.





# SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	CLEAN SANDS (LITTLE OR NO FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES	
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		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

## BORING LOG SYMBOLS

DRILLING METHOD SYMBOLS			
	Auger Drilling		Mud Rotary Drilling
	Dynamic Cone or Hand Driven		Diamond Core

## FIELD AND LABORATORY TESTS

C	Consolidation (ASTM D 2435)
CL	Collapse Potential (ASTM D 4546)
CP	Compaction Curve (ASTM D 1557)
CR	Corrosion, Sulfates, Chlorides (CTM 643-99; 417; 422)
CU	Consolidated Undrained Triaxial (ASTM D 4767)
DS	Direct Shear (ASTM D 3080)
EI	Expansion Index (ASTM D 4829)
M	Moisture Content (ASTM D 2216)
OC	Organic Content (ASTM D 2974)
P	Permeability (ASTM D 2434)
PA	Particle Size Analysis (ASTM D 6913 [2002])
PI	Liquid Limit, Plastic Limit, Plasticity Index (ASTM D 4318)
PL	Point Load Index (ASTM D 5731)
PM	Pressure Meter
PP	Pocket Penetrometer
R	R-Value (CTM 301)
SE	Sand Equivalent (ASTM D 2419)
SG	Specific Gravity (ASTM D 854)
SW	Swell Potential (ASTM D 4546)
TV	Pocket Torvane
UC	Unconfined Compression - Soil (ASTM D 2166)
	Unconfined Compression - Rock (ASTM D 7012)
UU	Unconsolidated Undrained Triaxial (ASTM D 2850)
UW	Unit Weight (ASTM D 2937)
WA	Passing No. 200 Sieve

## SAMPLE TYPE

	<b>STANDARD PENETRATION TEST</b> Split barrel sampler in accordance with ASTM D-1586-84 Standard Test Method
	<b>DRIVE SAMPLE</b> 2.42" I.D. sampler (CMS)
	<b>DRIVE SAMPLE</b> No recovery
	<b>BULK SAMPLE</b>
	<b>GROUNDWATER WHILE DRILLING</b>
	<b>GROUNDWATER AFTER DRILLING</b>

## UNIFIED SOIL CLASSIFICATION AND KEY TO BORING LOG SYMBOLS



Converse Consultants

Approximately 2,400 Linear Feet of Pipeline  
City of Moreno Valley, Riverside County, California  
For: Gannett Fleming, Inc.

Project No. Drawing No.  
20-81-256-03 A-1a

CONSISTENCY OF COHESIVE SOILS						
Descriptor	Unconfined Compressive Strength (tsf)	SPT Blow Counts	Pocket Penetrometer (tsf)	CA Sampler	Torvane (tsf)	Field Approximation
Very Soft	<0.25	< 2	<0.25	<3	<0.12	Easily penetrated several inches by fist
Soft	0.25 - 0.50	2 - 4	0.25 - 0.50	3 - 6	0.12 - 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 - 1.0	5 - 8	0.50 - 1.0	7 - 12	0.25 - 0.50	Can be penetrated several inches by thumb with moderate effort
Stiff	1.0 - 2.0	9 - 15	1.0 - 2.0	13 - 25	0.50 - 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2.0 - 4.0	16 - 30	2.0 - 4.0	26 - 50	1.0 - 2.0	Readily indented by thumbnail
Hard	>4.0	>30	>4.0	>50	>2.0	Indented by thumbnail with difficulty

APPARENT DENSITY OF COHESIONLESS SOILS		
Descriptor	SPT $N_{60}$ Value (blows / foot)	CA Sampler
Very Loose	<4	<5
Loose	4 - 10	5 - 12
Medium Dense	11 - 30	13 - 35
Dense	31 - 50	36 - 60
Very Dense	>50	>60

MOISTURE	
Descriptor	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OF PROPORTION OF SOILS	
Descriptor	Criteria
Trace (fine)/ Scattered (coarse)	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

SOIL PARTICLE SIZE		
Descriptor	Size	
Boulder	> 12 inches	
Cobble	3 to 12 inches	
Gravel	Coarse	3/4 inch to 3 inches
	Fine	No. 4 Sieve to 3/4 inch
Sand	Coarse	No. 10 Sieve to No. 4 Sieve
	Medium	No. 40 Sieve to No. 10 Sieve
	Fine	No. 200 Sieve to No. 40 Sieve
Silt and Clay	Passing No. 200 Sieve	

PLASTICITY OF FINE-GRAINED SOILS	
Descriptor	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll, and not much time is required to reach the plastic limit; it cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

CEMENTATION/ Induration	
Descriptor	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

**NOTE:** This legend sheet provides descriptions and associated criteria for required soil description components only. Refer to Caltrans Soil and Rock Logging, Classification, and Presentation Manual (2010), Section 2, for tables of additional soil description components and discussion of soil description and identification.

## UNIFIED SOIL CLASSIFICATION AND KEY TO BORING LOG SYMBOLS



# Log of Boring No. BH-04

Dates Drilled: 1/27/2022 Logged by: Catherine Nelson Checked By: Hashmi S. Quazi,

Equipment: 8" DIAMETER HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 1950 Depth to Water (ft, bgs): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the Boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
			DRIVE	BULK				
		<b>3" ASPHALT CONCRETE/ 4" AGGREGATE BASE</b>						
		<b>VERY OLD ALLUVIAL FAN DEPOSITS</b>						
		<b>SILTY SAND (SM):</b> fine to coarse-grained, few gravel up to 0.5 inch in maximum dimension, trace clay, medium dense, moist, reddish brown to brown.						
5		- trace caliche, very dense, orangish brown			7/10/23	8	131	SE, CR, PA, CP
					16/46/50-4"	10	119	
					14/27/36	4	123	
10		- dense			12/23/24	5	115	
15		- very dense			24/50-2"	8	117	
		End of boring at 15.4 feet bgs. No groundwater was encountered. Borehole backfilled with soil cuttings mixed with cement, compacted by pushing down with an auger using the drill rig weight, and surface patched with black dyed cement concrete on 1/27/2022.						



**Converse Consultants**

Approximately 2,400 Linear Feet of Pipeline  
City of Moreno Valley, Riverside County, California  
For: Gannett Fleming, Inc.

Project No.  
**20-81-256-03**

Drawing No.  
**A-2**

# Log of Boring No. BH-05

Dates Drilled: 1/27/2022 Logged by: Catherine Nelson Checked By: Hashmi S. Quazi,

Equipment: 8" DIAMETER HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 1951 Depth to Water (ft, bgs): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the Boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES		BLOWS	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
			DRIVE	BULK				
		<b>3" ASPHALT CONCRETE/ 4" AGGREGATE BASE</b>						
		<b>VERY OLD ALLUVIAL FAN DEPOSITS</b>						
		<b>SILTY SAND (SM):</b> fine to coarse-grained, trace clay, very dense, moist, dark brown.						
5		- large rock on north side of hole, loose			6/14/50-2"	7	129	SE, CR
		- medium dense			1/push	6	112	DS
10		- loose			11/16/16	6	124	PA
					4/4/6	6	111	
15		- medium dense			5/8/8	5	116	
		End of boring at 16.5 feet bgs. No groundwater was encountered. Borehole backfilled with soil cuttings mixed with cement, compacted by pushing down with an auger using the drill rig weight, and surface patched with black dyed cement concrete on 1/27/2022.						



**Converse Consultants**

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Project No.  
**20-81-256-03**

Drawing No.  
**A-3**

# Appendix B

## Laboratory Testing Program





## APPENDIX B

### LABORATORY TESTING PROGRAM

Tests were conducted in our laboratory on representative soil samples for the purpose of classification and evaluation of their physical properties and engineering characteristics. The amount and selection of tests were based on the geotechnical parameters required for this project. Test results are presented herein and on the Logs of Borings, in Appendix A, *Field Exploration*. The following is a summary of the laboratory tests conducted.

#### **In-Situ Moisture Content and Dry Density**

In-situ dry density and moisture content tests were performed on relatively undisturbed ring samples, in accordance with ASTM Standard D2216 and D2937 to aid soils classification and to provide qualitative information on strength and compressibility characteristics of the alignment soils. For test results, see the Logs of Borings in Appendix A, *Field Exploration*.

