INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
for
Oeste Basins Groundwater Recharge Project
Piñon Hills, CA

Mojave Water Agency

Lead Agency:
Mojave Water Agency
13846 Conference Center Drive
Apple Valley, CA 92307

Prepared by:

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August 2023

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LIST OF ACRONYMS

Acronym	Definition
AB 32	Assembly Bill 32
AB 52	Assembly Bill 52
Aft/yr	Acre Feet Per Year
AMSL	Above Mean Sea Level
AQMP	Air Quality Management Plan
APN	Assessor Parcel Number
BMPs	Best Management Practices
BUOW	Burrowing Owl
CAA	Clean Air Act
CARB	California Air Resources Board
CBC	California Building Codes
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CESA	California Endangered Species Act
CGP	Construction General Permit
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	Carbon Monoxide
County	San Bernardino County
dB	Decibel
dBA	A-Weighted Decibels
DTSC	Department of Toxic Substance Control
EIA	Energy Information Administration
EPA	Environmental Protection Agency
ERIS	Environmental Risk Information Service
ESA	Endangered Species Act
FAR	Federal Aviation Regulations
FEMA	Federal Emergency Management Agency
FGC	California Fish and Game Code
Form	Environmental Checklist Form
GCC	Global Climate Change
GHG	Greenhouse Gas
GWh	Gigawatt-Hours
HCP	Habitat Conservation Plan
HSC	Health and Safety Code
kWh	Kilowatt-Hours
LED	Light Emitting Diode
LEQ	Equivalent Sound Level
LOS	Level of Service
LST	Localized Significance Threshold
MDAQMD	Mojave Desert Air Quality Management District
MBTA	Migratory Bird Treaty Act
MGS	Mohave Ground Squirrel
MLD	Most Likely Descendent
MRZ	Mineral Resources Zone
$MTCO_2e$	Metric Tons Carbon Dioxide Equivalent
MWA	Mojave Water Agency

NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
ND	Negative Declaration
NO_2	Nitrogen Dioxide
NOI	Notice of Intent
NOx	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
O_3	Ozone
OPR	Office of Planning and Research
Pb	Lead
PF	Public Facilities
PM-2.5	Particulate Matter Less Than 2.5 Microns in Diameter
PM-10	Particulate Matter Less Than 10 Microns in Diameter
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB 100	Senate Bill 100
SBCFD	San Bernardino County Fire
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SCAQMD	South Coast Air Quality Management District
SF	Square Feet
SO_2	Sulfur Dioxide
SP	Service Populations
SRA	Source Receptor Area
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TIA	Traffic Impact Analysis
VMT	Vehicle Miles Traveled
WQMP	Water Quality Management Plan
USDA	US Department of Agriculture
USFWS	US Fish & Wildlife Service
USGS	US Geological Survey
VOC	Volatile Organic Compounds

1 PURPOSE AND SCOPE

The Mojave Water Agency (MWA) proposes to construct two approximately 4.5-acre basins for groundwater recharge within a 10-acre vacant parcel (APN 3099-081-01) located on the south side of Cayucos Drive, approximately 0.36 mile west of Oasis Road and approximately 0.45 mile east of 263rd Street East, and the associated piping to be located within an adjacent 0.03-acre area within the Department of Water Resources right-of-way (Proposed Project), within the unincorporated area of San Bernardino County known as Piñon Hills (Project Site). The Proposed Project is designed to draw approximately 3,000 acre-feet/year (Aft/yr) of State Water Project (SWP) water from the California aqueduct for groundwater recharge and storage in the Oeste groundwater subbasin.

The Proposed Project is a project under the California Environmental Quality Act (Public Resource Code § 21000 et seq.: "CEQA"). The primary purpose of CEQA is to inform the public and decision makers as to the potential impacts of a project and to allow an opportunity for public input to ensure informed decision-making. CEQA requires all state and local government agencies to consider the environmental effects of projects over which they have discretionary authority. CEQA also requires each public agency to mitigate or avoid any significant environmental impacts resulting from the implementation of projects subject to CEQA.

Pursuant to Section 15367 of the Guidelines for Implementation of the California Environmental Quality Act ("State CEQA Guidelines"), the MWA is the lead agency for the Proposed Project. The lead agency is the public agency that has the principal responsibility for conducting or approving a project. The MWA, as the lead agency for the Proposed Project, is responsible for preparing environmental documentation in accordance with CEQA to determine if approval of the discretionary actions requested and subsequent development and operation of the Proposed Project would have a significant impact on the environment.

In accordance with the CEQA (Public Resources Code Section 21000-21178.1), this Initial Study has been prepared to analyze the Proposed Project to determine any potential significant impacts upon the environment that would result from construction and long-term operation of the Proposed Project. In accordance with California Code of Regulations, Section 15063, this Initial Study is a preliminary analysis prepared by the Lead Agency in consultation with other jurisdictional agencies, to determine whether a Negative Declaration, Mitigated Negative Declaration, or an Environmental Impact Report is required for the Proposed Project. The purpose of this Initial Study is to inform the decision-makers, affected agencies, and the public of potential environmental impacts associated with the implementation of the Proposed Project.

A Lead Agency may prepare a Mitigated Negative Declaration for a project that is subject to CEQA when an Initial Study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the Applicant before the proposed Negative Declaration and Initial Study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment (Public Resources Code Section 21064.5).

This Initial Study has been prepared for the Proposed Project, in conformance with Section 15070(b) of the State CEQA Guidelines. This Initial Study analyzes potentially significant impacts associated with the Proposed Project and incorporates mitigation measures into the Proposed Project as necessary to eliminate the potentially significant effects of the Proposed Project or to reduce the effects to a level of less than significant.

1.1 CONTENT AND FORMAT OF THE INITIAL STUDY

The Initial Study is organized as follows:

- **Section 1 – Purpose and Scope.** This section introduces the scope of the Proposed Project and the MWA's role in the project, as well as a brief summary of findings.
- **Section 2 – Project Summary and Environmental Determination.** This section summarizes the Proposed Project and actions to be undertaken by the MWA. This section also provides the determination of the environmental document to be approved by the MWA.
- **Section 3 – Project Description.** This section details the Proposed Project components and general environmental setting.
- **Section 4 – Environmental Impacts**. This section contains the Environmental Checklist Form (Form), as suggested in Section 15063(d)(3) of the State CEQA Guidelines, as amended, and includes a series of questions about the project for each of the listed environmental topics. The Form evaluates whether or not there would be significant environmental effects associated with the development of the project and provides mitigation measures, when required, to reduce impacts to a less than significant level. The Form requires an analysis in 20 subject categories as well as Mandatory Findings of Significance.
- **Section 5 – List of Preparers.** This section identifies the names and affiliations of the individuals who contributed to the preparation of the environmental evaluation.
- **Section 6 – References.** This section identifies the references used in the preparation of this Initial Study.

1.2 INITIAL STUDY SUMMARY OF FINDINGS

Based on the analysis in Section 4, there were no environmental factors that could potentially affect ("Potentially Significant") the environment. Mitigation measures were identified to reduce some impacts to Less Than Significant. Therefore, the determination, based on the Initial Study, is that a **Mitigated Negative Declaration** would be prepared.

1.3 DOCUMENTS INCORPORATED BY REFERENCE

The following reports and/or studies are applicable to development of the Project Site and are hereby incorporated by reference:

- *County of San Bernardino 2007 General Plan*. Prepared by URS, as amended April 24, 2017, Available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/http://www.sbcounty.gov/Uploads/LUS/GeneralPlan/Policy%20Plan%20and%20Policy%20Maps.pdf

- *2020 Urban Water Management Plan, Mojave Water Agency,* (UMP) prepared by Tully & Young, adopted May 27, 2021.

1.4 CONTACT PERSON

Any questions about the preparation of the Initial Study, its assumptions, or its conclusions should be referred to the following:

Mojave Water Agency
Attn: Matthew Johnson, Senior Water Resources Specialist
13846 Conference Center Drive
Apple Valley, CA 92307
Phone: (760) 946-7032
Email: mjohnson@mojavewater.org

2 PROJECT SUMMARY AND ENVIRONMENTAL DETERMINATION

2.1 PROJECT SUMMARY

1.	**Project Title:**	Oeste Basin Groundwater Recharge Project
2.	**Lead Agency Name:** **Address**	Mojave Water Agency 13846 Conference Center Drive, Apple Valley, CA 92307
3.	**Contact Person:**	Matthew Johnson, Senior Water Resources Specialist (760) 946-7032 mjohnson@mojavewater.org
5.	**Project Location:**	Cayucos Drive, approx. 0.36 mile west of Oasis Road and within Dept of Water Resources Right-of-Way Assessor Parcel No 3099-081-01 *Mescal Creek* USGS Quad; T5N, R7W, Sect. 30 Latitude 34°29'13.14"N, Longitude 117°39'3.41"W
4.	**Project Sponsor's Name:** **Address**	Mojave Water Agency Attn: Matthew Johnson 13846 Conference Center Drive Apple Valley, CA 92307
6.	**General Plan Designation:**	Phelan/Piñon Hills/Rural Living (PH/RL)
7.	**Zoning Designation:**	Phelan/Piñon Hills/Rural Living (PH/RL)
8.	**Description of Project:**	The Mojave Water Agency (MWA) proposes to construct two approximately 4.5-acre basins for groundwater recharge within a 10-acre vacant parcel located on the south side of Cayucos Drive, approximately 0.36 mile west of Oasis Road, within Assessor's Parcel Number (APN) 3099-081-01 and the associated basin piping in an adjacent 0.03-acre area within the Department of Water Resources right-of-way, within the unincorporated area of San Bernardino County known as Piñon Hills. The Proposed Project is designed to draw approximately 4,000 acre-feet/year of State Water Project water from the California aqueduct in wet years for groundwater recharge and storage in the Oeste groundwater subbasin.
9.	**Surrounding Land Uses:**	

Surrounding land uses are identified in **Table 1*: Surrounding Land Use*.**

Table 1: Surrounding Land Use

Direction	Land Use Description
North	Cayucos Drive, vacant
East	Vacant
South	Aqueduct Road/Dept of Water Resources California Aqueduct, vacant
West	Vacant

10. Other Public Agencies Whose Approval is Required:

The following discretional approvals are required for the Project:

Federal Agencies

- None

State Agencies:

- California Dept of Water Resources – Encroachment Permit
- California Dept of Fish and Wildlife – Joshua Tree removal permit/authorization

11. California Native American Consultation:

On November 9, 2022, the Mojave Water Agency notified the following tribal entity representatives of the Project and that the 30-day timeframe in which to request consultation would end on December 9, 2022, in accordance with AB52. The results of the consultation are as follows:

- Mr. Raymond Huaute Cultural Resources Specialist Morongo Band of Mission Indians. Result: No response provided.
- Ms. Jill McCormick Historic Preservation Officer Quechan Tribe of the Fort Yuma Reservation. Result: No response provided.
- Ms. Donna Yocum Chairperson San Fernando Band of Mission Indians. Result: No response provided.
- Ms. Jessica Mauck Cultural Resources Management Department Yuhaaviatam of San Manuel Nation (formerly known as the San Manuel Band of Mission Indians). Result: No response provided.
- Mr. Mark Cochrane Co-Chairperson Serrano Nation of Mission Indians. Result: No response provided

2.2 ENVIRONMENTAL ANALYSIS AND DETERMINATION

In accordance with the CEQA (Public Resources Code Section 21000-21178.1), this Initial Study has been prepared to analyze the Proposed Project to determine any potential significant impacts upon the environment that would result from construction and implementation of the Project. This Initial Study is based on an Environmental Checklist Form (Form), as suggested in Section 15063(d)(3) of the State CEQA

Guidelines, as amended, and includes a series of questions about the project for each of the listed environmental topics. The Form evaluates whether or not there would be significant environmental effects associated with the development of the project and provides mitigation measures, when required, to reduce impacts to a less than significant level.

In accordance with California Code of Regulations, Section 15063, this Initial Study is a preliminary analysis prepared by the Lead Agency in consultation with other jurisdictional agencies, to determine whether a Negative Declaration, Mitigated Negative Declaration, or an Environmental Impact Report is required for the Proposed Project. The purpose of this Initial Study is to inform the decision-makers, affected agencies, and the public of potential environmental impacts associated with the implementation of the Proposed Project.

Earlier analyses may be used where, pursuant to the Program EIR or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. (Section 15063[c] [3][D]. In this case, a brief discussion should identify the following:

a) Earlier analyses used where they are available for review.

b) Which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and whether such effects were addressed by mitigation measures based on the earlier analysis.

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

References and citations have been incorporated into the checklist references to identify information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document, where appropriate, include a reference to the page or pages where the statement is substantiated.

Source listings and other sources used, or individuals contacted are cited in the discussion.

The explanation of each issue should identify:

a) The significance criteria or threshold, if any, used to evaluate each question

b) The mitigation measure identified, if any, to reduce the impact to less than significant.

2.2.1 Terminology Used in This Analysis

Section 4 provides a discussion of the potential environmental impacts of the Project. The evaluation of environmental impacts follows the questions provided in the Checklist provided in the CEQA Guidelines. 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.

Once the Lead Agency has determined that a particular physical impact may occur, the checklist answers indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant, described as follows:

- **No Impact.** A designation of no impact is given when no adverse changes in the environment are expected. 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 the project (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

- **Less Than Significant.** A less than significant impact would cause no substantial adverse change in the environment.

- **Less Than Significant with Mitigation**. This applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." Mitigation measures are identified and explain how they reduce the effect to a less than significant level (mitigation measures may be cross-referenced).

- **Potentially Significant.** A significant and unavoidable impact would cause a substantial adverse effect on the environment and no feasible mitigation measures would be available to reduce the impact to a less-than-significant level.

2.2.2 Environmental Factors Potentially Affected

Based on the analysis in Section 4, the environmental factors below would be potentially affected by the Proposed Project. The factors checked below were found to either be "Potentially Significant" but where mitigation measures were identified to reduce potential impacts to less than significant.

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

2.2.3 Determination

On the basis of this initial evaluation, the following finding is made:

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

Signature Date

Name Title

3 PROJECT DESCRIPTION

3.1 BACKGROUND

MWA was founded in 1960 to manage the Mojave area water supply due to concerns over declining groundwater levels. Governed by an elected Board of Directors, the MWA was created for the explicit purpose of doing “any and every act necessary, so that sufficient water may be available for any present or future beneficial use of the lands and inhabitants within the Agency’s jurisdiction’ as stated in the MWA law chapter 97-1.5.”

The MWA is one of 29 State Water Project (SWP) contractors, serving as the regional imported supplemental (SWP) water provider for approximately 4,900 square miles in San Bernardino County, including Barstow, Lucerne Valley, the Victor Valley, Yucca Valley, and surrounding communities. To best manage the Mojave River Watershed and associated groundwater basins (Mojave Basin), the Mojave Basin Judgement (adjudication) and the court divided the service area into five separate “subareas”. These subareas are based on hydrologic divisions defined by various hydrologic, geologic, engineering, and political considerations. The subareas are: 1) Oeste; 2) Este; 3) Alto; 4) Centro, and 5) Baja. The Morongo Basin/Johnson Valley Area is the sixth actively managed subarea within the Agency’s service area.

SWP water is an important imported supplemental water supply source for the MWA service area. MWA currently has a contract for up to 85,800 acre-feet per year (AFY), although the water allotment varies annually based on SWP available supply. According to the most recent Urban Water Management Plan (UWMP), the imported supplemental SWP water is one of four sources of water for the groundwater basins within MWA’s service area. Other sources include natural local surface water flows, return flow from pumped groundwater not consumptively used, and wastewater imports from outside the MWA service area. Natural surface supply, return flow, wastewater imports, and SWP imports are used to recharge the groundwater basins.

The MWA operates groundwater recharge facilities to supplement native groundwater supplies in areas where the natural supply is insufficient to meet water usage. The recharge area operates by spreading imported supplemental SWP supplies on the surface of the recharge area where the water then percolates down through the soils into the underlying groundwater basin. MWA maintains and operates recharge facilities in various areas of the management subareas.

According to the MWA Water Master 2021 Report and 2015 Urban Water Management Plan, local water demand is expected to increase with forecasted population growth. Local groundwater elevations in Oeste have been stable or slightly declining for the last 20 years as verified production has been higher than the safe yield of the groundwater basin. To alleviate current deficits in groundwater supply and support future population expansion in the area, groundwater recharge will be a pivotal tool.

Currently, the Oeste Subarea does not have groundwater recharge facilities. Therefore, the MWA proposes to construct two, approximately 4.5-acre basins to draw approximately 4,000 Aft/yr of SWP water from the California aqueduct for groundwater recharge and storage in the Oeste groundwater subbasin.

3.2 PROJECT LOCATION

The Project Site is located within the unincorporated area of San Bernardino County known as Piñon Hills, approximately 0.88 mile south of SR-18 and approximately 3.6 miles east of SR-138 (**Figure 1 – *Regional Vicinity Map***). Specifically, the Project would occur within a 10-acre vacant parcel (APN 3099-081-01) located on the south side of Cayucos Drive, approximately 0.36 mile west of Oasis Road and approximately 0.45 mile east of 263rd Street East, and the associated piping to be located within an adjacent 0.03-acre area within the Department of Water Resources right-of-way (**Figure 2 – *Project Location Map-Aerial***). The Project is located at approximately Latitude 34°29'13.14"N, Longitude 117°39'3.41"W and can be found within the U.S. Geological Survey (USGS) *Mescal Creek* 7.5' Topographic Map, within Section 30, Township 5 North, Range 7 West (**Figure 3 – *USGS Topographic Map***).

3.3 ENVIRONMENTAL SETTING

The Mojave Desert is found at elevations of 2,000 to 5,000 feet above mean sea level and is characterized by cool winter temperatures and warm summer temperatures, with its rainfall occurring almost entirely in the winter. Climatological data obtained for the Project Site indicates the annual precipitation averages 6.18 inches per year. Almost all of the precipitation in the form of rain occurs in the months between October and April, with hardly any occurring between the months of May and September. The wettest month is February, with a monthly average total precipitation of 1.22 inches. The average minimum and maximum temperatures for the region are 45.7 and 78.9 degrees Fahrenheit (°F) respectively with December and January (monthly average 41° F) being the coldest months and July being the hottest (monthly average 100° F).

The Project Site's elevation ranges from approximately 3,468 to 3,485 feet above mean sea level. The site slopes gently northward away from the adjacent Aqueduct and is relatively flat outside of the Aqueduct and a series of swales sheet flow across the site.

The Project Site supports undeveloped land varying between undisturbed to heavily disturbed. Dirt trails and unofficial off-road vehicle access roads, that connect to a network of larger trails and roads in the area, traverse the Project Site. In addition, the northern boundary has been impacted by illegal dumping. Portions of the Project Site that occur within the California Aqueduct are fully developed.

In December 2021, the MWA and Hargis and Associates drilled two exploratory boreholes and constructed two monitoring wells in the northeastern portion of the site to determine the potential for recharge water to infiltrate through surficial sediments and reach the water table. The results indicated that the Project Site is suitable for infiltration.

3.4 PROJECT CHARACTERISTICS - CONSTRUCTION

The MWA proposes to construct two, approximate 4.5-acre groundwater recharge basins on its 10-acre parcel in the Piñon Hills area. The proposed Project will also install four 8-inch diameter flexible suction hoses into the aqueduct that will feed a new 16-inch pipe that will be installed underground from the aqueduct to the recharge basin. It is anticipated that the site will percolate SWP water into the ground at approximately 2 ft per day and 9 acres of the recharge area will be in use approximately 60 percent of the time allowing a total of approximately 3,900 Aft/yr to be recharged into the proposed groundwater basin (**Figure 4 – *Site Plan***).

The initial site clearing is estimated to occur over one month, between the hours of 7 am and 4 pm, with the Project completed within three months. Work will likely take place during the summer of 2023. This is typically when there is a low chance of occurrence of strong weather and local wildlife interfering with the construction operations.

The number of construction personnel will vary based on the work for the Project that is completed that day. It is anticipated that the Project will utilize five employees daily over the three-month construction period.

3.4.1 Construction Methods - Basins

Construction would be undertaken by an MWA contractor. The Project is anticipated to remove approximately 80,409 cubic yards of fill to create the new basin. It is anticipated that the contractor would remove the material and stockpile it on a site located within a 5-mile radius of the Project Site, where the soil would be available for reuse by private and public entities.

3.4.2 Construction Methods – Pipeline and Vault

A 3-foot-deep trench would be excavated using a backhoe, for approximately 430 feet, from the south edge of the southern basin to the new turnout facility that would be installed at the aqueduct. The turnout equipment consists of four 8-inch diameter suction hoses and pipe and would be installed within the aqueduct right of way. Pavement would be installed over the suction pipe within the existing paved area of the DWR access road. A concrete vault to house the flow meter will be installed at the suction hoses in the DWR right-of-way.

3.4.3 Potential Construction Equipment

Project construction will require the use of heavy equipment. While the final types and numbers of construction equipment will be determined by the construction contractor, the types of equipment that may be utilized are identified in **Table 2: *Equipment Assumptions***.

Table 2: Equipment Assumptions

Equipment Type	Numbers of Equipment	Duration
Bulldozer – CAT D3	1	1 months
Backhoe – CAT 416	1	3 months
Scraper – CAT 637 E	1	3 months
Loader – CAT 938M	1	3 months
Skip loader – CAT 415F2 IL	2	3 months
Water Truck	1	3 months
Compactor – CASE PT240D	1	1 month
Dirt Haul Trucks – approx. 80,409 CY	TBD by contractor	2 weeks

3.4.4 Right-of-Way Acquisition

The area to be potentially affected by the Project includes approximately 0.03 acre within the DWR right-of-way and aqueduct. The Project would require the acquisition of a permanent easement within the DWR right-of-way as well as a temporary construction easement DWR. Since the proposed construction is not located within an existing roadway, it would not require relocation of existing utilities (water, sewer, cable, telephone, gas, electric utilities, etc.).

3.4.5 Construction Staging and Access

The MWA will coordinate and identify the staging area within the Project Site. It is anticipated that the construction staging would occur directly on the Project Site, and/or on the adjacent roadway of Cayucos Drive.

3.4.6 Construction Timing

The Project is anticipated to be constructed as soon as permits are received and take approximately three months to complete. Tentatively, it is anticipated that work would begin in early summer 2024 and end in late summer 2024.

3.4.7 Best Management Practices/Avoidance and Minimization Measures

The MWA and its contractor will follow conditions and guidelines for best management practices with respect to construction:

- **Migratory Bird Treaty Act (MBTA) Compliance.** Bird nesting season generally extends from February 1 through September 15 in southern California and specifically, April 15 through August 31 for migratory passerine birds. To avoid impacts to nesting birds (common and special status) during the nesting season, a qualified Avian Biologist will conduct pre-construction Nesting Bird Surveys (NBS) prior to Project-related disturbance to nestable vegetation to identify any active nests. If no active nests are found, no further action will be required. If an active nest is found, the biologist will set appropriate no-work buffers around the nest which will be based upon the nesting species, its sensitivity to disturbance, nesting stage and expected types, intensity and duration of disturbance. The nests and buffer zones shall be field checked weekly by a qualified biological monitor. The approved no-work buffer zone shall be clearly marked in the field, within which no disturbance activity shall commence until the qualified biologist has determined the young birds have successfully fledged and the nest is inactive.

- **Stormwater Management.** Because the Proposed Project would disturb more than 1 acre, the Proposed Project is regulated under the construction general permit (CGP, Order No. 2009-009-DWQ) and its subsequent revisions (Order No. 2012-0006-DWQ) issued by the State Water Resources Control Board (SWRCB). Projects obtain coverage under the CGP by developing and implementing a Stormwater Pollution Prevention Plan (SWPPP) that estimates sediment risk from construction activities to receiving waters and specifies best management practices that would be implemented as a part of the Proposed Project's construction phase to minimize pollution of stormwater prior to and during grading and construction. The Proposed Project is required to prepare a SWPPP and associated BMPs in compliance with the CGP during grading and construction. The SWPPP would specify BMPs that would be implemented for the Proposed Project to protect the water quality of receiving waters. Other construction BMPs that may be incorporated into the Proposed Project's SWPPP and implemented during the construction phase include but are not limited to:

- Installation of perimeter silt fences and perimeter sandbags and/or gravel bags
- Stabilized construction exits with rumble strip(s)/plate(s)
- Installation of storm drain inlet protection on affected roadways
- Installation of silt fences around stockpile and covering of stockpiles
- Stabilization of disturbed areas where construction ceases for a determined period of time (e.g., one week) with erosion controls
- Installation of temporary sanitary facilities and dumpsters
- Adherence to the BMPs in the SWPPP would reduce, prevent, minimize, and/or treat pollutants and prevent degradation of downstream receiving waters; reduce or avoid contamination of urban runoff with sediment; and reduce or avoid contamination with other pollutants such as trash and debris, oil, grease, fuels, and other toxic chemicals.

3.4.8 Operations Scenario

Once constructed, it is anticipated that the Oeste Recharge Basins will be included in the MWA's routine maintenance of its recharge facilities. This includes inspections after major rain events, or annually at a minimum.

Maintenance activities may include but not be limited to the following for the facility:

- **Access Roads:** Maintenance activities include clearing encroaching vegetation, filling ruts and potholes, grading, resurfacing (with similar materials), and repairing washouts. Vegetation control usually occurs annually and other activities usually occur every 2 to 3 years.

- **Basin and outfalls:** General maintenance includes periodic grading of the bottoms of the basins to ensure percolation, and cleaning at the drain outfalls.

- **Fuel Modification Maintenance**. Fuel modification can be in the form of manual, mechanical, or chemical vegetation control of dry or invasive vegetation that is within 50 feet of the boundaries of the apron, and along the new side slopes.