#### **Sand Equivalent**

Two representative soil samples were tested in accordance with the ASTM D2419 test method to determine the sand equivalent. The test results are presented in the following table.

**Table No. B-1, Sand Equivalent Test Results**

Boring No.	Depth (feet)	Soil Description	Sand Equivalent
BH-04	1-5	Silty Sand (SM)	19
BH-05	1-5	Silty Sand (SM)	19

#### **Soil Corrosivity**

Two representative soil samples were tested to determine minimum electrical resistivity, pH, and chemical content, including soluble sulfate and chloride concentrations. The purpose of these tests was to determine the corrosion potential of the soils when placed in contact with common construction materials. The tests were performed by AP Engineering and Testing, Inc. (Pomona, CA) in accordance with Caltrans Test Methods 643, 422 and 417. Test results are presented in the following table.

**Table No. B-2, Summary of Soil Corrosivity Test Results**

Boring No.	Depth (feet)	pH	Soluble Sulfates (CA 417) (% by weight)	Soluble Chlorides (CA 422) (ppm)	Min. Resistivity (CA 643) (Ohm-cm)
BH-04	1-5	8.9	0.0026	19	8,031
BH-05	1-5	8.1	0.0032	21	8,423



### **Grain-Size Analyses**

To assist in classification of soils, mechanical grain-size analyses were performed on two select samples in accordance with the ASTM Standard D6913 test method. Grain-size curves are shown in Drawing No. B-1, *Grain Size Distribution Results* and results are presented in the below table.

**Table No. B-3, Grain Size Distribution Test Results**

Boring No.	Depth (ft)	Soil Classification	% Gravel	% Sand	%Silt	%Clay
BH-04	1-5	Silty Sand (SM)	6.0	72.0	22.0	
BH-05	5-10	Silty Sandy (SM)	10.0	67.0	23.0	

### **Maximum Dry Density and Optimum Moisture Content**

Laboratory maximum dry density-optimum moisture content relationship test was performed on one representative bulk sample. The test was conducted in accordance with the ASTM Standard D1557 test method. The test results are presented in Drawing No. B-2, *Moisture-Density Relationship Results*, and are summarized in the following table.

**Table No B-4, Summary of Moisture-Density Relationship Results**

Boring No.	Depth (feet)	Soil Description	Optimum Moisture (%)	Maximum Density (lb/cft)
BH-04	1-5	Silty Sand (SM), Reddish Brown	6.5	137.5

### **Direct Shear**

One direct shear test was performed on relatively undisturbed representative ring samples under soaked moisture condition in accordance with the ASTM D3080 procedure. For the test, three samples contained in brass sampler rings were placed, one at a time, directly into the test apparatus and subjected to a range of normal loads appropriate for the anticipated conditions. The samples were then sheared at a constant strain rate of 0.02 inch/minute. Shear deformation was recorded until a maximum of about 0.25-inch shear displacement was achieved. Ultimate strength was selected from the shear-stress deformation data and plotted to determine the shear strength parameters. For test data, including sample density and moisture content, see Drawings No. B-3, *Direct Shear Test Results*, and the following table.

**Table No. B-5, Summary of Direct Shear Test Results**

Boring No.	Depth (feet)	Soil Description	Peak Strength Parameters	
			Friction Angle (degrees)	Cohesion (psf)
BH-05	5.0-6.5	Silty Sand (SM)	32	60

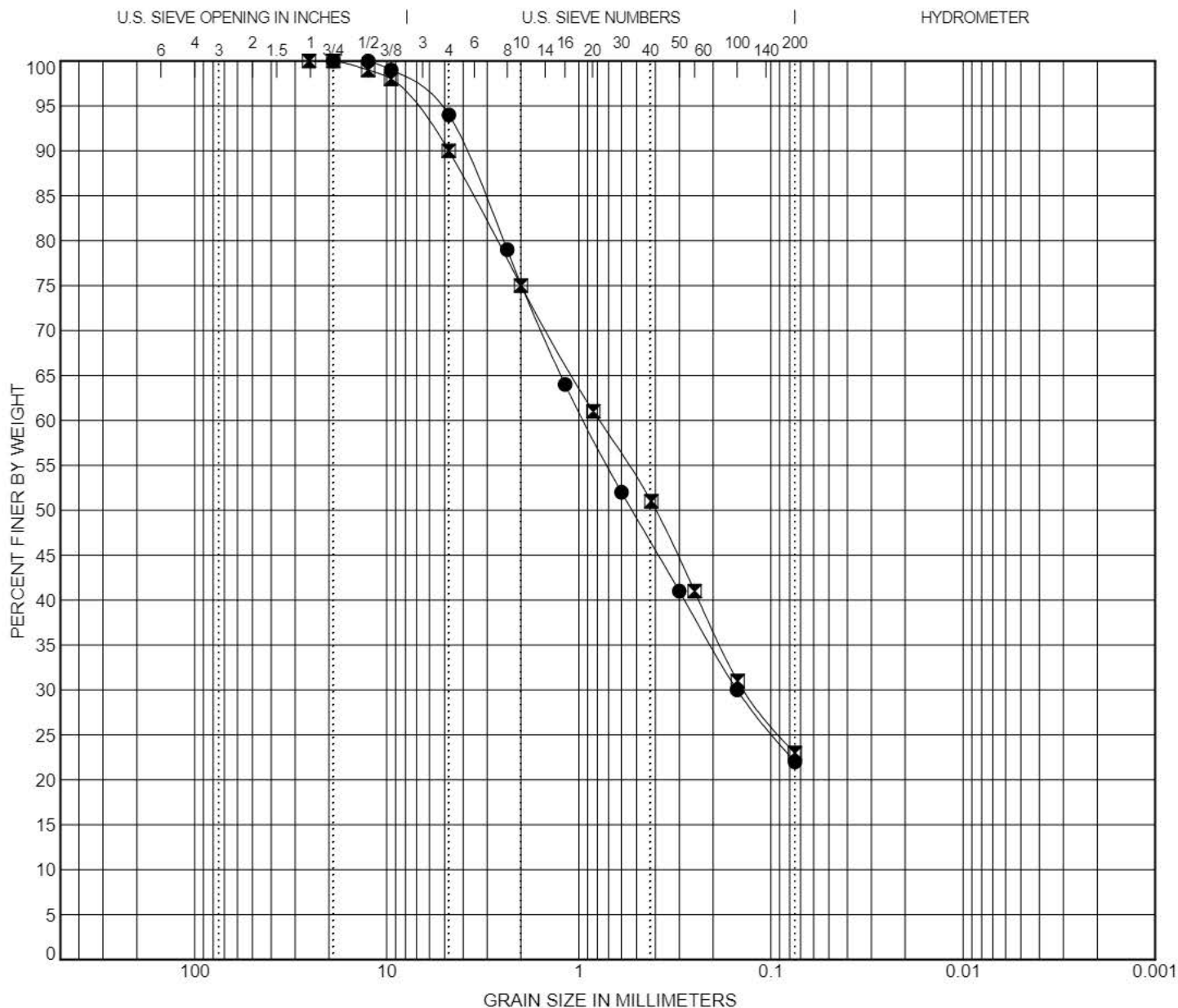


**Sample Storage**

Soil samples presently stored in our laboratory will be discarded 30 days after the date of this report, unless this office receives a specific request to retain the samples for a longer period.







COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.		Depth (ft)	Description				LL	PL	PI	Cc	Cu
●	BH-04	1-5	SILTY SAND (SM)								
☒	BH-05	5-10	SILTY SAND (SM)								
Boring No.		Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	BH-04	1-5	19	0.942	0.15		6.0	72.0	22.0		
☒	BH-05	5-10	25.4	0.784	0.137		10.0	67.0	23.0		

## GRAIN SIZE DISTRIBUTION RESULTS

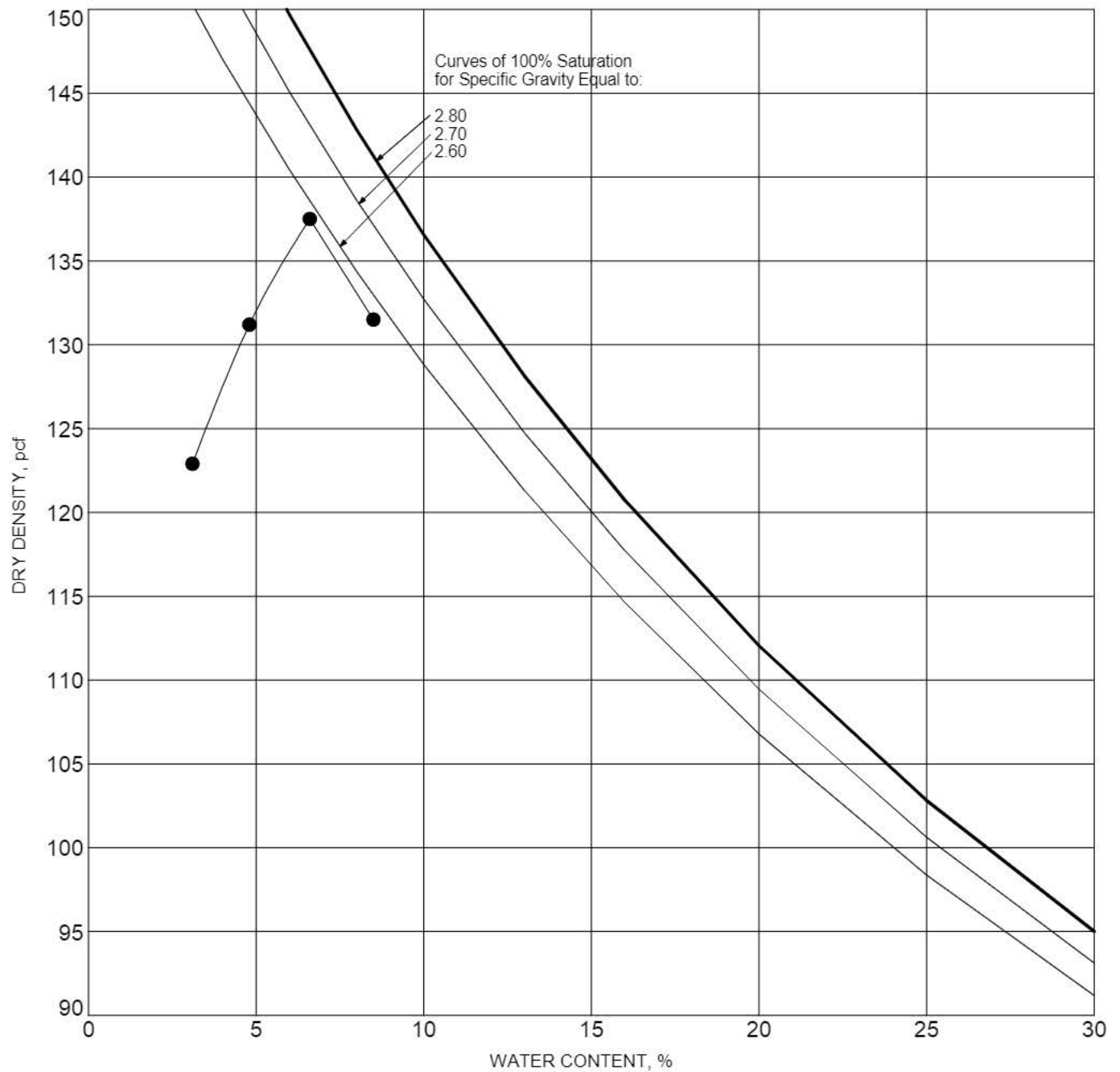


Converse Consultants

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City of Moreno Valley, Riverside County, California  
For: Gannett Fleming, Inc.

Project No.  
20-81-256-03

Drawing No.  
B-1



SYMBOL	BORING NO.	DEPTH (ft)	DESCRIPTION	ASTM TEST METHOD	OPTIMUM WATER, %	MAXIMUM DRY DENSITY, pcf
●	BH-04	1-5	SILTY SAND (SM)	D1557 - A	6.5	137.5

## MOISTURE-DENSITY RELATIONSHIP RESULTS



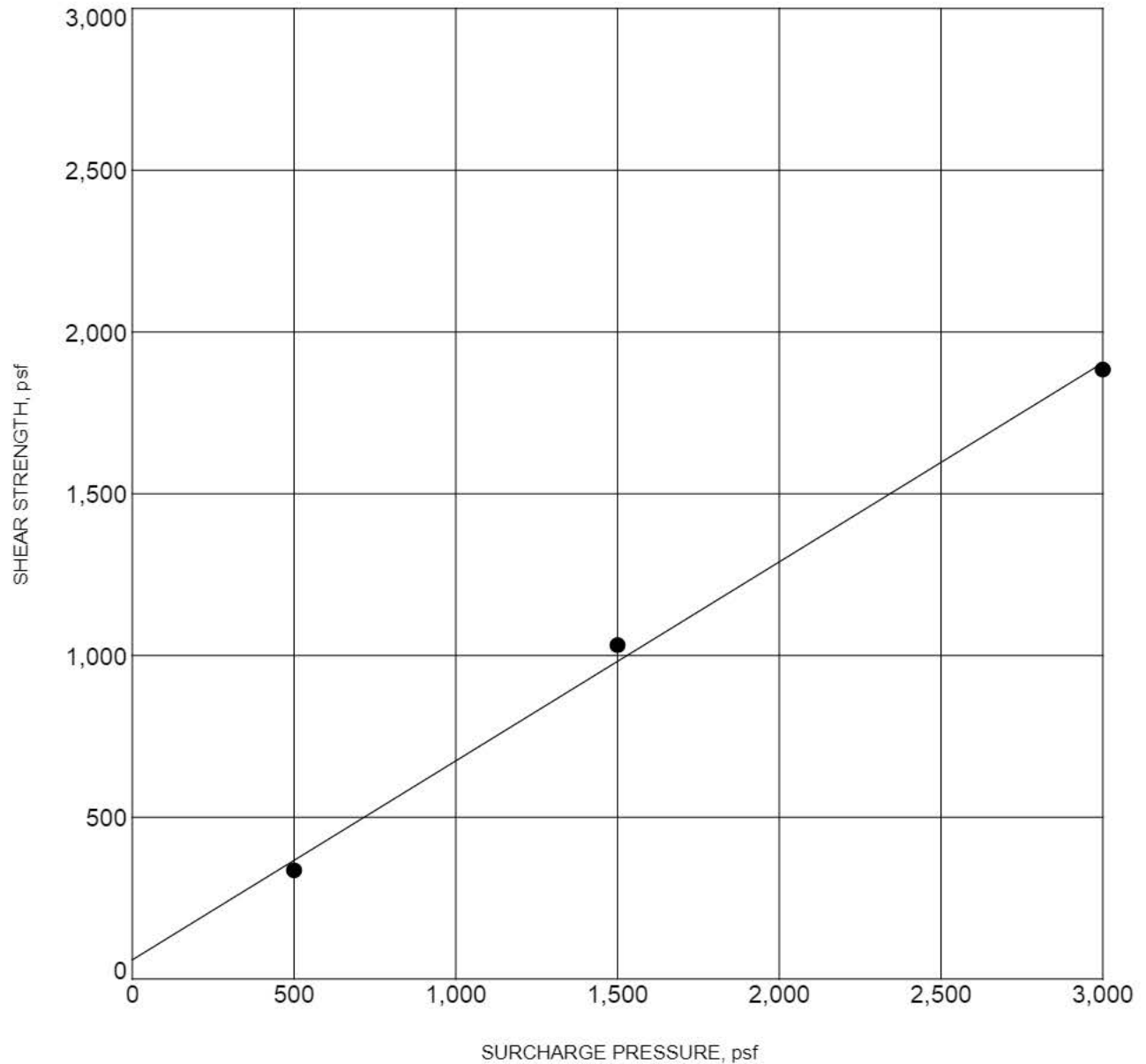
**Converse Consultants**

Approximately 2,400 Linear Feet of Pipeline  
City of Moreno Valley, Riverside County, California  
For: Gannett Fleming, Inc.