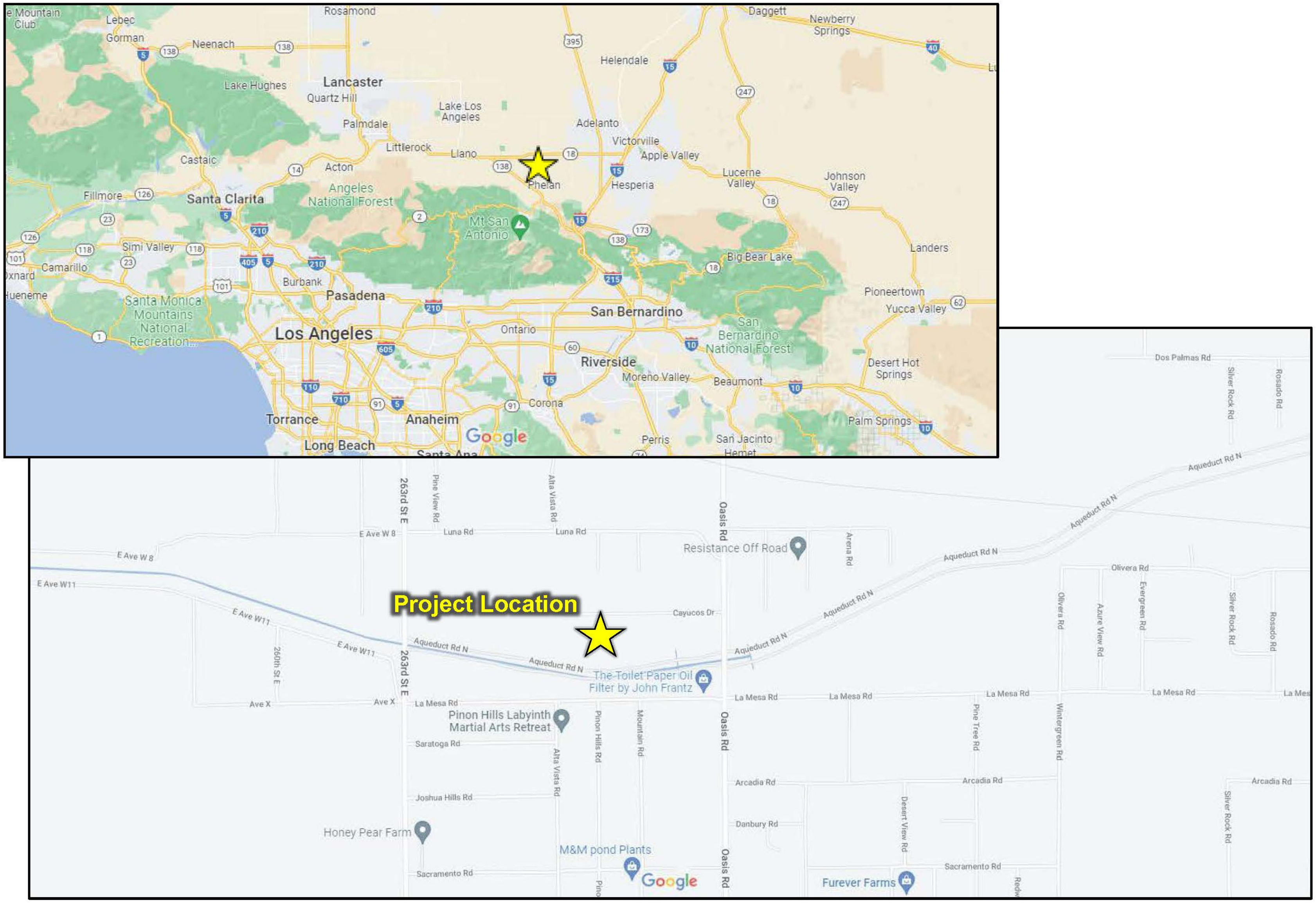

Figure 1: Regional Vicinity Map
Source: *Google Maps*

Not to Scale
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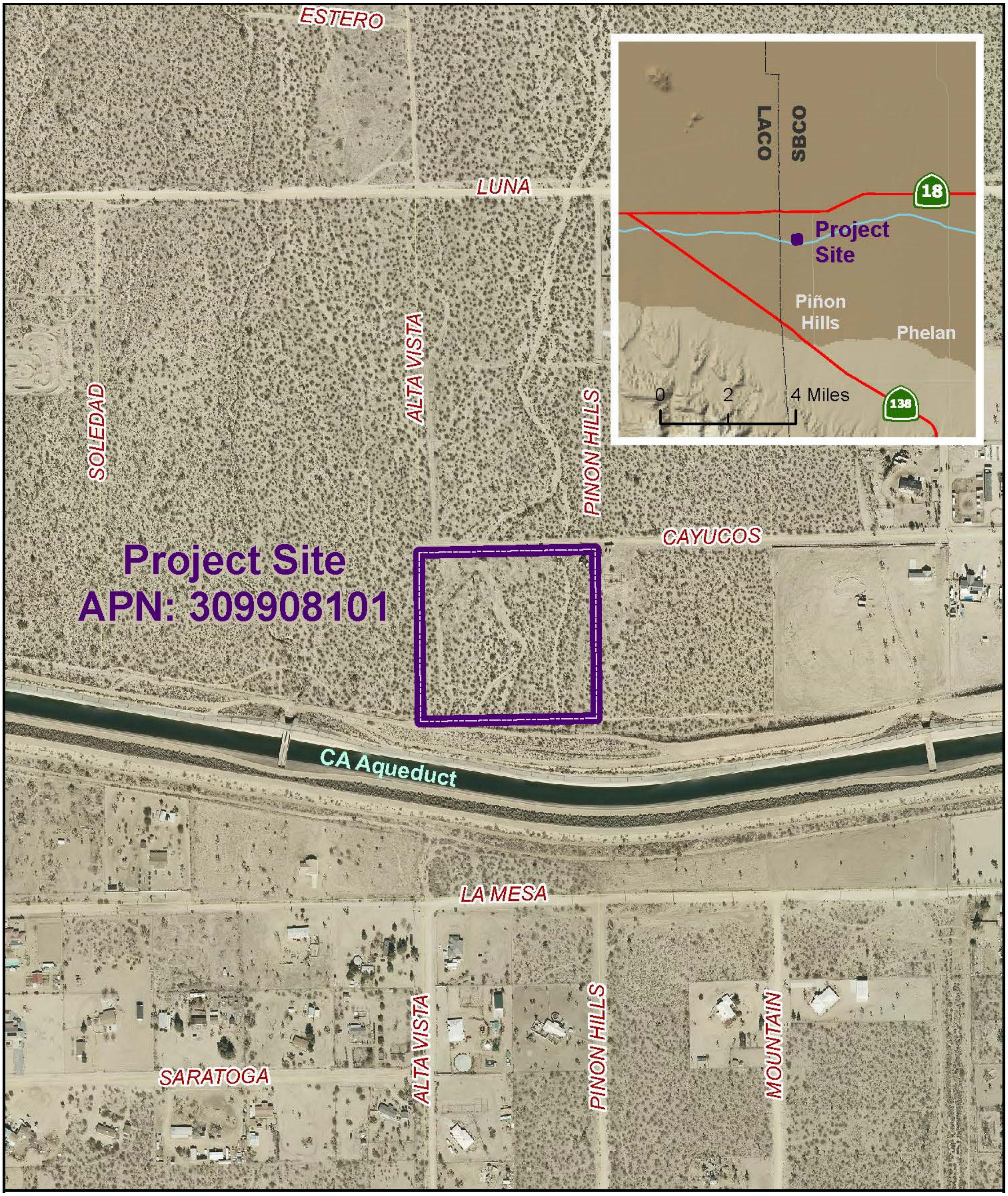
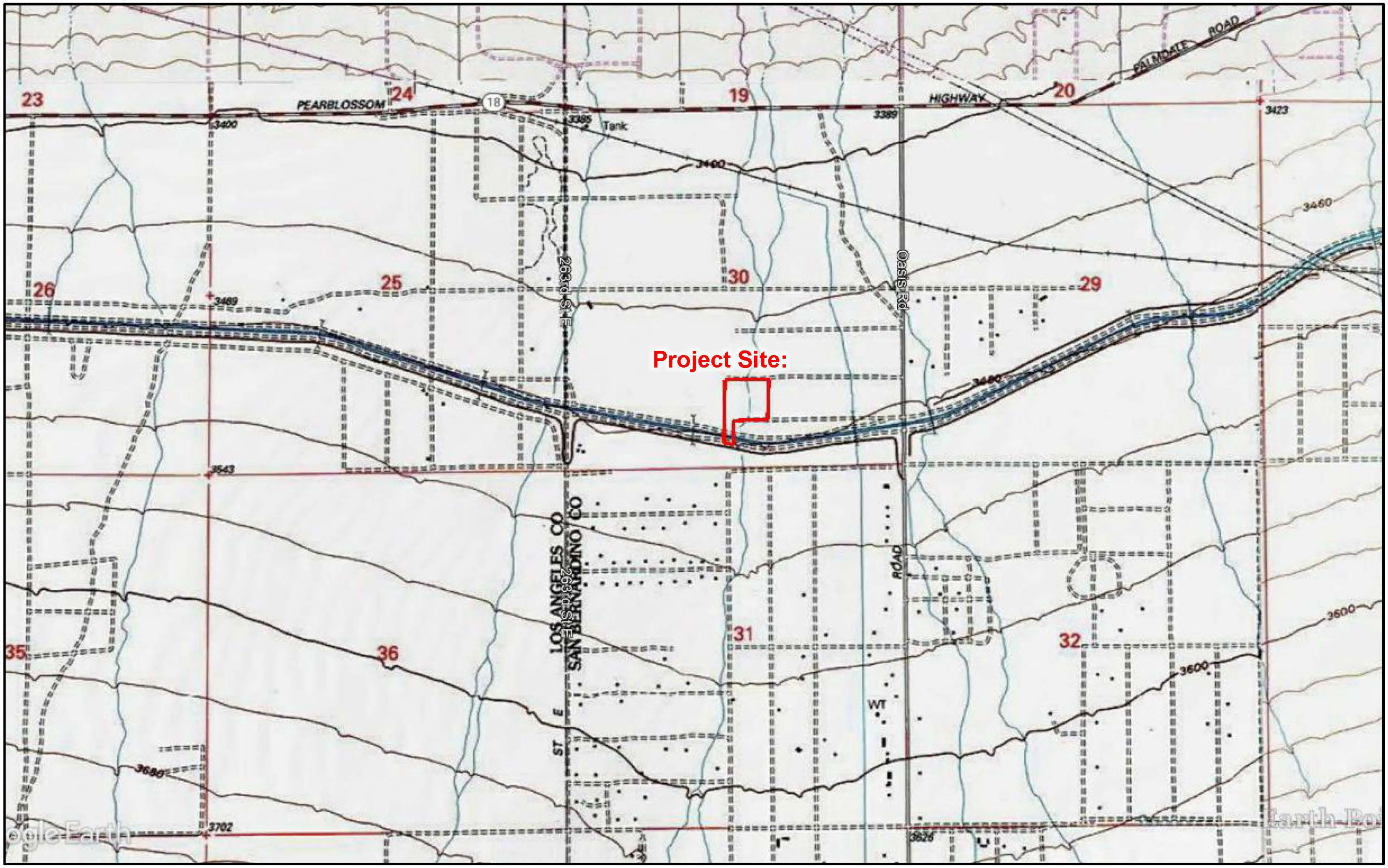


Figure 2: Project Location Map - Aerial
Source: *Mojave Water Agency*

Not to Scale

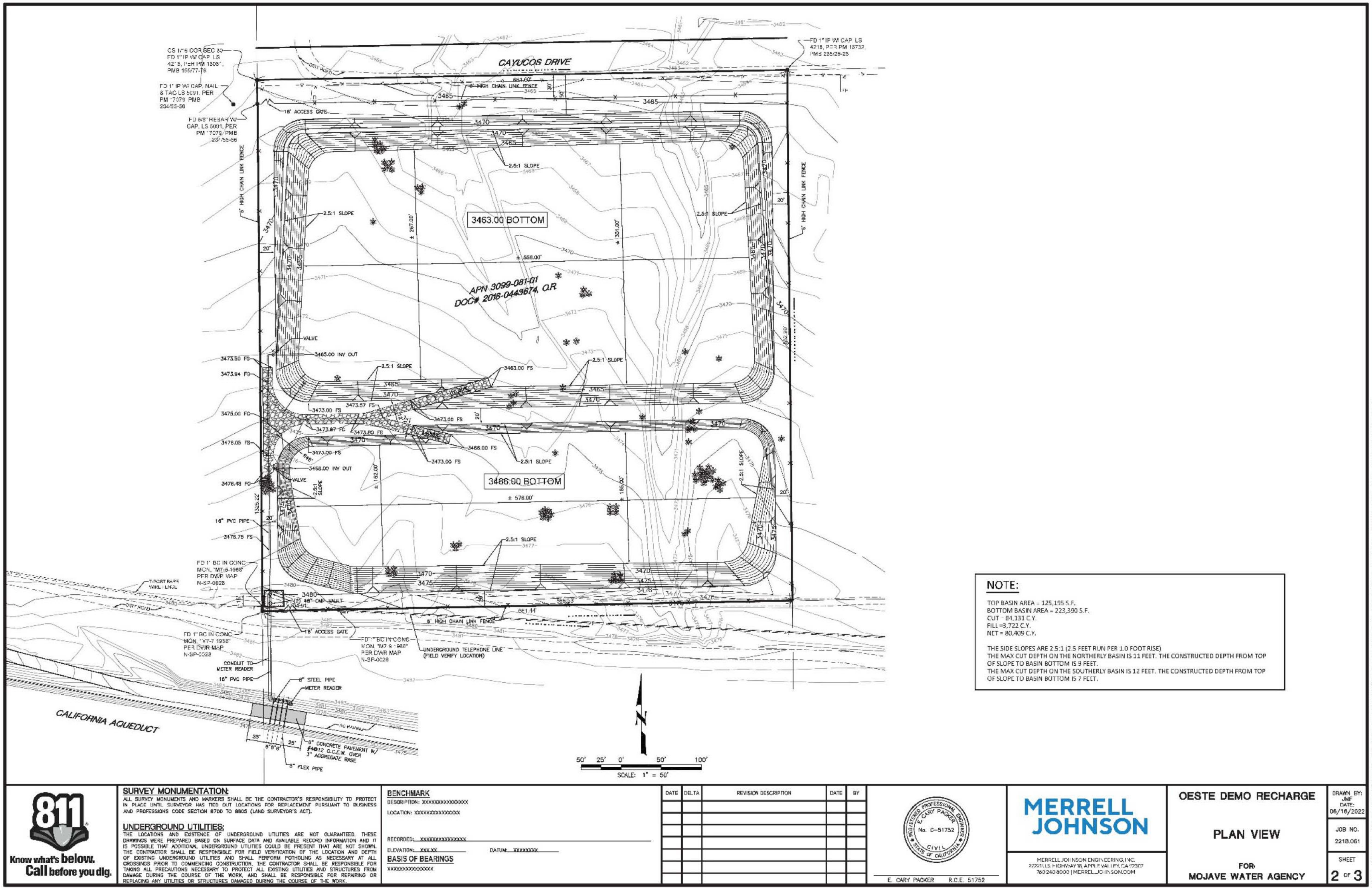


Not to Scale

N

Figure 3: USGS Topographic Map

Source: *Google Earthpoint Topo*



Not to Scale

Figure 4: Site Plan

Source: *Mojave Water Agency*

4 ENVIRONMENTAL IMPACTS

4.1 AESTHETICS

4.1.1 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
I. **AESTHETICS**: Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?				X
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				X

Discussion

a) Have a substantial adverse effect on a scenic vista?

No Impact. The CEQA Guidelines do not provide a definition of what constitutes a "scenic vista" or "scenic resource" or a reference as to from what vantage point(s) the scenic vista and/or resource, if any, should be observed. Scenic resources are typically landscape patterns and features that are visually or aesthetically pleasing and that contribute affirmatively to the definition of a distinct community or region such as trees, rock outcroppings, and historic buildings.

A scenic vista is generally identified as a public vantage viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Common examples may include a public vantage point that provides expansive views of undeveloped hillsides, ridgelines, and open space areas that provide a unifying visual backdrop to a developed area.

The San Bernardino County General Plan does not designate any scenic vistas or protected viewsheds in the Project area. Views of the surrounding foothills of the San Bernardino Mountains to the south of the Project Site are available from public vantage points along Cayucos Drive and Oasis Road. The Project site is currently vacant and generally undeveloped.

The Proposed Project would change the visual character of the Project Site, which is currently vacant and undeveloped, by clearing vegetation from the land and adding ground-level water recharge basins. The Project would not impede views of the mountains along the public way because the Project would be located at the ground surface level.

The Project Site is not a scenic vista nor are there designated scenic vistas in the vicinity where the Project would interrupt the views from any scenic vista. Therefore, there is no impact, and no mitigation would be required.

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

No Impact. The Project Site is not within a state scenic highway. Therefore, no impacts associated with scenic resources within a state scenic highway would occur, and no mitigation would be required.

c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Impact. The Project is located in a rural, unincorporated area where large lot rural residential exists to the east and south. The Project is to install groundwater recharge basins which would not extend above ground surface. Therefore, the Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. As such, there would be no impact, and no mitigation is required.

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

No Impact. Impacts from light are typically associated with the use of artificial lighting at nighttime. Glare typically occurs during the day, generally caused by a reflection of sunlight on highly polished surfaces, such as windows, generally associated by mid- to high-rise buildings with exterior facades that are comprised of highly reflective glass or mirror-like materials. Nighttime glare is primarily associated with bright point source light that contrasts with the surrounding ambient lighting.

The Project does not propose lighting for operations. Construction would occur during daylight hours. Therefore, the Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. There would be no impacts, and no mitigation is required.

4.1.2 Mitigation Measures:

No mitigation measures associated with impacts to Aesthetics apply to the Proposed Project.

4.1.3 Conclusion

No potentially significant impacts of the Proposed Project are associated with Aesthetics.

4.2 AGRICULTURE AND FORESTRY RESOURCES

4.2.1 Impact Analysis

CEQA THRESHOLDS	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact or Does Not Apply**
II. AGRICULTURE AND FORESTRY RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB). Would the project:				
a) Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
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?				X

Discussion

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 nonagricultural use?

No Impact. According to the California Department of Conservation Farmland Mapping and Monitoring Program, the Project site is identified as Grazing Land. Therefore, there would be no potential impacts associated with conversion of 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 nonagricultural use, and no mitigation would be required.

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

No Impact. No part of the Project site or its surroundings are designated as agricultural use nor is it subject to any Williamson Act contracts. No impacts would occur, and no mitigation is required.

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

No Impact. No part of the Project site or its surroundings are designated as timberland. No impacts would occur, and no mitigation is required.

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

No Impact. There is no designated forest land on the Project site, and the Proposed Project would therefore not affect forests during construction or operations. No impacts would occur, and no mitigation is required.

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

No Impact. The proposed Project includes the construction of a new emergency operations building consistent with the land use designation and zoning of the Project Site. As discussed under Thresholds II.2 (b) through II.2(d), the Proposed Project would not involve other changes in the existing environment that would result in conversion of Farmland to non-agricultural use or the conversion of forest land to non-forest land. Therefore, there would not be potentially significant impacts associated with changes in the environment which could result in conversion of farmland to non-agricultural use, and no mitigation would be required.

4.2.2 Mitigation Measures

No mitigation measures associated with impacts to Agriculture and Forestry Resources apply to the Proposed Project.

4.2.3 Conclusion

No potentially significant impacts of the Proposed Project are associated with Agriculture and Forestry Services, and no mitigation would be required.