Project No.  
**20-81-256-03**

Drawing No.  
**B-2**





BORING NO.	BH-05	DEPTH (ft)	5.0-6.5
DESCRIPTION	SILTY SAND (SM)		
COHESION (psf)	60	FRICTION ANGLE (degrees):	32
MOISTURE CONTENT (%)	6.0	DRY DENSITY (pcf)	112.4

NOTE: Ultimate Strength.

## DIRECT SHEAR TEST RESULTS



**Converse Consultants**

Approximately 2,400 Linear Feet of Pipeline  
City of Moreno Valley, Riverside County, California  
For: Gannett Fleming, Inc.

Project No.  
**20-81-256-03**

Drawing No.  
**B-3**

## **APPENDIX G**

Noise CalEEMod Emission Calculation,  
RECON Environmental, Inc.

# 9295.16 Steeplechase Pump Station

## SoundPLAN - Construction

Source name	Reference	Noise Level	Corrections		
		Leq1 dB(A)	Cwall dB(A)	CI dB(A)	CT dB(A)
Construction	Lw/unit	110.7	-	-	-

9295.16 Steeplechase Pump Station

SoundPLAN - Construction

No.	Coordinates		Noise Level
	X	Y	Leq1
	(meters)		dB(A)
1	480087.62	3756964.64	61.4
2	480086.07	3756999.49	69.1
3	480086.33	3757036.16	75.2
4	480085.56	3757081.09	67.0
5	480058.44	3757081.09	67.8
6	480035.46	3757081.60	66.5
7	480012.23	3757081.60	63.8
8	480014.03	3757048.29	69.7
9	480011.71	3757021.18	67.8
10	480012.23	3756994.33	63.5

Receivers

9295.16 Steeplechase Pump Station

SoundPLAN - Operation

Source name	Reference	Noise Level		Corrections		
		Leq1 dB(A)	Leq2 dB(A)	Cwall dB(A)	CI dB(A)	CT dB(A)
HVAC 1	Lw/unit	80	80	-	-	-
HVAC 2	Lw/unit	80	80	-	-	-
Emergency Generator	Lw/unit	93.9	-	-	-	-



9295.16 Steeplechase Pump Station

SoundPLAN - Operation

No.	Coordinates		Noise Level	
	X	Y	Leq1	Leq2
	(meters)		dB(A)	dB(A)
1	480087.62	3756964.64	33.3	31.0
2	480086.07	3756999.49	37.6	35.7
3	480086.33	3757036.16	40.3	37.3
4	480085.56	3757081.09	38.0	35.5
5	480058.44	3757081.09	39.8	37.4
6	480035.46	3757081.60	40.2	37.6
7	480012.23	3757081.60	38.8	36.2
8	480014.03	3757048.29	44.4	42.9
9	480011.71	3757021.18	40.8	38.6
10	480012.23	3756994.33	37.4	35.1

Receivers

9295.16 Steeplechase Pump Station

SoundPLAN - Operation

Noise Level

Source name				Leq1 dB(A)	Leq2 dB(A)
1	1.FI	33.3	31.0		
	Emergency Generator			29.4	-
	HVAC 1			28.2	28.2
	HVAC 2			27.7	27.7
2	1.FI	37.6	35.7		
	Emergency Generator			33.1	-
	HVAC 1			33.1	33.1
	HVAC 2			32.2	32.2
3	1.FI	40.3	37.3		
	Emergency Generator			37.4	-
	HVAC 1			36.0	36.0
	HVAC 2			31.2	31.2
4	1.FI	38.0	35.5		
	Emergency Generator			34.3	-
	HVAC 1			33.8	33.8
	HVAC 2			30.6	30.6
5	1.FI	39.8	37.4		
	Emergency Generator			36.1	-
	HVAC 1			35.2	35.2
	HVAC 2			33.3	33.3
6	1.FI	40.2	37.6		
	Emergency Generator			36.8	-
	HVAC 1			34.5	34.5
	HVAC 2			34.8	34.8
7	1.FI	38.8	36.2		
	Emergency Generator			35.3	-
	HVAC 1			32.3	32.3
	HVAC 2			33.9	33.9
8	1.FI	44.4	42.9		
	Emergency Generator			39.2	-
	HVAC 1			31.9	31.9
	HVAC 2			42.5	42.5
9	1.FI	40.8	38.6		
	Emergency Generator			36.8	-
	HVAC 1			33.3	33.3
	HVAC 2			37.1	37.1
10	1.FI	37.4	35.1		
	Emergency Generator			33.6	-
	HVAC 1			31.4	31.4
	HVAC 2			32.6	32.6

Contributions



## Fan Performance

**Table 6. Standard motor & low static drive accessory sheave/fan speed (rpm)**

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
5	WSC060ED	AK44x3/4"	N/A	720	791	861	931	1002	1072
6	WSC072ED	AK56x1"	N/A	558	612	665	718	772	825
7½	WSC090ED	AK57x1"	N/A	688	737	787	837	887	N/A
10	WSC120ED	AK105X1"	N/A	724	776	828	880	932	984

**Note:** Factory set at 3 turns open.

**Table 7. Standard motor & high static drive accessory sheave/fan speed (rpm)**

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
6	WSC072ED	AK56x1"	N/A	968	1018	1068	1118	1169	1219
7½	WSC090ED	AK57x1"	1053	1091	1129	1166	1204	1242	N/A
10	WSC120ED	AK105X1"	1110	1159	1209	1258	1308	1357	N/A

**Note:** Factory set at 3 turns open.

**Table 8. Oversized motor & high static drive accessory sheave/fan speed (rpm)**

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
7½	WSC090ED	AK85x1"	1186	1249	1311	1373	1436	N/A	N/A

**Note:** Factory set at 3 turns open.

**Table 9. Outdoor sound power level—dB (ref. 10—2 W)**

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	T/YSC060ED	84	91	79	77	74	71	68	63	80
6	T/YSC072ED	83	90	86	82	79	75	70	63	85
7½	T/YSC090ED	83	90	86	83	80	75	71	64	85
8.5	T/YSC102ED	83	89	84	81	77	72	69	62	83
10	T/YSC120ED	83	86	80	77	73	69	66	60	79

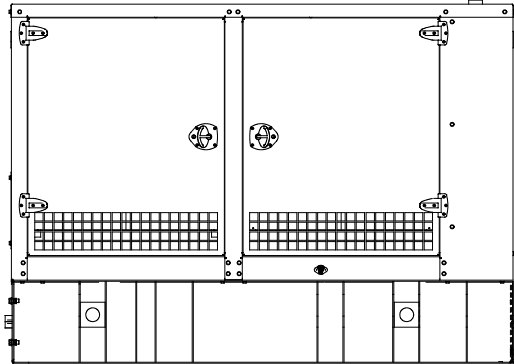
**Note:** Tests follow ARI270-95.

**Table 10. Outdoor sound power level—dB (ref. 10—12 W)**

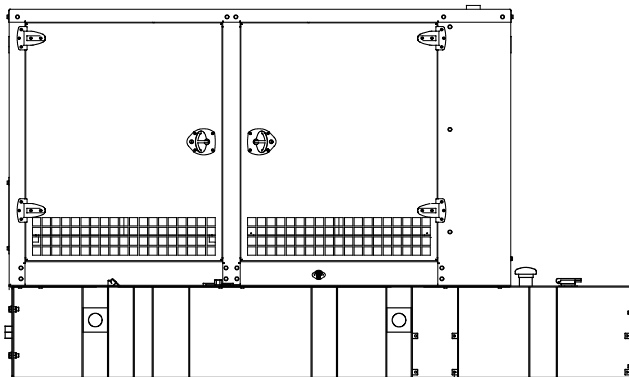
Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	WSC060ED	84	91	79	77	74	71	68	63	80
6	WSC072ED	83	90	86	82	79	75	70	63	85
7½	WSC090ED	83	90	86	83	80	75	71	64	85
10	WSC120ED	83	86	80	77	73	69	66	60	79

**Note:** Tests follow ARI270-95.

### Weather/Sound Enclosure and Subbase Fuel Tank Package



**Enclosure with Standard Subbase Fuel Tank**



**Enclosure with State Code Subbase Fuel Tank**

### Available Approvals and Listings

- ☐ UL 2200 Listing
- ☐ CSA Certified
- ☐ IBC Seismic Certification \*
- ☐ California OSHPD Approval \*
- ☐ cUL Listing (fuel tanks only)
- ☐ Hurricane Rated Enclosure - Available on sound aluminum 180-300kW models.  
(Impact rated for Large Missile Level E and Wind load rated per Florida Building Code tested to TAS201-94, TAS202-94 and TAS203-94 standards)

**NOTE:** Some models may have limited third-party approvals; see your local distributor for details.

\* Requires a state code subbase fuel tank selection.