4.3 AIR QUALITY

An air quality analysis was prepared to evaluate whether the estimated criteria pollutants generated from the Project would cause a significant impact to the air resources in the Project area (**Appendix A – *Oeste Basins Air Quality, Greenhouse Gas, and Energy Impact Study Mojave Water Agency, Piñon Hills, CA,* prepared by MD Acoustics, March 14, 2023**).

4.3.1 Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level under the Clean Air Act (CAA) of 1970. The California Air Resources Board (CARB) regulates at the state level. The State is currently divided into 15 air basins, and each air basin is regulated on a regional level.

There are six common air pollutants, called criteria pollutants, which were identified from the provisions of the CAA of 1970.

- Ozone (O_3)
- Nitrogen Dioxide (NO_2)
- Lead
- Particulate Matter (PM10 and PM2.5)
- Carbon Monoxide (CO)
- Sulfur Dioxide (SO_2)

The EPA and the CARB designate air basins where ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the area is designated as an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered “unclassified.” National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards.

The Project site is located in the unincorporated area of San Bernardino County that is part of the Mojave Desert Air Basin (MDAB), which includes the desert portion of San Bernardino County. The National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) attainment statuses for the MDAB are listed in **Table 3: *Attainment Status of MDAQMD***.

Table 3: Attainment Status of MDAQMD

Pollutant	Federal Designation	State Designation
1-Hour Ozone	--	Nonattainment
8-Hour Ozone	Nonattainment	Nonattainment
CO	Unclassified/Attainment	Attainment
PM10	Nonattainment	Nonattainment
PM2.5	Unclassified/Attainment	Nonattainment
Lead	Unclassified/Attainment	Attainment
SO2	Unclassified/Attainment	Attainment
NO2	Unclassified/Attainment	Attainment

Notes:

[1] MDAQMD = Mojave Desert Air Quality Management District

[2] Source: California Air Resources Board (2019) (https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations) and MDAQMD (https://www.mdaqmd.ca.gov/air-quality/mdaqmd-attaiment-status).

4.3.2 Environmental Setting

The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains which dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada Mountains to the north; air masses pushed onshore in southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses.

During the summer the MDAB is generally influenced by a Pacific Subtropical High cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time the reach the desert. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south. The MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inches of precipitation). The MDAB is classified as a dry-hot desert climate (BWh), with portions classified as dry-very hot desert (BWhh), to indicate at least three months have maximum average temperatures over 100.4° F.

The temperature and precipitation levels for Victorville, the closest monitoring station to the Project Site, shows that July is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Local Air Quality

The MDAQMD maintains an air-monitoring network that measures levels of several air pollutants throughout the air basin. Since not all air monitoring stations measure all of the tracked pollutants, the data from the following two monitoring stations, listed in the order of proximity to the Project Site were used for the study in Appendix A. The nearest air monitoring station to the project site is the Victorville monitoring station (Victorville Station) located approximately 18.5 miles east of the project site at 14306 Park Avenue, Victorville, CA. Table 5 in Appendix A presents the monitored pollutant levels within the vicinity which identifies that ozone and particulate matter (PM10) are the air pollutants of primary concern in the Project area. However, it should be noted that due to the air monitoring station distance from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

4.3.3 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
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?		X		
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?			X	

Discussion

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. According to the MDAQMD, a project would not obstruct the implementation of District rules and regulations if it complies with all applicable District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast. An example of a non-conforming project would be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area (relative to the applicable land use plan). The "one map approach" is employed by the County of San Bernardino, as it permits the use of a single map showing both General Plan land use designations and zoning classifications. The one-map approach assures that there will always be land use consistency between the County's General Plan and its Zoning Code.

The Project Site is located within the unincorporated area of the County of San Bernardino known as Piñon Hills. The Proposed Project is within a rural residential area.

Attainment plans prepared by the various air pollution control districts throughout the state are used to develop the State Implementation Plan (SIP) for the State of California. The proposed Project is located within the MDAQMD and, thus, is subject to the rules and regulations of the MDAQMD. The MDAQMD and Southern California Association of Governments (SCAG) are responsible for formulating and implementing the air quality attainment plan (AQAP) for the Basin. Regional AQAPs were adopted in 1991, 1994, and 1997. The following SIP and AQAP are the currently approved plans for the Basin region:

- 1997 SIP for O3, PM10, and NO2
- 1995 Mojave Desert Planning Area Federal PM10 Attainment Plan; no formal action by the EPA

The MDAQMD completed the MDAQMD 2004 Ozone Attainment Plan (State and federal) in April 2004, which has been approved by the EPA.

The MDAQMD currently recommends that projects with construction-related and/or operational emissions that exceed any of the following emissions thresholds should be considered significant:

- 25 tons per year or 137 pounds per day pounds per day of VOC
- 25 tons per year or 137 pounds per day of NOx
- 100 tons per year or 548 pounds per day of CO
- 25 tons per year or 137 pounds per day of Sox
- 15 tons per year or 82 pounds per day of PM10
- 12 tons per year or 65 pounds per day of PM2.5

The Proposed Project is the construction and operation of water recharge basins over approximately 10 acres. Operational activities would include occasionally grading the basin floors and side slopes to maintain optimum recharge capacity. The Air Quality Assessment in Appendix A modeled the Project’s construction and operations to determine if the Project would exceed any threshold.

Table 4: *Regional Significance – Construction Emissions* and **Table 5: *Regional Significance – Operational Emissions*** identifies that the Project would not exceed daily or annual regional thresholds.

Therefore, the Project does not conflict with or obstruct implementation of the applicable air quality plan.

Table 4: Regional Significance - Construction Emissions

Year	Pollutant Emissions					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Daily Emissions (pounds/day)						
2023	3.11	35.90	28.50	0.15	9.11	4.68
MDAQMD Thresholds	**137**	**137**	**548**	**137**	**82**	**65**
Exceeds Thresholds	No	No	No	No	No	No
Annual Emissions (tons/year)						
2023	0.08	1.13	0.80	0.00	0.24	0.10
MDAQMD Annual Thresholds	**25**	**25**	**100**	**25**	**15**	**12**
Exceeds Thresholds	No	No	No	No	No	No

Notes:
[1] Source: CalEEMod Version 2022.1
[2] On-site emissions from equipment operated on-site that is not operated on public roads. On-site grading PM10 and PM2.5 emissions show mitigated values for fugitive dust for compliance with MDAQMD Rule 403.
[3] Off-site emissions from equipment operated on public roads.
[4] Construction, architectural coatings and paving phases may overlap.

Table 5: Regional Significance - Operational Emissions

Activity	Pollutant Emissions[1]					
	VOC	NOx	CO	SO2	PM10	PM2.5
Daily Emissions (pounds/day)						
Area Sources[2]	0.07	0.00	0.00	0.00	0.00	0.00
Energy Usage[3]	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources[4]	0.00	0.01	0.09	0.00	0.01	0.00
Total Emissions	**0.07**	**0.01**	**0.09**	**0.00**	**0.01**	**0.00**
MDAQMD Daily Thresholds	**137**	**137**	**548**	**137**	**82**	**65**
Exceeds Threshold?	No	No	No	No	No	No
Annual Emissions (tons/year)						
Area Sources[2]	0.01	0.00	0.00	0.00	0.00	0.00
Energy Usage[3]	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources[4]	0.00	0.00	0.00	0.00	0.00	0.00
Total Emissions	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
MDAQMD Annual Thresholds	**25**	**25**	**100**	**25**	**15**	**12**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Source: CalEEMod Version 2022.1
[2] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[3] Energy usage consists of emissions from on-site natural gas usage.
[4] Mobile sources consist of emissions from vehicles and road dust.

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?

Less Than Significant Impact With Mitigation Incorporated. The MDAB has been designated by the EPA as a non-attainment area for ozone (O3) and suspended particulates (PM10). Currently, the Basin is in attainment with the ambient air quality standards for carbon monoxide (CO), lead, sulfur dioxide (SO2), nitrogen dioxide (NO2) and particulate matter (PM2.5) (refer to Appendix A). The MDAQMD also has developed regulatory standards for criteria pollutants that are considered pre-cursers to Ozone, PM10 and PM2.5 production. These include CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2).

Based on the analysis provided in Appendix A, the Proposed Project would result in short-term emissions from construction associated with site grading/preparation but would not exceed the thresholds.

<u>Construction Impacts</u>

Construction activities associated with the Proposed Project would result in emissions of carbon CO, volatile organic compounds (VOC), nitrogen oxides (NOx), SO2, PM10, and PM2.5, however, none are above the MDAQMD thresholds, as shown in Table 3. Therefore, potential impacts associated with construction emissions would be less than significant, and no mitigation would be required.

The Project is also required to comply with all MDAQMD rules and regulations including but not limited to idling engines during construction. Additionally, MDAQMD Rule 403 establishes fugitive dust reduction measures during site grading. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites.

To ensure that construction emissions and dust would not exceed the MDAQMD standards, **Mitigation Measure AIR-1,** located at the end of this section, to prepare a Dust Control Plan is required.

<u>Operational Impacts</u>

Operational activities associated with the Proposed Project would result in emissions of VOC, NOx, CO, SO_2, PM10, and PM2.5, however, none are above the MDAQMD thresholds as shown in Table 5. As identified in Table 5, potential impacts associated with operational emissions would be less than significant, and no mitigation would be required.

The Project area is out of attainment for both ozone and particulate matter. Construction and operation of cumulative projects will further degrade the air quality of the Mojave Desert Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the MDAQMD methodology, projects that do not exceed the MDAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact.

Project operations would generate emissions of NOx, CO, PM10, and PM2.5, which would not exceed the MDAQMD regional thresholds and would not be expected to result in ground-level concentrations that exceed the National Ambient Air Quality Standards or the California Ambient Air Quality Standards. Therefore, the operation of the Project would not result in a cumulatively considerable net increase for non-attainment of criteria pollutants or ozone precursors.

As a result, the Project would result in a less than significant cumulative impact on operational emissions.

As demonstrated above, the Project impacts would be less than significant and not 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. Compliance with **Mitigation Measure AIR-1** would ensure that construction emissions would not exceed MDAQMD's thresholds.

c) *Expose sensitive receptors to substantial pollutant concentrations?*

Less Than Significant Impact. A sensitive receptor is defined by MDAQMD as any residence including private homes, condominiums, apartments, and living quarters, schools as defined under paragraph (b)(57), preschools, daycare centers and health facilities such as hospitals or retirement and nursing homes. Also included are long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.

The MDAQMD recommends avoiding siting new sensitive land uses such as residences, schools, daycare centers, playgrounds, or medical facilities within 1,000 feet of a major transportation project (50,000 or more vehicles per day).

The Proposed Project involves the construction of a groundwater recharge basin and would not be considered a sensitive receptor. The Project is not considered a major transportation project. The Project operations is only anticipated to generate approximately one vehicle trip per month. Therefore, as the Proposed Project is not a sensitive receptor and does not generate more than 50,000 vehicles per day, a Project-specific health risk assessment is not required or warranted.

Impacts to nearby sensitive receptors are considered to be less than significant, and no mitigation is required.

d) *Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?*

Less Than Significant Impact. The objectionable odors that may be produced during the construction process are short-term in nature, and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Diesel exhaust and VOCs would be emitted during construction of the Project, which are objectionable to some; however, emissions would disperse rapidly from the Project Site and therefore should not reach an objectionable level at the nearest sensitive receptors, which are more than 0.25 mile from the Project Site. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the Proposed Project.

4.3.4 Mitigation Measures

MM AIR-1: Prior to MWA or its contractor beginning construction, the MWA or its contractor is required to submit a dust control plan to the MDAQMD that describes all applicable dust control measures that will be implemented at the Project Site during construction, including soil export operations, and basin facility maintenance. The dust control plan must include but not be limited to the following measures:

- Signage compliant with Rule 403 Attachment B shall be erected at each project site entrance not later than the commencement of construction.

- Use a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes to minimize visible fugitive dust emissions. For projects with exposed sand or fines deposits (and for projects that expose such soils through earthmoving), chemical stabilization or covering with a stabilizing layer of gravel may be used to eliminate visible dust/sand from sand/fines deposits.

- All perimeter fencing shall be wind fencing or the equivalent, with a minimum of 4 feet in height. The owner/operator shall maintain the wind fencing as needed to keep it intact and remove windblown dropout. This wind fencing requirement may be superseded by local ordinance, rule or project-specific biological mitigation prohibiting wind fencing.

- All maintenance and access vehicular roads and parking areas shall be stabilized with chemical, gravel or asphaltic pavement sufficient to eliminate visible fugitive dust from vehicular travel and wind erosion. Take actions to prevent project-related trackout onto paved surfaces, and clean any project-related trackout within 24 hours. All other earthen surfaces within the project area shall be stabilized by natural or irrigated vegetation, compaction, chemical or other means sufficient to prohibit visible fugitive dust from wind erosion.

4.3.5 Conclusion

Potential impacts of the Proposed Project associated with Air Quality would be less than significant with the implementation of **Mitigation Measure AIR-1.**

4.4 BIOLOGICAL RESOURCES

A General Biological Assessment was completed to determine potential impacts to biological services associated with the development of the Proposed Project (**Appendix B-1 - *Oeste Recharge Basins Project Mojave Water Agency, Habitat and Jurisdictional Assessment,* prepared by ELMT Consulting, July 2021** and ***Appendix B-1 - California Department of Fish and Game Mohave Ground Squirrel Guideline Report, Proposed Oeste Recharge Basin Project*, prepared by Randel Wildlife Consulting, Inc, June 2023**). The assessment included a literature review and field survey.

4.4.1 Regulatory Setting

Given the local environment, regulations governing biological resources for this Project include the following:

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C 703-711) provides protection for nesting birds that are both residents and migrants whether they are considered sensitive by resource agencies. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The direct injury or death of a migratory bird, due to construction activities or other construction-related disturbance that causes nest abandonment, nestling abandonment, or forced fledging would be considered a take under federal law. The US Fish & Wildlife (USFWS), in coordination with the California Department of Fish and Wildlife (CDFW) administers the MBTA. CDFW's authoritative nexus to MBTA is provided in California Fish and Game Code (FGC) Sections 3503.5 which protects all birds of prey and their nests and FGC Section 3800 which protects all non-game birds that occur naturally in the State.

Federal Endangered Species Act

The purpose of the United States Endangered Species Act (ESA) that was established in 1973 provides protections for fish, wildlife, and plants that are listed as threatened or endangered; provides for adding species to and removing them from the list of threatened and endangered species, and for preparing and implementing plans for their recovery; provides for interagency cooperation to avoid take of listed species and for issuing permits for otherwise prohibited activities; provides for cooperation with States, including authorization of financial assistance; and implements the provisions of the Convention on International Trade in Endangered Species of Wild Flora and Fauna. The USFWS administers the federal ESA.

California Endangered Species Act

The California Endangered Species Act (CESA) is a California environmental law that conserves and protects plant and animal species at risk of extinction. Originally enacted in 1970, CESA was repealed and replaced by an updated version in 1984 and amended in 1997. Plant and animal species may be designated threatened or endangered under CESA after a formal listing process by the California Fish and Game Commission. Approximately 250 species are currently listed under CESA. A CESA-listed species, or any part or product of the plant or animal, may not be imported into the state, exported out of the state, "taken" (i.e., killed), possessed, purchased, or sold without proper authorization. Implementation of CESA has reduced and avoided impacts to California's most imperiled plants and animals, has protected hundreds of thousands of acres of vital habitat, and has led to a greater scientific understanding of California's incredible biodiversity.