### Applicable to the following:

**40REOZJC  
50/60REOZJD  
80/100/150/200REOZJF  
125/180REOZJG  
230-275REOZJE  
300REOZJ**

### Weather Enclosure Standard Features

- Internal-mounted silencer and flexible exhaust connector.
- Lift base or tank-mounted, steel construction with hinged doors.
- Fade-, scratch-, and corrosion-resistant Kohler® Power Armor™ automotive-grade textured finish.
- Enclosure has four access doors which allow for easy maintenance.
- Lockable, flush-mounted door latches.
- Vertical air inlet and outlet discharge to redirect air and reduce noise.
- Weather enclosure is designed to 150 mph (241 kph) wind load rating.

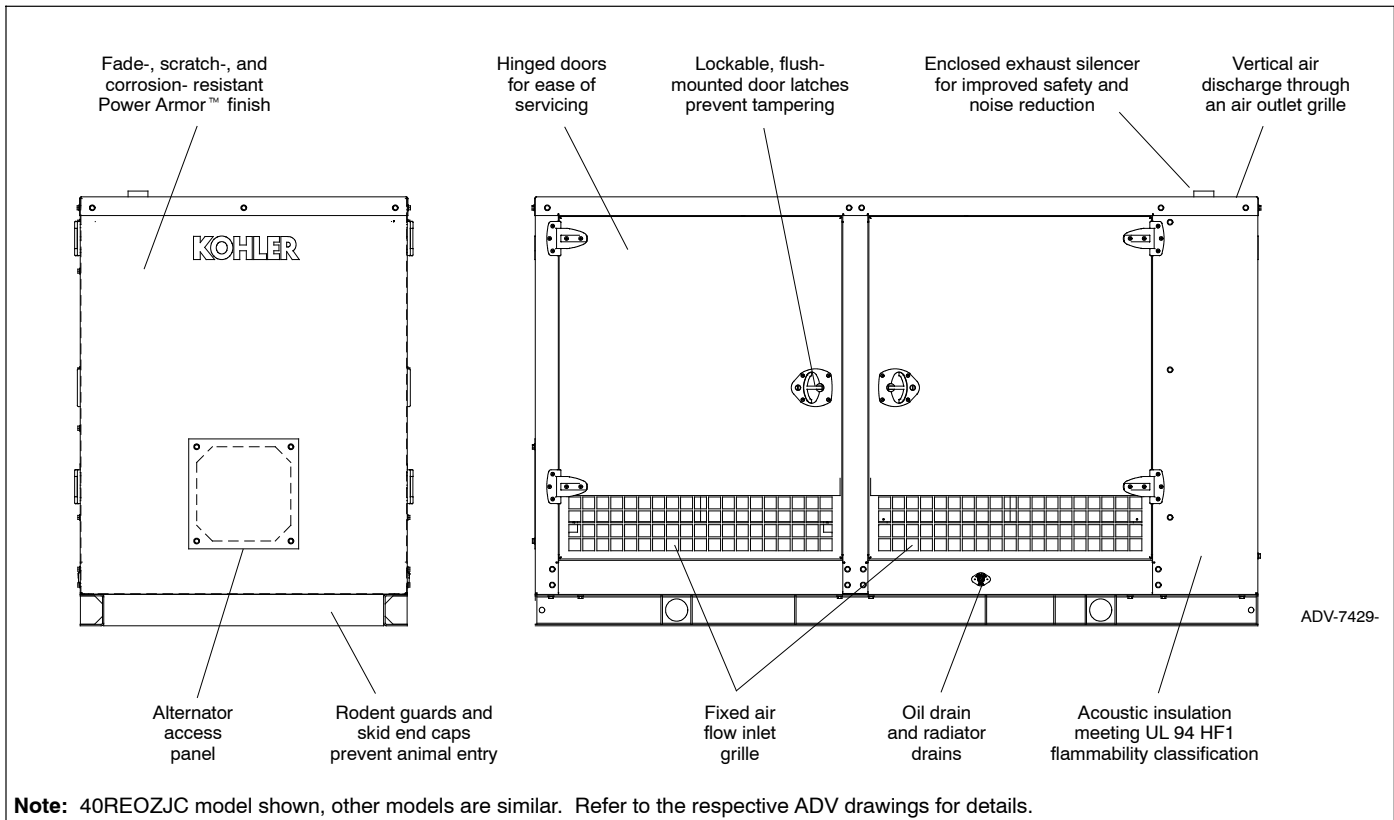
### Sound Enclosure Standard Features

- Includes all of the weather enclosure features with the addition of acoustic insulation material.
- Lift base or tank-mounted, steel or aluminum construction with hinged doors. Aluminum enclosures are recommended for high humidity and/or high salt/coastal regions.
- Acoustic insulation that meets UL 94 HF1 flammability classification and repels moisture absorption.
- Sound-attenuated enclosure that uses up to 51 mm (2 in.) of acoustic insulation.
- Steel sound enclosure is designed to 150 mph (241 kph) wind load rating.
- Aluminum sound enclosure is certified to 186 mph (299 kph) wind load rating for 80-150REOZJ models.
- Aluminum sound enclosure is certified to 181 mph (291 kph) wind load rating for 180-300REOZJ models.

### Subbase Fuel Tank Features

- The fuel tank has a Power Armor Plus™ textured epoxy-based rubberized coating.
- The above-ground rectangular secondary containment tank mounts directly to the generator set, below the generator set skid (subbase).
- Both the inner and outer tanks have emergency relief vents.
- Flexible fuel lines are provided with subbase fuel tank selection.
- The secondary containment generator set base tank meets UL 142 tank requirements. The inner (primary) tank is sealed inside the outer (secondary) tank. The outer tank contains the fuel if the inner tank leaks or ruptures.
- State tanks with varying capacities are an available option. Florida Dept. of Environmental Protection (FDEP) File No. EQ-634 approved.

## Weather and Sound Enclosure



### Enclosure Features

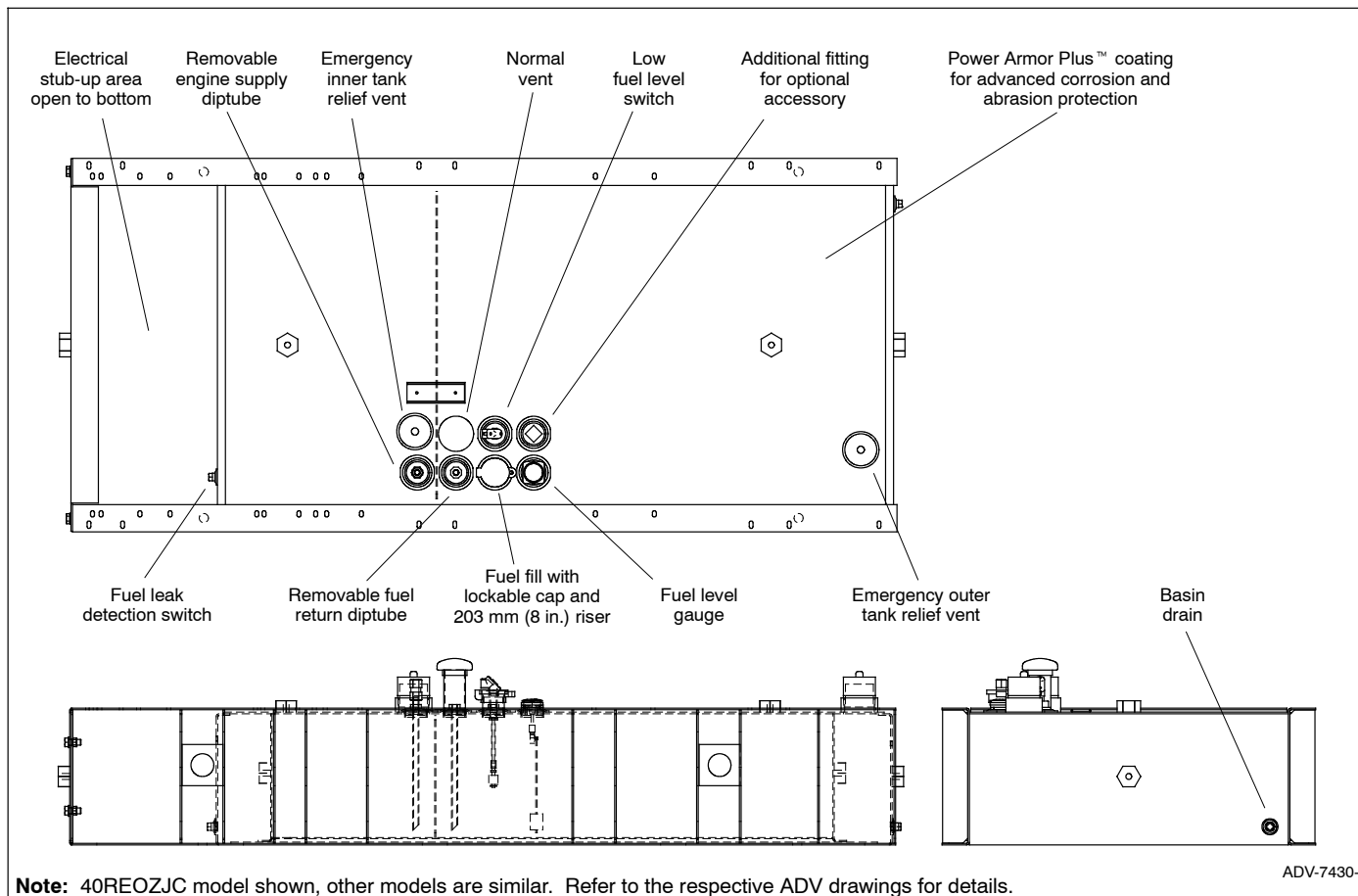
- Available in steel (14 gauge) formed panel, solid construction. Preassembled package offering corrosion resistant, dent resilient structure mounting directly to lift base or fuel tank.
  - Power Armor™ automotive-grade finish resulting in advanced corrosion and abrasion protection as well as enhanced edge coverage and color retention.
  - Internal exhaust silencer offering maximum component life and operator safety.
  - Interchangeable modular panel construction. Allows complete serviceability or replacement without compromising enclosure design.
  - Cooling/combustion air intake with a horizontal air inlet. Sized for maximum cooling airflow.
  - Service access. Multi-personnel doors for easy access to generator set control and servicing of the fuel fill, fuel gauge, oil fill, and battery.
  - Cooling air discharge. Weather protective design featuring a vertical air discharge outlet grille. Redirects cooling air up and above enclosure to reduce ambient noise.
- NOTE:** Installing an additional length of exhaust tail pipe may increase backpressure levels. Please refer to the generator set spec sheet for the maximum backpressure value.

### Additional Sound Enclosure Features

- Available in steel (14 gauge) or aluminum 3.2 mm (0.125 in.) formed panel, solid construction.
- Sound-attenuated design. Acoustic insulation UL 94 HF1 listed for flame resistance offering up to 51 mm (2 in.) mechanically restrained acoustic insulation.
- Cooling air discharge. The sound enclosures include acoustic insulation with urethane film.
- Snow package enclosure is designed to meet NFPA 110 requirement to -20°C (-4°F).



## Subbase Fuel Tank

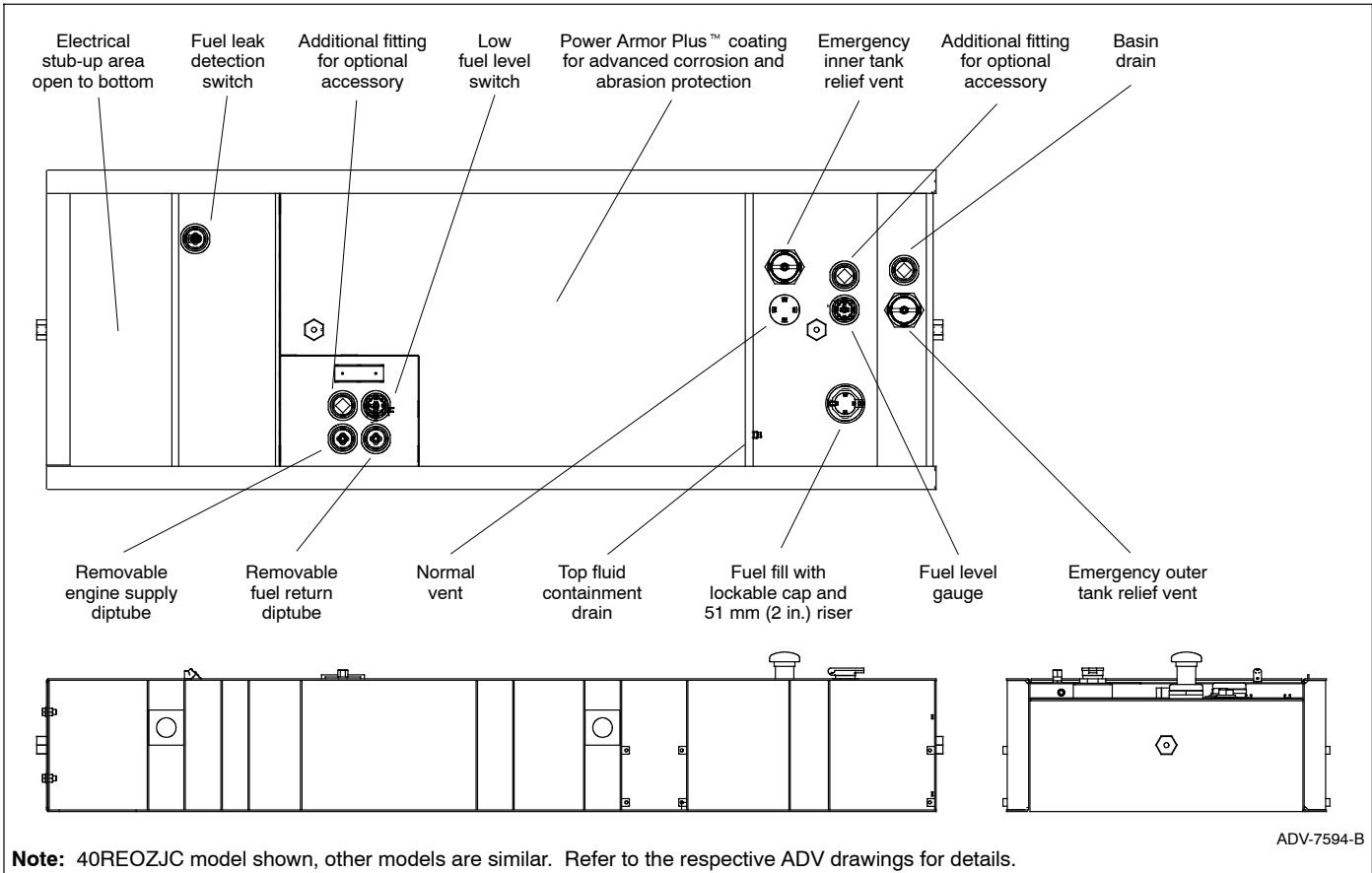


### Standard Subbase Fuel Tank Features

- Extended operation. Usable tank capacity offers full load standby operation of up to 96 hours on select models.
- Power Armor Plus™ textured epoxy-based rubberized coating that creates an ultra-thick barrier between the tank and harsh environmental conditions like humidity, saltwater, and extreme temperatures, and provides advanced corrosion and abrasion protection.
- UL listed. Secondary containment generator set base tank meeting UL 142 requirements.
- NFPA compliant. Designed to comply with the installation standards of NFPA 30 and NFPA 37.
- Integral external lift lugs. Enables crane with spreader-bar lifting of the complete package (empty tank, mounted generator set, and enclosure) to ensure safety.
- Emergency pressure relief vents. Vents ensure adequate venting of the inner and outer tank under extreme pressure and/or emergency conditions.
- Normal vent with cap. Vent is raised above lockable fuel fill.
- Low fuel level switch. Annunciates a 50% low fuel level condition at generator set control.
- Leak detection switch. Annunciates a contained primary tank fuel leak condition at generator set control.
- Electrical stub-up.