The CDFW works with agencies, organizations, and other interested persons to study, protect, and preserve CESA-listed species and their habitats. CDFW also conducts scientific reviews of species petitioned for listing under CESA, administers regulatory permitting programs to authorize take of listed species, maintains an extensive database of listed species occurrences, and conducts periodic reviews of listed species to determine if the conditions that led to original listing are still present.

4.4.2 Environmental Setting

The vacant Project Site supports two plant communities: site: creosote bush scrub and Joshua tree woodland. In February of 2020, California Department of Fish and Wildlife (CDFW) accepted a petition to consider the western Joshua Tree (*Yucca brevifolia* var. *brevifolia*) as a candidate threatened species under California Endangered Species Act (CESA). Candidate species for listing receive full protection under CESA.

On October 29, 2020, the State of California Office of Administrative Law approved the adoption of Section 749.10 Title 14, California Code of Regulations (CCR), entitled Special Order Relating to the Take of western Joshua tree during the Candidacy Period. On June 27, 2023, the State legislature passed AB 122/SB 122 Western Joshua Tree Conservation Act Budget Trailer Bill which seeks to provide protection for the western Joshua Tree outside of CESA.

A total of 120 western Joshua trees in three size categories were recorded within the boundaries of the Project Site (Appendix B-1).

The Project Site does not currently support any drainages (Appendix B-1). Based on a review of historic aerials 1952 to 1968, La Montaine Creek historically flowed across the Project Site from south to north. In 1974, when the California Aqueduct is first observed in historic aerials, La Montaine Creek was cut off by the installation of the aqueduct and water flow within La Montaine Creek terminated at the aqueduct and no longer reached the Project Site. During the installation of the Aqueduct, a box culvert was installed over the Aqueduct approximately 550 feet southwest of the southwest corner of the Project Site that is an emergency outlet and only conveys flows during large flash flood events. This box culvert, over the aqueduct, diverts water away from the project site and La Montaine Creek to the northwest. In the 1994 aerial photographs, a rural residential community is first observed, which further eliminated water flows within La Montaine Creek, south of the California Aqueduct, outside of the Project footprint. The residential community, south of the aqueduct, has further reduced, if not eliminated the potential for water to reach the emergency box culvert. As a result, water flows out of the San Gabriel Mountains are not expected to flow north of the aqueduct and reach the Project Site. The historic braded channels of Montaine Creek continue to be observed onsite, but are maintained by off-road vehicle use, which has created dirt access roads in the place of the drainage features. The continued off-road vehicle activities and illegal dumping further alter the historic drainage patterns across the site.

4.4.3 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				X
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				X
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?		X		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Discussion

a) *Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Less Than Significant With Mitigation Incorporated. According to the literature review conducted as part of Appendix B-1, 29 special-status plant species and 26 special status wildlife species have the potential to occur within the Project's USGS Quadrangle *Mescal Creek*, and the adjacent quadrangles of *El Mirage*, *Shadow Mountain SE*, and *Phelan*. No special-status plant communities were identified within these quadrangles. Special-status plant and wildlife species were evaluated for their potential to occur within the project boundaries based on habitat requirements, availability and quality of suitable habitat, and known distributions.

Sensitive Species

The Habitat Assessment in Appendix B-1 focused on species typically found within the Project region and where habitat was found on site.

Burrowing Owl (BUOW) – State: Species of Special Concern

The BUOW is currently listed as a California Species of Special Concern. It is a grassland specialist distributed throughout western North America where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments with well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground. The Project Site consists of flat open fields supporting exotic grassland/forbland vegetation, dominated by common weeds.

Despite a systematic search of the Project Site, no burrowing owls or sign (i.e., pellets, feathers, castings, or whitewash) were observed during the field investigation. The Project Site lacks suitable burrows (>4 inches in diameter) capable of providing roosting and nesting opportunities for burrowing owls. Further, the tall vegetation onsite limits line-of-sight opportunities favored by burrowing owl. Based on the results of the field investigation conducted as part of the Appendix B-1 survey, it was determined that the Project Site does not have the potential to support burrowing owls, and focused surveys are not recommended.

Desert Tortoise – Federal: Threatened; State-Threatened

The Mojave population of the desert tortoise was listed as Threatened on April 2, 1990 and a recovery plan was published in June 1994 (revised May 2011) to describe a strategy for recovering the Mojave population of the desert tortoise including the identification of five recovery units, recommendations for a system of Desert Wildlife Management Areas (DWMAs) within the recovery units, and development and implementation of specific recovery actions, especially within DWMAs. The establishment of recovery units and DWMAs was intended to facilitate an ecosystem approach to land management and desert tortoise recovery. Based on the 2018 Revised Recovery Plan, the survey area is located within the Western Mojave Recovery Unit but is not located within any designated DWMAs. Additionally, the survey area is not located within designated Critical Habitat for the desert tortoise and no desert tortoise have been recorded on the project site.

The Mojave population of the desert tortoise inhabits areas north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, and southwestern Utah, and in the Sonoran Desert in California. Throughout the majority of the Mojave Desert, desert tortoises occur most commonly on gentle sloping soils characterized by an even mix of sand and gravel and sparsely vegetated low-growing vegetation where there is abundant inter-shrub space. Typical habitat for the desert tortoise has been characterized as creosote bush scrub below 5,500 feet in elevation with a high diversity of perennial and ephemeral plants. The dominant shrub commonly associated with desert tortoise habitat is creosote bush (Larrea tridentata); however, other shrubs including burrobush (*Ambrosia dumosa*), Mojave yucca (*Yucca schidigera*), cheesebush (Ambrosia salsola), and Mojave prickly-pear (*Opuntia mojavensis*) also provide suitable habitat. The desert tortoise spends 95 percent of its life underground and will opportunistically utilize burrows of various lengths, deep caves, rock and caliche crevices, or overhangs for cover. Therefore, a moderately friable soil is required to allow for burrow construction and ensure that burrows do not collapse.

The biological study in Appendix B-1 conducted a systematic search of the Project Site, and no live tortoises, suitable burrows, or signs were observed on the Project Site during the presence/absence survey. The plant communities found on the project site and on-site topography provide suitable foraging and burrowing habitat for desert tortoises. However, adjacent and nearby development (i.e. California Aqueduct, surrounding paved highways, boundary fencing associated with surrounding residential development), the Project Site and adjacent habitats have been sufficiently fragmented to preclude sustainable desert tortoise populations from the area. In addition, decades of anthropogenic disturbance such as illegal dumping and off-road vehicle use precluded the project site from supporting desert tortoise. Based on the results of the focused survey, desert tortoise is presumed absent from the project stie.

However, out of an abundance of caution, implementation of **Mitigation Measure BIO-1,** located at the end of this section, which requires a pre-construction desert tortoise clearance survey prior to ground disturbing activities, would ensure no desert tortoise occur within the limits of disturbance.

Mohave Ground Squirrel – State: Threatened

The Mohave ground squirrel is endemic to the western Mojave Desert, California. It occupies portions of Inyo, Kern, Los Angeles, and San Bernardino counties in the western Mojave Desert. In general, the species ranges from near Palmdale on the southwest to Lucerne Valley on the southeast, Olancha on the northwest and the Avawatz Mountains on the northeast (Appendix B-1). The historical range of suitable habitat for this species has decreased by 10 to 16% due to urbanization and range-wide declines in trapping success over the last few decades suggesting that their populations are declining. This species was listed as threatened under the California Endangered Species Act in 1985.

The habitat assessment in Appendix B-1 identified that the Project Site is within the historic range of Mohave ground squirrel. Although the Project Site is located within the historic range for Mohave ground squirrel, the site is at the southernmost portion of the range. Further, the Site is not located within any core areas identified by Philip Leitner as documented in the 2010 report, "*Current Status of the Mohave Ground Squirrel: A Five-Year Update (2008-2012)*" (2015) and "*Current Status of the Mohave Ground Squirrel: An Update Covering the Period 2013-2020* (2021). Further, the Project Site is not located within or immediately adjacent to any corridors or other known populations identified by Leitner.

The Project Site and immediate vicinity are dominated by creosote bush scrub and Joshua tree woodland plant communities that are favored by Mohave ground squirrel. However, the area is heavily disturbed by off road vehicle use and illegal dumping. Adequate cover and forage for Mohave ground squirrel appeared to be limited within and around the study site. Further, no winterfat (*Eurotia lanata*), nor spiny hopsage (*Grayia spinosa*) were found on the study site which are two plant species that are considered important forage for Mohave ground squirrel.

Because the Project Site is within the known range of the Mohave Ground Squirrel, trapping in accordance with the California Department of Fish and Wildlife (CDFW) guidelines was conducted (Appendix B-2). Surveys consisted of five consecutive days of live-trapping during three predefined sessions (Session 1: 15 March–30 April; Session 2: 1–31 May; Session 3: 15 June – 15 July). Each survey session consisted of 36 live-traps spaced 35-m on center in a 6 x 6 array, baited with 4-way horse feed, and shaded to prevent heat stress. Traps were checked no less frequently than every four hours, when temperatures were between 40°–90° F. No Mohave ground squirrels were identified as a result of focused surveys of the Project Site. White-tailed antelope squirrel (*Ammospermophilus leucurus*) were reported in Appendix B-2 as the only mammalian species captured. Therefore, the Mohave ground squirrel is considered absent from the Project Site.

Western Joshua Tree – State: Candidate Threatened

Joshua tree habitats are characterized as open woodlands of widely scattered Joshua trees with a low to more or less dense community of broad-leaved evergreen and deciduous shrubs found in Desert Scrub habitats. This species is endemic to the Mojave Desert and occupies an elevation range of 1,600 and 6,660 feet above mean sea level. This species is recognized in several vegetation communities in varying densities. Known occupied communities include sagebrush scrub, desert shrub, southwestern shrubsteppe, pinyon-juniper woodland, and desert grasslands. When this species is dominant in high densities, the occupied habitat may be classified as a Joshua tree woodland, although densities are typically low due to their extensive and competitive root systems. Mature size varies greatly due to irregular branching, and large individuals can exceed 40 feet in height. Like other large members of family Agavaceae, western Joshua trees grow slowly, with estimated growth rates ranging from 2.3 to 4.6 inches per year depending on individual age and conditions. Western Joshua trees are long-lived species, with most estimates of average lifespan ranging from 150 to 300 years, although some estimates exceed 700 years. The largest known western Joshua tree exceeds 60 feet in height and is an estimated 1,000 years old. Like other long- lived plant species, seed production occurs very slowly and irregularly, although rhizome production and clonal growth can occur. Western Joshua trees are only known to be pollinated by one species, the yucca moth (*Tegeticula synthetica*).

The Project Site contains a total of 120 species, categorized as follows:

- Less Than 1 Meter in Height 33
- One Meter to less than 5 Meters in Height 75
- Greater than 5 Meters in Height 12

The western Joshua Tree is a candidate threatened species under the California Endangered Species Act and also has a special designation under the June 2023-adopted Western Joshua Tree Conservation Act. Therefore, to reduce impacts the impacts of removing 120 western Joshua

Trees from the Project Site to less than significant, implementation of **Mitigation Measure BIO-2,** located at the end of this section, is required. Mitigation Measure BIO-2 requires that the MWA obtain a permit from the CDFW to remove the trees.

Critical Habitat

Under the federal Endangered Species Act, "Critical Habitat" is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. All federal agencies are required to consult with the United States Fish and Wildlife Service (USFWS). regarding activities they authorize, fund, or permit which may affect a federally listed species or its designated Critical Habitat. The purpose of the consultation is to ensure that projects will not jeopardize the continued existence of the listed species or adversely modify or destroy its designated Critical Habitat. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing is on federal lands, uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highways Administration or a CWA Permit from the Corps). If there is a federal nexus, then the federal agency that is responsible for providing the funding or permit would consult with the USFWS.

The Project Site is not located within any federally-designated Critical Habitat. Further, the closest Critical Habitat designation is located approximately 8.7 miles southeast of the project site for mountain yellow legged frog (*Rana muscosa*).

Therefore, with the implementation of Mitigation Measures BIO-1 and Mitigation Measure BIO-2, there would be a less than significant effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

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

No Impact. There is no riparian habitat or sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service present on the Project Site (Appendix B-1). As such, there would be no impact, and no mitigation is required.

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?*

No Impact. There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates discharge of dredge and/or fill materials into "waters of the United States" pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the Regional Board regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act and the CDFW regulates alterations to streambed and associated plant communities pursuant to Section 1602 of the California Fish and Game Code.

The USFWS NWI and the USGS National Hydrography Dataset were reviewed to determine if any blueline streams or riverine resources have been documented within or immediate surrounding the project site. Based on this review, two riverine resource were identified within the survey area: one identified as La Montaine Creek, which flows through the middle of the project site; and one unnamed feature that extends from the box culvert under the California Aqueduct.

Based on a review of historic aerials 1952 to 1968, La Montaine Creek historically flowed across the Project site from south to north. Then in 1974, when the California Aqueduct is first observed in historic aerials, La Montaine Creek was cut off by the installation of the aqueduct and water flow within La Montaine Creek terminated at the aqueduct and no longer reached the project site. During the installation of the Aqueduct, a box culvert was installed under the Aqueduct approximately 550 feet southwest of the southwest corner of the project site that is an emergency outlet and only conveys flows during large flash flood events. This box culvert, under the aqueduct, diverts water away from the Project Site and La Montaine Creek to the northwest. Then in the 1994 aerial photographs, a rural residential community is first observed, which further eliminated water flows within La Montaine Creek, south of the California Aqueduct, outside of the Project footprint. The residential community, south of the aqueduct, has further reduced, if not eliminated the potential for water to reach the emergency box culvert. As a result, water flows out of the San Gabriel Mountains are not expected to flow north of the aqueduct and reach the project site.

During the field survey conducted as part of the biological survey (Appendix B-1) the Project Site was assessed the site for depressions, inundation, presence of hydrophytic vegetation, staining, cracked soil, ponding, and indicators of active surface flow and corresponding physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris. Suspected jurisdictional areas were checked for the presence of definable channels, soils, and hydrology. No evidence (i.e., water staining, wrack lines, sediment deposits) of regular flows along the length of the historic drainage features was observed. Further, no ponding/standing water was observed onsite. The historic features do not support riparian vegetation or suitable habitat for special-status wildlife species and do not function as a wildlife movement corridor or linkage.

The historic braided channels of Montaine Creek continue to be observed onsite, but are maintained by off-road vehicle use, which has created dirt access roads in the place of the drainage features. The continued off-road vehicle activities and illegal dumping further alter the historic drainage patterns across the site. Without the frequent off-road vehicle use upland vegetation would be expected to establish in the historic drainages. As a result, of the installation of the California Aqueduct, development of the residential community south of the aqueduct, and off-road vehicle use, the historic drainage features onsite have been effectively cut off and no longer convey upstream water flows and would not be considered jurisdictional.

Therefore, the Project will have no impact on any riparian habitat or sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service because none such habitat exists.

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?*

Less Than Significant Impact With Mitigation Incorporated. A wildlife corridor is typically defined as a linear landscape element that serves as a linkage between historically connected habitats/natural areas and is meant to facilitate movement between these natural areas.

The Project Site is separated from regional wildlife corridors and linkages by existing development, roadways, and undeveloped land, and there are no riparian corridors or creeks connecting the Project Site to these areas. The undeveloped land in the immediate vicinity of the Project Site provides local wildlife movement opportunities for wildlife species moving through the immediate area. The Project Site does not function as a major wildlife movement corridor or linkage. As such, implementation of the Proposed Project is not expected to have a significant impact on wildlife movement opportunities or prevent local wildlife movement through the area since there is ample habitat adjacent to the project site to support wildlife movement opportunities. Due to the lack of any identified impacts on wildlife movement, migratory corridors or linkages or native wildlife nurseries, no mitigation is required.

However, based on habitat requirements for specific species and the availability and quality of on-site habitats, the biological report in Appendix B-1 determined that the Proposed Project Site has a moderate potential to provide suitable habitat for Costa's hummingbird (*Calypte costae*), and loggerhead shrike (*Lanius ludocivianus*).

Additionally, the vegetation on site and adjacent trees may attract birds that are protected by the MBTA. As such, implementation of **Mitigation Measure BIO-3** to perform a pre-construction nesting bird survey is required to reduce potential impacts to nesting birds protected by the MBTA.

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

Less Than Significant Impact. The Project Site is not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan. Therefore, impacts to local, regional, or state habitat conservation plans are not expected to occur from development of the Proposed Project, and mitigation is not required.

Certain desert plant species (i.e. silver cholla [*Cylindropuntia echinocarpa*]) Joshua trees and Mojave yuccas (*Yucca schidigera*) are regulated pursuant to Section 88.01.060 of the San Bernardino County Development Code and Section 80073 of the California Desert Native Plant Act. Therefore, impacts to these species should be avoided in all instances. In the event that avoidance is not feasible, the MWA is required to obtain a Tree or Plant Removal Permit from the

County of San Bernardino, in addition to applicable permitting for removal of the western Joshua Tree, prior to removal of any regulated tree or plant. As the MWA is required to comply with applicable regulations, no additional mitigation is required.

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?*

No Impact. The Project Site is not located within an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan, or other approved local, regional, or state HCP. Therefore, impacts to any local, regional, or state HCPs are not expected to occur from development of the Proposed Project, and mitigation is not required.

4.4.4 Mitigation Measures

MM BIO-1: A pre-construction clearance survey shall be conducted prior to any ground disturbance or vegetation removal activities to ensure desert tortoise remain absent, and impacts do not occur to desert tortoise on the project site.

MM BIO-2: For any Western Joshua Trees that would be removed, the MWA shall obtain either an Incidental Take Permit (ITP) from California Department of Fish and Wildlife (CDFW) under §2081 of the California Endangered Species Act (CESA) or a permit under the Western Joshua Tree Conservation Act, whichever would be applicable at the time of the application. Mitigation would consist of either purchase of credits from an approved conservation bank at an agreed upon ratio or in accordance with the permit issued under the Western Joshua Tree Conservation Act.

MM BIO-3 Bird nesting season generally extends from February 1 through September 15 in southern California and specifically, April 15 through August 31 for migratory passerine birds. To avoid impacts to nesting birds (common and special status) during the nesting season, a qualified Avian Biologist will conduct pre-construction Nesting Bird Surveys (NBS) prior to project-related disturbance to nestable vegetation to identify any active nests. If no active nests are found, no further action will be required. If an active nest is found, the biologist will set appropriate no-work buffers around the nest which will be based upon the nesting species, its sensitivity to disturbance, nesting stage and expected types, intensity, and duration of disturbance. The nests and buffer zones shall be field-checked weekly by a qualified biological monitor. The approved no-work buffer zone shall be clearly marked in the field, within which no disturbance activity shall commence until the qualified biologist has determined the young birds have successfully fledged and the nest is inactive.

4.4.5 Conclusion

Implementation of **Mitigation Measures BIO-1** and **BIO-2** and **BIO-3** would reduce potentially significant impacts of the Proposed Project associated with Biological Resources to less than significant.

4.5 CULTURAL RESOURCES

A Cultural Resources Assessment for the Proposed Project was performed to determine potential impacts to historic and archaeological resources (**Appendix C – *Historical/Archaeological Resources Survey Report, Oeste Recharge Project,* prepared by CRM Tech, May 25, 2021**).

4.5.1 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5?		X		
c) Disturb any human remains, including those interred outside of formal cemeteries?		X		

Discussion

a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Less Than Significant Impact. Public Resources Code Section 15064.5(a) defines historical resources, which include: *A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code §5024.1, Title 14 CCR, Section 14 CCR, Section 4850 et seq.).*

The study in Appendix C included a records search at the South-Central Coastal Information Center (SCCIC), California State University, Fullerton, an intensive-level pedestrian field survey, a paleontological resources overview, and Sacred Lands File Search with the Native American Heritage Commission. The records search revealed that the California Aqueduct (East Branch), which was previously recorded into the California Historical Resources Inventory as Site 36-021351, was the only potential "historical resource" encountered within or adjacent to the project area. Constructed in 1966-1973 as a part of the backbone of the massive California State Water Project, the aqueduct traverses roughly 200 feet south of the main project site and across the southwestern end of the pipeline alignment.

In light of the crucial role that the California State Water Project played in the phenomenal growth of the State of California since the mid-20th century as well as the distinguished engineering accomplishment of the project, the California Aqueduct (East Branch) as a whole has been determined eligible for listing in the California Register of Historical Resources and thus meets the definition of a "historical resource" under CEQA provisions. The proposed construction of the recharge basin, pipeline, and other associated facilities during this project, however, will not cause a substantial adverse change in the significance, integrity, and overall character of the 98-mile-long canal because most of the Project would occur outside of the California Aqueduct. The infrastructure proposed for the California Aqueduct would not significantly alter its current design, and many other facilities, such as the one similar to the Proposed Project, have occurred along the California Aqueduct (East Branch).

During the field survey, no historical resources were identified. Therefore, the Cultural Resources report in Appendix C-1 evaluated the resources against federal and State historic criteria and determined that there are no "historical resources" as defined by CEQA that exist within or adjacent to the Project Site. Therefore, potential impacts associated with an adverse change to a historical resource would be less than significant, and no mitigation would be required.

b) *Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*

Less Than Significant Impact With Mitigation Incorporated. Archaeological sites represent the material remains of human occupation and activity either prior to European settlement (prehistoric sites) or after the arrival of Europeans (historical sites).

The Cultural Report in Appendix C identified that no potential markers of prehistoric human activities were found on the Project Site.

The MWA consulted with tribal entities in accordance with AB52. None of the tribal entities responded that there were potentially important Native American sites in the Project area. However, to protect unknown potential tribal archaeological resources. **Mitigation Measures CR-1**, **CR-2**, and **CR-3** are required. These measures are designed to train construction personnel as well as sets out the guidance for an unanticipated find. Implementation of Mitigation Measures CR-1, CR-2, and CR-3 would reduce potential impacts to unanticipated discoveries of archaeological resources to less than significant.

c) *Disturb any human remains, including those interred outside of formal cemeteries?*

Less than Significant Impact. Based on an analysis of records and surveys of the property, it has been determined that the Project site does not include a formal cemetery or any archaeological resources that might contain interred human remains. In addition, California Health and Safety Code Section 7050.5, CEQA Section 15064.5, and Public Resources Code Section 5097.98, mandate the process to be followed in the event of an accidental discovery of any human remains. Specifically, California Health and Safety Code Section 7050.5 requires that if human remains are discovered, disturbance of the site shall remain halted until the coroner has conducted an investigation into the circumstances, manner, and cause of death, and made recommendations concerning the treatment and disposition of the human remains to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98

of the Public Resources Code. If the coroner determines that the remains are not subject to his or her authority and if the coroner has reason to believe the human remains to be those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission. Compliance with existing law would ensure that significant impacts to human remains would not occur.

Mitigation Measure CR-4 is required to protect unanticipated tribal and human archaeological resources, specifically human remains and unknown Native American burial sites. Implementation of Mitigation Measure CR-3 would reduce potential impacts to unanticipated discoveries of archaeological resources to less than significant.

4.5.2 Mitigation Measures

MM CR-1 **Worker Environmental Awareness Program (WEAP) – Cultural Resources**. A Worker Environmental Awareness Program (WEAP) training shall be developed and provided by a cultural resource specialist familiar with potential Native American and paleontological resources in the area. The WEAP training shall be presented by the cultural resource specialist to all construction personnel. For the life of the Project, each employee (including temporary contractors and subcontractors) will receive WEAP training prior to conducting any work on the site.

MM CR-2 In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the Native American Heritage Commission shall be contacted, as detailed within Mitigation Measure TCR-1, regarding any pre-contact and/or historic-era finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

MM CR-3 If significant pre-contact and/or historic-era cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to the applicable tribal entity for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

MM CR-4 If, at any time, evidence of human remains (or suspected human remains) are uncovered, the County Coroner must be contacted immediately and permitted to examine the find in situ. A buffer must be established around the find (minimum of 50 feet) and the consulting archaeologist must also be notified.

If the remains are determined to be of Native American origin, the Coroner will contact the Native American Heritage Commission and the Most Likely Descendant (MLD) will be named. In consultation with the MLD, the County, project proponent, and consulting archaeologist, the disposition of the remains will be determined. Any costs incurred will be the responsibility of the project proponent/property owner.

If the remains are determined to be archaeological, but non-Native American, the consulting archaeologist will oversee the removal, analysis, and disposition of the remains. Any costs incurred will be the responsibility of the project proponent/property owner.

If the remains are determined to be of forensic value, the County Coroner will arrange for their removal, analysis, and disposition. The Coroner's activities will not involve any costs to the project proponent/property owner.

If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a MLD. With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

4.5.3 Conclusion

Implementation of **Mitigation Measures CR-1, CR-2, CR-3,** and **CR-4** would reduce potentially significant impacts of the Proposed Project associated with Cultural Resources to less than significant.

4.6 ENERGY

This section describes the potential energy usage effects from implementation of the Proposed Project for both construction activities and operations, and is based on information provided in Appendix A.

4.6.1 Regulatory Setting

A full list of energy regulations is provided in the Energy Analysis in Appendix A. The discussion below provides a summary of key standards relative to this Project.

Senate Bill 100

Senate Bill 100 (SB 100) was signed into law September 2018 and increased the goal of the California RPS Program to achieve at least 50 percent renewable resources by 2026, 60 percent renewable resources by 2030, and 100 percent renewable resources by 2045. SB 100 also includes a State policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045. Under the bill, the State cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

4.6.2 Environmental Setting

California is one of the lowest per capita energy users in the United States, ranked 48th in the nation, due to its energy efficiency programs and mild climate (United States Energy Information Administration [EIA] 2018). California consumed 292,039 gigawatt-hours (GWh) of electricity and 2,110,829 million cubic feet of natural gas in 2017 (California Energy Commission [CEC] 2019; EIA 2018). In addition, Californians consume approximately 18.9 billion gallons of motor vehicle fuels per year (Federal Highway Administration 2019). The single largest end-use sector for energy consumption in California is transportation (39.8 percent), followed by industry (23.7 percent), commercial (18.9 percent), and residential (17.7 percent) (EIA 2018).

Most of California's electricity is generated in-state with approximately 30 percent imported from the Northwest (Alberta, British Columbia, Idaho, Montana, Oregon, South Dakota, Washington, and Wyoming) and Southwest (Arizona, Baja California, Colorado, Mexico, Nevada, New Mexico, Texas, and Utah) in 2017. In addition, approximately 30 percent of California's electricity supply comes from renewable energy sources such as wind, solar photovoltaic, geothermal, and biomass (CEC 2018). Adopted on September 10, 2018, SB 100 accelerates the State's Renewables Portfolio Standards Program by requiring electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

To reduce statewide vehicle emissions, California requires that all motorists use California Reformulated Gasoline, which is sourced almost exclusively from refineries located in California. Gasoline is the most used transportation fuel in California with 15.5 billion gallons sold in 2017 and is used by light-duty cars, pickup trucks, and sport utility vehicles (California Department of Tax and Fee Administration 2018). Diesel is the second most used fuel in California with 4.2 billion gallons sold in 2015 and is used primarily by heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm equipment, and heavy-duty construction and military vehicles (CEC 2016). Both gasoline and diesel are primarily petroleum-based, and their consumption releases greenhouse gas (GHG) emissions, including CO_2 and NO_X. The transportation sector is the single largest source of GHG emissions in California, accounting for 41 percent of all inventoried emissions in 2016 (CARB 2018).

4.6.3 Impact Analysis

CEQA THRESHOLDS	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact or Does Not Apply**
VI. ENERGY: Would the project:				
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	

Discussion

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less Than Significant Impact. The Project will not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation. Information from the CalEEMod 2020.4.0 Daily and Annual Outputs contained in the air quality and greenhouse gas analyses (Appendix A) were utilized to determine the potential energy demand. The CalEEMod outputs detail Project related construction equipment, transportation energy demands, and facility energy demands. Using the CalEEMod data input, the Project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. The California Air Resources Board's 2017 Emissions Factors Tables show that on average aggregate fuel consumption (gasoline and diesel fuel) would be approximately 18.5 hp-hr-gal (Appendix A)

Construction Energy

The Project's estimated energy consumption during construction is provided in Appendix A (refer to Tables 12-14). In summary, the usage was estimated as follows:

- Table 12: Construction Equipment Fuel Consumption Estimates: 14,407 gallons of diesel fuel.
- Table 13: Construction Worker Fuel Consumption Estimates: 658 gallons.
- Table 14: Construction Hauling Fuel Consumption Estimates (Heavy Duty Trucks): 29,769 gallons.

Construction of the Proposed Project would require the typical use of energy resources. There are no unusual Project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Project construction is required to comply with applicable CARB regulations regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally, CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Compliance with these measures would result in a more efficient use of construction-related energy and would minimize or eliminate wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additionally, as required by California Code of Regulations Title 13, Motor Vehicles, Section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby minimizing or eliminating unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment.

Therefore, Project compliance with State regulations will reduce construction impacts to less than significant and no mitigation is required.

Operations

Energy consumption in support of or related to project operations would include transportation energy demands (energy consumed by employee and patron vehicles accessing the Project Site) and facilities energy demands (energy consumed by building operations and site maintenance activities). This use of energy is typical for a public works operation, and no operational activities or land uses would occur that would result in extraordinary energy consumption.

The largest source of operational energy use would be vehicle operation of the Proposed Project's employees. To model the Proposed Project's energy usage, the vehicle fleet mix was used as determined in the CalEEMod output from the air quality and greenhouse gas analysis (Appendix A). Using the CalEEMod output, the Proposed Project operations is assumed that an average trip for all vehicles was 25 miles, at one vehicle per trip per month.

Table 15 in Appendix A shows that an estimated 88 gallons of fuel would be consumed per year for the operation of the Proposed Project.

Trip generation generated by the Proposed Project is consistent with other similar public facility uses of similar scale and configuration. That is, the Proposed Project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips, nor associated excess and wasteful. Therefore, there is a less than significant impact, and no mitigation is required.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. Regarding federal transportation regulations, the Project Site is located in an already developed area with existing roadways. Therefore, the Project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the Intermodal Surface Transportation Efficiency Act because Southern California Association of Governments is not planning for intermodal facilities in the Project Area.