**NOTE:** For IBC Seismic Certification and/or California OSHPD Approval, see State Code Subbase Fuel Tank.

## State Code Subbase Fuel Tank



## State Code Subbase Fuel Tank Features

- State tank designed to comply with the installation standards of the Florida Dept. of Environmental Protection (FDEP) File No. EQ-634.
- Includes all of the Standard Subbase Fuel Tank Features.

## State Code Subbase Fuel Tank Options

### Bottom Clearance

- ☐ I-beams, provides 106 mm (4.2 in.) of ground clearance

### Fuel in Basin Options

- ☐ Fuel in basin switch, Florida Dept. of Environmental Protection (FDEP) File No. EQ-682 approved

### Fuel Fill Options

- ☐ Fill pipe extension to within 152 mm (6 in.) of bottom of fuel tank.
- ☐ 18.9 L (5 gallon) spill containment with 95% shutoff
- ☐ 18.9 L (5 gallon) spill containment
- ☐ 18.9 L (5 gallon) spill containment fill to within 152 mm (6 in.) of bottom of fuel tank
- ☐ 28.4 L (7.5 gallon) spill containment, Florida Dept. of Environmental Protection (FDEP) File No. EQ-882 approved
- ☐ 28.4 L (7.5 gallon) spill containment with 95% shutoff, Florida Dept. of Environmental Protection (FDEP) File No. EQ-882/ EQ-883 approved

### Fuel Supply Options

- ☐ Fire safety valve (installed on fuel supply line)
- ☐ Ball valve (installed on fuel supply line)

### High Fuel Level Switch

- ☐ High fuel level switch
- ☐ High fuel level switch, Florida Dept. of Environmental Protection (FDEP) File No. EQ-682 approved

### Normal Vent Options

- ☐ 3.7 m (12 ft.) above grade (without spill containment)
- ☐ 3.7 m (12 ft.) above grade (with spill containment)

### Tank Marking Options

- ☐ Decal, Combustible Liquids - Keep Fire Away (qty. 2)
- ☐ Decal, NFPA 704 identification (qty. 2)
- ☐ Decal, tank number and safe fuel fill height (qty. 2)
- ☐ Decal, tank number and safe fuel fill height, NFPA 704 identification

### Fluid Containment Options

- ☐ 100% engine fluid containment

### Third-Party Approvals

- ☐ IBC Seismic Certification
- ☐ California OSPHD Approval

## Enclosure and Subbase Fuel Tank Specifications

Fuel Tank Capacity, L (gal.)	Est. Fuel Supply Hours at 60 Hz with Full Load, Nominal/ Actual	Enclosure and Subbase Fuel Tank					Fuel Tank Height (or additional skid height with no tank), mm (in.)	Sound Pressure Level at 60 Hz with Full Load, Weather/ Sound, dB(A)‡
		Max. Dimensions, mm (in.)			Max. Weight, kg (lb.) *			
		Length	Width	Height	With Steel Enclosure	With Aluminum Enclosure		

### 40REOZJC Standard Fuel Tank

No Tank	0	2320 (91.3)	1077 (42.4)	1521 (60.0)	966 (2130)	853 (1880)	100 (4)	78/65
424 (112)	24/32			1827 (71.9)	1223 (2697)*	1110 (2447)*	406 (16)	
621 (164)	48/48			1980 (78.0)	1274 (2809)*	1161 (2559)*	559 (22)	
946 (250)	72/73			2234 (88.0)	1555 (3429)*	1442 (3179)*	813 (32)	

### 40REOZJC State Code Fuel Tank †

439 (116)	24/34	2896 (114)	1077 (42.4)	1883 (74.1)	1451 (3199)*	1338 (2949)*	356 (14)	78/65
958 (253)	72/74			2213 (87.1)	1575 (3472)*	1462 (3222)*	686 (27)	

### 50REOZJD Standard Fuel Tank

No Tank	0	2320 (91.3)	1077 (42.4)	1521 (59.9)	1027 (2265)	914 (2015)	100 (4)	78/66
424 (112)	24/26			1827 (71.9)	1285 (2832)*	1171 (2582)*	406 (16)	
621 (164)	36/38			1980 (78.0)	1335 (2944)*	1222 (2694)*	559 (22)	
946 (250)	48/58			2234 (88.0)	1555 (3429)*	1442 (3179)*	813 (32)	

### 50REOZJD State Code Fuel Tank †

439 (116)	24/26	2896 (114)	1077 (42.4)	1883 (74.1)	1529 (3371)*	1416 (3121)*	356 (14)	78/66
958 (253)	48/58			2213 (87.1)	1653 (3644)*	1540 (3394)*	686 (27)	
1408 (372)	72/86			2441 (96.1)	1804 (3977)*	1691 (3727)*	914 (36)	

### 60REOZJD Standard Fuel Tank

No Tank	0	2320 (91.3)	1077 (42.4)	1521 (59.9)	1164 (2566)	1051 (2316)	100 (4)	78/68
492 (130)	24/26			1878 (73.9)	1438 (3170)*	1324 (2920)*	457 (18)	
783 (207)	36/41			2107 (83.0)	1514 (3338)*	1401 (3088)*	686 (27)	
946 (250)	48/50			2234 (88.0)	1555 (3429)*	1442 (3179)*	813 (32)	

### 60REOZJD State Code Fuel Tank †

556 (147)	24/29	2895 (114)	1077 (42.4)	1959 (77.1)	1616 (3563)*	1503 (3313)*	432 (17)	78/68
958 (253)	48/50			2213 (87.1)	1767 (3896)*	1654 (3646)*	686 (27)	
1408 (372)	72/74			2441 (96.1)	1918 (4228)*	1805 (3978)*	914 (36)	

### 80REOZJF Standard Tank

No Tank	0	2821 (111.1)	1156 (45.5)	1723 (67.8)	1483 (3269)	1351 (2979)	150 (6)	83/69
791 (209)	24/30			2081 (81.9)	1766 (3894)*	1635 (3604)*	508 (20)	
1317 (348)	48/50			2386 (93.9)	1882 (4150)*	1751 (3860)*	813 (32)	

### 80REOZJF State Code Fuel Tank †

814 (215)	24/31	3400 (133.9)	1156 (45.5)	2111 (83.1)	1996 (4400)*	1864 (4110)*	432 (17)	83/69
1571 (415)	48/60			2441 (96.1)	2236 (4929)*	2104 (4639)*	762 (30)	
3089 (816)	96/113	3607 (142.0)	1829 (72.0)	2536 (99.8)	3058 (6741)*	2933 (6466)*	813 (32.0)	

**Note:** Data in table is for reference only, refer to the respective ADV drawings for details.

\* Max. weight includes the generator set (wet) using the largest alternator option, enclosure with acoustic insulation added, silencer, and tank (no fuel).

† State code fuel tank specifications (height and weight) include I-beam option.

‡ Log average sound pressure level of 8 measured positions around the perimeter of the unit at a distance of 7 m (23 ft). Refer to TIB-114 for details.