Regarding the State's Renewable Energy Portfolio Standards, the Project is not proposing to construct buildings that would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CALGreen). CalGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

Given the above, the Proposed Project would have a less than significant potential to conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

4.6.4 Mitigation Measures

No mitigation measures associated with impacts to Energy apply to the Proposed Project.

4.6.5 Conclusion

No potentially significant impacts of the Proposed Project are associated with Energy, and no mitigation would be required.

4.7 GEOLOGY AND SOILS

A paleontological report was also prepared for the Proposed Project (**Appendix D-1 - *Due Diligence Paleontological Resources Study, Oeste Recharge Project*, CRM Tech, May 26, 2021**).

4.7.1 Environmental Setting

According to the Natural Resource Conservation Service (NRCS) Custom Soil Resource Report, the Project Site is underlain entirely by Cajon sand (2 to 9 percent slopes). Portions of the Project Site, especially within the swales and along the northern and southern boundaries of the site have been compacted and disturbed by recreational off-highway vehicle use and illegal dumping, while soils outside of these areas are relatively undisturbed. Soils underlaying portions of the site that occur within the California Aqueduct are heavily compacted and disturbed.

4.7.2 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
VII. GEOLOGY AND SOILS: Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
• Strong seismic ground shaking?			X	
• Seismic-related ground failure, including liquefaction?				X
• Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
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- site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
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?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

Discussion

a) *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*

- *Rupture of a known earthquake fault, as delineated on the most recent Alquist Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*

  Less Than Significant. The Project Site is located in Southern California, a seismically active area and susceptible to the effects of seismic activity include rupture of earthquake faults. The Project Site is not included within any Earthquake Fault Zones as created by the Alquist-Priolo Earthquake Fault Zoning Act, according to the California Department of Conservation Mapping. The nearest fault to the Project Site is the San Andres Fault Zone, is located approximately 7 miles southwest of the site. Therefore, the impact would be less than significant, and no mitigation is required.

- *Strong seismic ground shaking?*

  Less Than Significant Impact. The site is situated in an area of high regional seismicity. The nearest fault to the Project Site is the San Andres Fault Zone located approximately 7 miles southwest of the site. Since no known faults are located within or near the Project Site, surface fault rupture is not anticipated. However, severe ground shaking should be expected during the life of the Proposed Project. The Project is a water recharge basin that would be occasionally maintained by maintenance workers. Therefore, the proposed Project is not anticipated to expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking more than other developments in Southern California. Therefore, the impacts are less than significant, and no mitigation is required.

- *Seismic-related ground failure, including liquefaction?*

  No Impact. Liquefaction is a mode of ground failure that results from the generation of high pore-water pressures during earthquake ground shaking, causing loss of shear strength, and is typically a hazard where loose sandy soils exist below groundwater. San Bernardino County has designated certain areas as potential liquefaction hazard zones. These are areas considered at risk of liquefaction-related ground failure during a seismic event, based on mapped surficial deposits and the presence of a relatively shallow water table. According to San Bernardino County hazard maps, the site is not located within an area identified as having any liquefaction potential. Therefore, there is no impact, and no mitigation is required.

- *Landslides?*

  No Impact. Landslides are the downhill movement of masses of earth and rock and are often associated with earthquakes; but other factors, such as the slope, moisture content of the soil, composition of the subsurface geology, heavy rains, and improper grading can influence the occurrence of landslides. The Project Site's elevation ranges from approximately 3,468 to 3,485 feet above mean sea level. The site slopes gently northward away from the adjacent Aqueduct and is relatively flat outside of the Aqueduct and a series of swales sheet flow across the site. The Project Site and the adjacent parcels are relatively flat, do not contain any hills or steep slopes, and no landslides on or adjacent to the Project site would occur. Therefore, there is no impact, and no mitigation is required.

Based on the above, the Project will have a less than significant impact regarding exposure to people or structures to potential substantial adverse effects of earthquakes, ground shaking, liquefaction and landsides, and no mitigation is required.

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

Less Than Significant Impact. The Natural Resource Conservation Service, the Project Site is underlain entirely by Cajon sand (2 to 9 percent slopes). Portions of the Project Site, especially within the swales and along the northern and southern boundaries of the site have been compacted and disturbed by recreational off-highway vehicle use and illegal dumping, while soils outside of these areas are relatively undisturbed. Soils underlaying portions of the site that occur within the California Aqueduct are heavily compacted and disturbed

During Project construction when soils are exposed, temporary soil erosion may occur, which could be exacerbated by rainfall.

The Project would be required to comply with the General Storm Water Permit for Construction Activity from the State Water Resources Control Board (SWRCB), which would include the implementation of a SWPPP and associated BMPs. BMPs may include a combination of erosion control measures to reduce, prevent, or minimize soil erosion from Project-related grading and construction activities, such as fiber rolls, fencing, and watering. Additionally, the Construction General Permit (CGP; Order No. 2009-0009-DWQ, or latest version) issued by the SWRCB, regulates construction activities to minimize water pollution, including sediment. With compliance with the Regional Water

Quality Control Board (RWQCB) SWPPP requirements, and installation of BMPs construction impacts related to erosion and loss of topsoil would be less than significant.

Therefore, with implementation of existing requirements, impacts related to substantial soil erosion or loss of topsoil would be less than significant.

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?*

Less Than Significant Impact. Refer to the above discussion regarding hazards associated with liquefaction and landslide hazards. As noted, there is no potential for landslide and low potential for liquefaction. Therefore, because no aspects of the Proposed Project could increase the likelihood of landslides, lateral spreading, subsidence, liquefaction, potential impacts would be less than significant, and no mitigation is required.

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?*

No Impact. Expansive soil is a soil/clay (such as montmorillonite or bentonite) that is prone to expansion or shrinkage due directly to variation in water volume. Expansive soils swell when exposed to large amounts of water and shrink when the water evaporates. This continuous cycle of wet to dry soil keeps the soil in perpetual motion causing structures built on this soil to sink or rise unevenly, often requiring foundation repair. Expansive soils are comprised primarily of minerals (incredibly fine particles) with little to no organic material and are thus incredibly viscous, proving difficult to drain.

The onsite near surface soils that would underly the proposed facility are classified by the USDA as primarily sandy type soils, which have a low shrink-swell potential. Therefore, Project impacts regarding expansive soils would be less than significant, and no mitigation is required.

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?*

No Impact. The Project does not propose to install septic tanks or alternative wastewater disposal systems. No impacts would occur, and no mitigation is required.

f) *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Less Than Significant Impact With Mitigation Incorporated. The Project Site is flat, and there are no rock outcroppings or unique geologic features within the Project Site.

According to the paleontological report in Appendix D, older alluvium, presumably of Pleistocene age, underlies much of the Mojave Desert. Pleistocene sediments in the region were laid down by two separate depositional regimes, namely the ancestral Mojave River and the Victorville Fan (Appendix D). The Piñon Hills/Phelan area is located on the Victorville Fan, which was generally considered to have a high potential for containing nonrenewable vertebrate fossil remains. However, recent studies suggest that these sediments, while potentially fossiliferous, are not as fossiliferous as the ancestral Pleistocene-age Mojave River sediments (Appendix D).

The paleontological report in Appendix D states that the Proposed Project's potential to impact significant, nonrenewable paleontological resources appears to be low in the surface soils but high in the older native alluvium beneath the surface soils. The Proposed Project is a water recharge basin where excavations could reach greater than 10 feet in depth. At this depth, location may reach paleontologically sensitive Pleistocene or earlier soils subsurface.

Due to the variability and unknown paleontological sensitivity of the Project Site, **Mitigation Measure GEO-1,** is required to manage unanticipated discoveries of paleontological resources. Implementation of Mitigation Measure GEO-1 would reduce potential impacts to unanticipated discoveries of paleontological resources to less than significant.

4.7.3 Mitigation Measures

MM GEO-1 **Provision for Unanticipated Buried Paleontological Resources**: A qualified cultural resource specialist or paleontologist will spot check construction excavations that would impact Late Pleistocene to Holocene units, which are generally below 10 feet in the Project area. The frequency will be determined with the cultural resource specialist and the construction contractor based on the work schedule. If evidence of subsurface paleontological resources is found during construction, excavation and other construction activity in that area shall cease and the construction contractor shall contact the County of San Bernardino Planning Director. With direction from the Planning Director, a paleontologist certified by the County of San Bernardino shall evaluate the find prior to resuming ground disturbing activities in the immediate vicinity. If warranted, the paleontologist shall prepare and complete a standard Paleontological Resources Mitigation Program for the salvage and curation of identified resources.

4.7.4 Conclusion

Implementation of **Mitigation Measure GEO-1** would reduce potentially significant impacts of the Proposed Project associated with Geology and Soils to less than significant.

4.8 GREENHOUSE GAS EMISSIONS

A Greenhouse Gas Analysis was prepared for the Project as part of the Air Quality Assessment (Appendix A).

4.8.1 Regulatory Setting

Since 1988, many countries around the world have made an effort to reduce GHG emissions since climate change is a global issue. Over the past 30 years, the United States, and the State of California, have enacted a myriad of regulations that have evolved over time aimed at reducing GHG emissions in transportation, building and manufacturing.

The Project is within the Mojave Air Basin, which is under the jurisdiction of the MDAQMD.

According to MDAQMD CEQA and Federal Conformity Guidelines, a project is significant if it triggers or exceeds the most appropriate evaluation criteria. MDAQMD would clarify upon request which threshold is most appropriate for a given project; in general, for GHG emissions, the MDAQMD significance emission threshold of 100,000 metric tons of carbon dioxide equivalent (MTCO2e) per year is sufficient. A significant project must incorporate mitigation sufficient to reduce its impact to a level that is not significant. A project that cannot be mitigated to a level that is not significant must incorporate all feasible mitigation.

4.8.2 Environmental Setting

Constituent gases of the Earth's atmosphere, called atmospheric GHG, play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), O_3, water vapor, nitrous oxide (NO_2), and chlorofluorocarbons. This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO_2 and NO_2 are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. Table 6 in Appendix A provides a description of each of the greenhouse gases and their global warming potential.

For the purposes of Greenhouse Gas Analysis (Appendix A), the focus was on emissions of CO_2, CH_4, and NO_2 because these gasses are the primary contributors to Global Climate Change (GCC) from development projects. Although there are other substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

4.8.3 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
VIII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Discussion

a) *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Less Than Significant Impact. The Proposed Project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, and construction equipment. GHG emissions have been calculated with the CalEEMod model based on construction and operational parameters (Appendix A).

The greenhouse gas emissions from Project construction equipment and worker vehicles are shown in Table 10 of Appendix A. The emissions are from all phases of construction. The total construction emissions amortized over a period of 30 years are estimated at approximately 16 metric tons of CO2e per year.

Operational emissions occur over the life of the project. Table 11 in Appendix A below shows that the subtotal for the Proposed Project would result in annual emissions of 0.49 MT CO2e per year without the addition of amortized construction emissions which would add an additional 16.37 MT CO2e per year. The total emissions of 16.86 MTCO2e/year would not exceed the San Bernardino County screening threshold of 3,000 metric tons per year of CO2e. As shown in Table 11 of Appendix A, the Project's total GHG emissions would also not exceed the MDAQMD annual threshold of 100,000 MTCO2e or the MDAQMD daily threshold of 548,000 pounds of CO2e.

According to the San Bernardino County thresholds of significance as identified in Appendix A, a cumulative global climate change impact would occur if the GHG emissions created from the ongoing operations would exceed 3,000 metric tons per year of CO2e. Therefore, as the Project's total emissions do not exceed 3,000 metric tons per year of CO2e, the operation of the proposed project would not create a significant cumulative impact to global climate change.

Therefore, potential impacts associated with the generation of greenhouse gas emissions would be less than significant, and no mitigation would be required.

b) *Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Less Than Significant Impact. The Proposed Project would not have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

According to the County of San Bernardino Greenhouse Gas Emissions Reduction Plan, "all development projects, including those otherwise determined to be exempt from CEQA will be subject to applicable Development Code provisions, including the GHG performance standards, and state requirements, such as the California Building Code requirements for energy efficiency. With the application of the GHG performance standards, projects that are exempt from CEQA and small projects that do not exceed 3,000 MTCO2e per year will be considered to be consistent with the Plan and determined to have a less than significant individual and cumulative impact for GHG emissions." The Reduction Plan also states that "the 3,000 MTCO2e per year value was chosen as the medial value and is used in defining small projects that must include the Performance Standards as described in Attachment B of the County of San Bernardino Greenhouse Gas Emissions Reduction Plan, but do not need to use the Screening Tables or alternative GHG mitigation analysis described in Attachment D of the County of San Bernardino Greenhouse Gas Emissions Reduction Plan."

The Project's total net operational GHG emissions do not exceed the County's screening threshold of 3,000 MTCO2e per year. Therefore, the Project does not need to accrue points using the screening tables and is consistent with the GHG Plan, pursuant to Section 15183.5 of the State CEQA Guidelines. As mentioned above, the Project is expected to comply with the performance standards for commercial uses as detailed in the County of San Bernardino Greenhouse Gas Emissions Reduction Plan (Appendix A). The Proposed Project will not result in substantial emissions of greenhouse gases and will not conflict with the Green County initiatives.

4.8.4 Mitigation Measures

No mitigation measures associated with impacts on Greenhouse Gases apply to the Proposed Project.

4.8.5 Conclusion

No potentially significant impacts of the Proposed Project are associated with Greenhouse Gases, and no mitigation would be required.

4.9 HAZARDS AND HAZARDOUS MATERIALS

4.9.1 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
IX. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
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 or excessive noise to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
g) Expose people or structures, either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?				X

Discussion

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact. A hazardous material is a substance that is toxic, flammable/ignitable, reactive, or corrosive. Extremely hazardous materials are substances that show high or chronic toxicity, carcinogenic, bioaccumulative properties, persistence in the environment, or that are water-reactive. Improper use, storage, transport, and disposal of hazardous materials and waste may result in harm to humans, surface and groundwater degradation, air pollution, fire, and explosion.

Construction of the Proposed Project would involve the use of construction-related chemicals. These include but are not limited to hydraulic fluids, motor oil, grease, runoff, and other related fluids and lubricants. The construction activities would involve the disposal and recycling of materials, trash, and debris. With mandatory regulatory compliance with federal, State, and local laws, potential hazardous materials impacts associated with construction of the Project would be less than significant, and no mitigation is required.

Given that the operation of the Proposed Project is a water recharge basin, the need for transportation and/or storage of hazardous materials is considered to be low. In any event, operations would be required to comply with all federal, State and local laws pertaining to hazardous materials handling, transport, use and disposal. Therefore, with mandatory regulatory compliance with federal, State, and local laws, potential hazardous materials impacts associated with operations of the Project would be less than significant, and no mitigation is required.

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

Less than Significant Impact. Construction and operation of the Project would involve the routine transport, use, or disposal of hazardous materials on- and off-site.