## Enclosure and Subbase Fuel Tank Specifications (continued)

Fuel Tank Capacity, L (gal.)	Est. Fuel Supply Hours at 60 Hz with Full Load, Nominal/ Actual	Enclosure and Subbase Fuel Tank					Fuel Tank Height (or additional skid height with no tank), mm (in.)	Sound Pressure Level at 60 Hz with Full Load, Weather/ Sound, dB(A)‡
		Max. Dimensions, mm (in.)			Max. Weight, kg (lb.) *			
		Length	Width	Height	With Steel Enclosure	With Aluminum Enclosure		
100REOZJF Standard Tank								
No Tank	0	2821 (111.1)	1156 (45.5)	1723 (67.8)	1592 (3510)	1461 (3220)	150 (6)	82/69
791 (209)	24/25			2081 (81.9)	1875 (4134)*	1744 (3844)*	508 (20)	
1696 (448)	48/54			2386 (93.9)	2070 (4564)*	1939 (4274)*	813 (32)	
100REOZJF State Code Fuel Tank †								
814 (215)	24/26	3400 (133.9)	1156 (45.5)	2111 (83.1)	2105 (4641)*	1974 (4351)*	432 (17)	82/69
1571 (415)	48/50			2441 (96.1)	2345 (5170)*	2214 (4880)*	762 (30)	
3089 (816)	96/96			3607 (142.0)	1829 (72.0)	2536 (99.8)	3167 (6981)*	
125REOZJG Standard Fuel Tank								
No Tank	0	3532 (139.0)	1153 (45.4)	1739 (68.5)	1651 (3632)	1515 (3333)	0 (0)	87/73
1128 (298)	24/30			2222 (87.5)	2400 (5280)*	2264 (4981)*	483 (19)	
2207 (583)	48/58			2653 (104.4)	2751 (6052)*	2615 (5753)*	914 (36)	
125REOZJG State Code Fuel Tank †								
1196 (316)	24/31	4414 (173.8)	1153 (45.4)	2328 (91.7)	2382 (5240)*	2446 (4941)*	483 (19)	87/73
2252 (595)	48/60			2683 (105.6)	2654 (5839)*	2500 (5511)*	838 (33)	
4403(1163)	96/113			4445 (175.0)	1829 (72.0)	2654 (104.5)	3707 (8173)*	
150REOZJF Standard Fuel Tank								
No Tank	0	3532 (139.0)	1153 (45.4)	1739 (68.5)	1860 (4101)	1724 (3800)	0 (0)	86/75
1128 (298)	24/25			2222 (87.5)	2609 (5752)*	2473 (5452)*	483 (19)	
2207 (583)	48/49			2653 (104.4)	2960 (6526)*	2824 (6226)*	914 (36)	
150REOZJF State Code Fuel Tank †								
1196 (316)	24/27	4414 (173.8)	1153 (45.4)	2328 (91.7)	2591 (5712)*	2455 (5412)*	483 (19)	86/75
2252 (595)	48/50			2683 (105.6)	2890 (6361)*	2727 (6012)*	838 (33)	
4403(1163)	96/95			4445 (175.0)	1829 (72.0)	2654 (104.5)	3839 (8463)*	
180REOZJG Standard Fuel Tank								
No Tank	0	4094 (161.2)	1338 (52.7)	2038 (80.2)	1928 (4250)	1780 (3925)	0 (0)	85/72
1514 (400)	24/31			2521 (99.3)	2861 (6307)*	2713 (5981)*	483 (19)	
2869 (758)	48/58			2927 (115.2)	3255 (7176)*	3107 (6850)*	889 (35)	
180REOZJG State Code Fuel Tank †								
1556 (416)	24/32	5008 (197.2)	1338 (52.7)	2601 (102.4)	3162 (6971)*	3014 (6646)*	457 (18)	85/72
2896 (765)	48/59			2906 (114.4)	3488 (7690)*	3340 (7363)*	762 (30)	
5742(1517)	96/106			5436 (214.0)	1829 (72.0)	2935 (115.5)	3760 (8289)*	
200REOZJF Standard Fuel Tank								
No Tank	0	4094 (161.2)	1338 (52.7)	2025 (79.7)	2508 (5530)	2223 (4900)	0 (0)	87/75
1514 (400)	24/26			2508 (98.7)	3441 (7587)*	3156 (6957)*	483 (19)	
2869 (758)	48/49			2914 (114.7)	3836 (8456)*	3550 (7826)*	889 (35)	
200REOZJF State Code Fuel Tank †								
1575 (416)	24/27	5008 (197.2)	1338 (52.7)	2588 (101.9)	3743 (8251)*	3456 (7621)*	457 (18)	87/75
2896 (765)	48/50			2893 (113.9)	4069 (8970)*	3783 (8340)*	762 (30)	
5742(1517)	96/95			5436 (214.0)	1829 (72.0)	2935 (115.5)	4236 (9339)*	

**Note:** Data in table is for reference only, refer to the respective ADV drawings for details.

\* Max. weight includes the generator set (wet) using the largest alternator option, enclosure with acoustic insulation added, silencer, and tank (no fuel).

† State code fuel tank specifications (height and weight) include I-beam option.

‡ Log average sound pressure level of 8 measured positions around the perimeter of the unit at a distance of 7 m (23 ft). Refer to TIB-114 for details.

## Enclosure and Subbase Fuel Tank Specifications (continued)

Fuel Tank Capacity, L (gal.)	Est. Fuel Supply Hours at 60 Hz with Full Load, Nominal/ Actual	Enclosure and Subbase Fuel Tank					Fuel Tank Height (or additional skid height with no tank), mm (in.)	Sound Pressure Level at 60 Hz with Full Load, Weather/ Sound, dB(A)‡
		Max. Dimensions, mm (in.)			Max. Weight, kg (lb.) *			
		Length	Width	Height	With Steel Enclosure	With Aluminum Enclosure		
230REOZJE Standard Fuel Tank								
No Tank	0	4121 (162.3)	1338 (52.7)	2153 (84.8)	2654 (5850)	2540 (5600)	260 (10)	87/75
1787 (472)	24/29			2655 (104.5)	3561 (7850)*	3447 (7600)*	762 (30)	
230REOZJE State Code Fuel Tank †								
2101 (555)	24/34	5009 (197.2)	1338 (52.7)	2894 (113.9)	3895 (8587)*	3782 (8337)*	635 (25)	87/75
3573 (944)	48/58	5325 (209.7)		3173 (124.9)	4504 (9930)*	4391 (9680)*	914 (36)	
250REOZJE Standard Fuel Tank								
No Tank	0	4121 (162.3)	1338 (52.7)	2153 (84.8)	2699 (5950)	2585 (5700)	260 (10)	89/75
1787 (472)	24/26			2655 (104.5)	3606 (7950)*	3493 (7700)*	762 (30)	
250REOZJE State Code Fuel Tank †								
2101 (555)	24/31	5009 (197.2)	1338 (52.7)	2894 (113.9)	3940 (8687)*	3827 (8437)*	635 (25)	89/75
3573 (944)	48/53	5325 (209.7)		3173 (124.9)	4550 (10030)*	4436 (9780)*	914 (36)	
275REOZJE Standard Fuel Tank								
No Tank	0	4121 (162.3)	1338 (52.7)	2153 (84.8)	2835 (6250)	2722 (6000)	260 (10)	89/75
1787 (472)	24/24			2655 (104.5)	3742 (8250)*	3629 (8000)*	762 (30)	
275REOZJE State Code Fuel Tank †								
2101 (555)	24/28	5009 (197.2)	1338 (52.7)	2894 (113.9)	4076 (8987)*	3963 (8737)*	635 (25)	89/75
3573 (944)	48/48	5325 (209.7)		3173 (124.9)	4686 (10330)*	4572 (10080)*	914 (36)	
300REOZJ Standard Fuel Tank								
No Tank	0	4121 (162.3)	1338 (52.7)	2153 (84.8)	2835 (6250)	2722 (6000)	260 (10)	89/75
2067 (546)	24/24			2731 (107.5)	3770 (8311)*	3656 (8061)*	838 (33)	
300REOZJ State Code Fuel Tank †								
2101 (555)	24/25	5009 (197.2)	1338 (52.7)	2894 (113.9)	4076 (8987)*	3963 (8737)*	635 (25)	89/75
4065(1074)	48/48	5588 (220.0)		3173 (124.9)	4644 (10238)*	4530 (9988)*	914 (36)	

**Note:** Data in table is for reference only, refer to the respective ADV drawings for details.

\* Max. weight includes the generator set (wet) using the largest alternator option, enclosure with acoustic insulation added, silencer, and tank (no fuel).

† State code fuel tank specifications (height and weight) include I-beam option.

‡ Log average sound pressure level of 8 measured positions around the perimeter of the unit at a distance of 7 m (23 ft). Refer to TIB-114 for details.





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