<u>Construction</u>

Construction activities would require the temporary use of hazardous substances, such as fuel, lubricants, and other petroleum-based products for operation of construction equipment as well as oil, solvents, or paints. As a result, the Proposed Project could result in the exposure of persons and/or the environment to an adverse environmental impact due to the accidental release of a hazardous material. However, the transportation, use, and handling of hazardous materials would be temporary and would coincide with the short-term Project construction activities. Further, these materials would be handled and stored in compliance with all with applicable federal, state, and local requirements, any handling of hazardous materials would be limited to the quantities and concentrations set forth by the manufacturer and/or applicable regulations, and all hazardous materials would be securely stored in a construction staging area or similar designated location within the Project site. In addition, the handling, transport, use, and disposal of hazardous materials must comply with all applicable federal, state, and local agencies and regulations, including the Department of Toxic Substances Control (DTSC); Occupational Health and Safety Administration; Caltrans; and the County Health Department - Hazardous Materials Management Services.

With the compliance with local, state, and federal regulations short-term construction impacts associated with the handling, transport, use, and disposal of hazardous materials would be less than significant.

Therefore, because the MWA and its contractors are required to comply with federal, State, and local regulations, impacts associated with the handling, transport, use, and disposal of hazardous materials and the release of hazardous materials into the environment would be less than significant, and no mitigation would be required.

Operations

The operation of the Proposed Project may involve the use of construction equipment lubricants However, as with construction, with required compliance with federal, State, and County regulations, standards, and guidelines pertaining to hazardous materials management, there would be a less than significant hazard to the public or the environment through routine use, storage, or disposal of hazardous materials, and no mitigation would be required.

c) *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

No Impact. The closest school to the Project Site is the Piñon Hills Elementary Schools located, on approximately 3 miles to the south. Therefore, the Proposed Project would not emit hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. As such, there are no impacts, and no mitigation is required.

d) *Would the project 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?*

No Impact. Government Code Section 65962.5(a)(1) requires that DTSC "shall compile and update as appropriate, but at least annually, and shall submit to the Secretary for Environmental Protection, a list of all the following: (1) all hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code (HSC)." The hazardous waste facilities identified in HSC § 25187.5 are those where DTSC has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action in an order issued under HSC § 25187, or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment. This is known as the "Cortese List." This is a very small and specific subgroup of facilities, and they are not separately posted on the DTSC or Cal/EPA's website. The following databases that meet the "Cortese List" requirements were reviewed for this Project.

- Envirostore Database. There are no sites listed in the Envirostore Database within 1,000 feet of the Project site.

- Geotracker Database. Geotracker is the SWRCB's database that manages potential hazardous sites to groundwater. There are no sites listed in the Geotracker Database within 1,000 feet of the Project site.

Based on the result of the database review the Project Site is not located on any site that has been identified in accordance with Section 65962.5 of the Government Code.

Therefore, there are no impacts because the Project Site is not located on any site that has been identified in accordance with Section 65962.5 of the Government Code, therefore, no mitigation would be required.

e) For a project located within an airport land use plan or, where such a plan had not been adopted, within 2 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?

No Impact. The Project site is located approximately 17 miles southwest of the Southern California Logistics Airport. Therefore, the Project would not result in a safety hazard or excessive noise for people residing or working in the Project area because the Project Site is not located within the influence of an airport land use plan or, or within 2 miles of a public airport or public use airport. There would be no impacts, and no mitigation would be required.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. Development of the Project site would not interfere with any of the daily operations of the San Bernardino County emergency response plan. Access to the Proposed Project is at the end of Cayucos Drive, west of Oasis Road, and all facilities occur off-site. Overall, the Proposed Project would not impair implementation of or physically interfere with San Bernardino County emergency operations plan or evacuation plan. There would be no impacts, and no mitigation is required.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. The Project is not identified by Cal Fire, Fire Hazard Severity Zones in the State Responsibility Area as being in a high fire zone. Therefore, there is no impact relative to the Project's potential exposure of people or structures to wildfire is less than significant, and no mitigation is required.

4.9.2 Mitigation Measures

No mitigation measures associated with impacts to Hazards and Hazardous Materials apply to the Proposed Project.

4.9.3 Conclusion

No potentially significant impacts of the Proposed Project are associated with Hazards and Hazardous Materials, and no mitigation would be required.

4.10 HYDROLOGY AND WATER QUALITY

Under the "Mojave Basin Area Adjudication" [1996] the MWA was designated as Watermaster for five distinct sub-areas based on hydrologic divisions defined by various hydrologic, geologic, engineering, and political considerations. The subareas are: 1) Oeste; 2) Este; 3) Alto; 4) Centro, and 5) Baja Within these sub-areas, the MWA management strategy focuses on water conservation, groundwater basin health, water supply management, and water allocation.

The MWA routinely studies groundwater quantity and quality. In July 2009, California State University Fullerton, Dept of Geological Sciences, in conjunction with the MWA published a hydrogeologic report for the Oeste Hydrologic Sub-Area Hydrogeologic Report (DGS, July 2009). The full report is provided on the MWA website: https://www.mojavewater.org/data-maps/studies-reports/, under the heading, "Oeste Hydrologic Sub-Area Hydrogeologic Report."

In January 2022, the MWA drilled a pilot well at the Project Site to identify the subsurface conditions.

4.10.1 Regulatory Setting

Water quality standards are designed to protect the public. Standards are developed based on the intended use of the water (drinking, agriculture, industrial use, etc.). National Primary Drinking Water Regulations (NPDWR's or primary standards) are legally enforceable standards that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water. National Secondary Drinking Water Regulations (NSDWR's or secondary standards) are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (taste, odor, or color) in drinking water. The United States Environmental Protection Agency (USEPA) recommends secondary standards for water systems but does not require public water systems to comply. However, individual states may choose to adopt them as enforceable standards. Table 12 (Drinking Water Quality Standards) refers to the standards for various chemical ions, physical water quality, and contaminants (DGS, July 2009). Contaminants that are not currently subject to any proposed or promulgated national primary drinking water regulation (NPDWR), are known or anticipated to occur in public water systems and may require regulations under Safe Drinking Water Act are known as unregulated contaminants.

The Lahontan Regional Water Quality Control Board (LRWQCB) requires that dischargers whose construction projects disturb one (1) or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation. The Construction General Permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer (QSD).

4.10.2 Environmental Setting

Regional Climate

The Mojave Desert is found at elevations of 2,000 to 5,000 feet above mean sea level and is characterized by cool winter temperatures and warm summer temperatures, with its rainfall occurring almost entirely in the winter. Climatological data obtained for the Project Site indicates the annual precipitation averages 6.18 inches per year. Almost all of the precipitation in the form of rain occurs between October and April, with hardly any occurring between May and September. The wettest month is February, with a monthly average total precipitation of 1.22 inches. The average minimum and maximum temperatures for the region are 45.7 and 78.9 degrees Fahrenheit (°F), respectively, with December and January (monthly average 41° F) being the coldest months and July being the hottest (monthly average 100° F).

Oeste Subbasin

The Oeste Hydrologic Sub-area, also referred to in some geologic technical literature as El Mirage Valley watershed, is located just north of the San Gabriel Mountains along the southern edge of the Mojave Desert, San Bernardino County, California (DGS, July 2009). The Oeste Hydrologic Sub-area is located approximately 25 miles west of Victorville.

The El Mirage Valley groundwater basin has two principal groundwater aquifers: a lower regional aquifer extends from the southern portion of Sheep Creek to El Mirage (dry) Lake in the north. This aquifer extends from the Los Angeles County line in the west to the community of Phelan in the east (DGS, July 2009). The lower, regional aquifer is primarily being used by the larger water consumers in the north and is the primary aquifer for several municipal groups (including the Sheep Creek Water Company and the County of San Bernardino).

The upper perched aquifer is isolated near the dry lake area and is typically less than 250 ft deep below ground surface (bgs). However, in several places, the depth of the perched layer may be deeper and is interbedded with sand, silt, and gravel deposits. The upper perched aquifer is principally used by single-family dwellings and small businesses. DWR reports well yields averaging 230 gallons/minute (gpm) and a high of 1,000 (gpm). It is not clear in the DWR report if these yields are derived from the perched (less than 250 ft) or regional aquifer, although the regional aquifer seems more likely (DGS, July 2009).

Historical groundwater flow direction for the Oeste Hydrologic Sub-area is from the southern proximal portion of Sheep Creek wash fan to the northern central portion of Oeste Hydrologic Sub-area. However, due to the Sheep Creek wash fan morphology, a portion of flow exits the Oeste Hydrologic Sub-area and flows into the Alto Hydrologic Sub-area to the northeast. Further groundwater may be moving from other canyons and small streams from the west into El Mirage valley (DGS, July 2009).

Historically, groundwater production in the Oeste Sub-area has primarily been for agricultural purposes. Over the last 20 years, housing development and municipal production in the region has increased and has replaced agricultural production. Farming in the "High Desert" has slowed over the last few decades and agricultural activities are expected to follow current downward trends in the Oeste Sub-area. Dairy will most likely remain stable as long as the two active dairy operations (Meadowbrook and Hettinga) choose to remain in operation. Industrial uses may increase slightly over time but currently do not make up a material amount of production in the basin. Municipal production is expected to increase over time to serve the rapidly growing communities of Piñon Hills and Phelan. Domestic uses [adjudicated domestic purveyors and non-adjudicated domestic producers (minimal producers)] are expected to increase slightly over time but will most likely be greatly outpaced by municipal demands (DGS, July 2009).

Floodplains

The Project site does not contain any natural drainages or waterways, according to the biological resources report in Appendix B-1. The Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA) indicate the Project site is located in Zone D, where flooding is possible but undetermined. Zone D is not considered a Special Flood Hazard Area (SFHA), according to FEMA.

4.10.3 Impact Analysis

CEQA THRESHOLDS	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact or Does Not Apply**
X. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
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:				
• result in substantial erosion or siltation onsite or offsite;			X	
• substantially increase the rate or amount of surface water runoff in a manner which would result in flooding on or offsite;				X
• create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				X
• impede or redirect flood flows?				X
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	

Discussion

a) Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact.

<u>Construction</u>

Construction-related runoff pollutants are typically generated from waste and hazardous materials handling or storage areas, outdoor work areas, material storage areas, and general maintenance areas (e.g., vehicle or equipment fueling and maintenance, including washing). Construction projects that disturb 1 acre or more of soil, including the Proposed Project, are regulated under the CGP (2009-0009-DWQ - Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity) and its subsequent revisions (Order No. 2012-0006-DWQ) issued by the SWRCB. Projects obtain coverage under the CGP by developing and implementing a SWPPP, estimating sediment risk from construction activities to receiving waters, and specifying best management practices that would be implemented as a part of the project's construction phase to minimize pollution of stormwater prior to and during grading and construction. Therefore, the Proposed Project is required to obtain coverage of the CGP.

Therefore, with implementation of the BMPs in the required SWPPP, water quality or waste-discharge impacts from Project-related grading and construction activities would be less than significant, and no mitigation is required.

<u>Operations</u>

The Lahontan Regional Water Quality Control Board (LRWQCB) prepared a Water Quality Control Plan for the Lahontan Region, North and South Basins ("Basin Plan", LRWQCB, 2021) which sets forth water quality standards for the surface and ground waters of the Region, which include both designated beneficial uses of water and the narrative and numerical objectives which must be maintained or attained to protect those uses. All ground waters are considered suitable, or potentially suitable, for municipal or domestic water supply (MUN).

The Proposed Project is designed to draw approximately 3,000 acre-feet/year of State Water Project water from the California aqueduct in wet years for groundwater recharge and storage in the Oeste groundwater subbasin. The DWR routinely conducts water quality monitoring of SWP water in various locations along the aqueduct to ensure that the water served meets the State's Drinking Water Standards.

The DGS report of the Oeste Sub-basin, studied the State's water quality standards and the water quality of the Oeste Sub-basin and concluded the following (DGS, July 2009):

- *Water quality throughout the lower regional aquifer in the Oeste Hydrologic Sub-area is generally of good quality. Several locations have experienced a small degradation in water quality over time, mainly those near the El Mirage (dry) Lake. Elevated arsenic levels (1.2 mg/l) near the dry lake are higher in concentration than the present MCL (0.010 mg/L). The source appears to be natural weathering processes of the Pelona schist, but further research will be needed to completely verify the source.*

- *The upper perched aquifer waters are generally of poorer quality than that of the deeper regional aquifer. This is in part due to recharge from the agricultural activities and association with the El Mirage (dry) Lake. Although most of the analyzed ions in the upper perched aquifer show elevated concentrations, the waters still meet state and federal drinking water quality standards. The only exception is arsenic. Arsenic is elevated in several wells along the northeastern edge of the perched aquifer. Variations in water quality may also be attributed to the possibility that groundwater is moving from Los Angeles county and into the Oeste Hydrologic Sub-area lower regional aquifer. This should be further evaluated as part of any future groundwater monitoring program. Other Potential issues may be associated with sampling protocols and also be re-evaluated as part of future key well program.*

The DWR identified that arsenic typically occurs in SWP water at 0.003 mg/l (DWR, October 2012), which is lower than the DGS identified concentrations in the Oeste Sub-basin (1.2 mg/). The SWP water to be recharged into the Oeste Sub-basin groundwater contains less arsenic than the naturally occurring groundwater, therefore, the groundwater quality would improve with the blending of Oeste Sub-basin water and the SWP water. Therefore, impacts to groundwater quality would be less than significant.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact. Based on the July 2009 DGS report, the annual average water supply to the Oeste Sub-area is estimated at 1,000 to 3,000 Aft/yr. The best contemporary estimates of water being removed from the system, there is estimate an annual budget deficit of approximately 1,600 Aft/yr. These estimates appear reasonable when compared to water levels in the region which show a gradual downward trend.

The Proposed Project is anticipated to generally raise groundwater levels when compared to no project conditions, creating the same benefit of reduced pumping costs for adjacent private well owners.

Thus, impacts to groundwater recharge and groundwater supplies would be less than significant.

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:*

- *result in substantial erosion or siltation onsite or offsite;*

Less Than Significant Impact. Grading activities during construction of the Proposed Project may result in wind driven soil erosion and loss of topsoil. All construction and grading activities would comply with SWPPP. Therefore, potential impacts associated with erosion would be less than significant, and no mitigation would be required.

- *substantially increase the rate or amount of surface water runoff in a manner which would result in flooding on or offsite;*

Less Than Significant Impact. The Project proposes no impervious surfaces. The Proposed Project is designed to include any freeboard that would be needed for storm events. Therefore, the Project would not substantially increase the rate or amount of surface water runoff in a manner which would result in flooding on or offsite. The impact would be less than significant, and no mitigation is required.

- *create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or*

Less Than Significant Impact. Refer to the answers above.

- *impede or redirect flood flows?*

No Impact. The Project site does not contain any natural drainages or waterways, according to the biological resources report in Appendix B-1. The FEMA (Federal Emergency Management Agency) Flood Insurance Rate Maps indicates that the Project site is not located within any flood hazard areas. Therefore, the Project would not impede or redirect flood flows. There would be no impact, and no mitigation is required.

d) *Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?*

Less Than Significant. The FEMA Flood Insurance Rate Maps indicates that the Project site is not located within any flood hazard areas. The Project Site is inland, more than 70 miles northeast of the Pacific Ocean, and is not subject to tsunami hazards. Seiches are surface waves created when a body of water is shaken, usually by earthquake activity. Seiches are of concern relative to development near large water bodies and water storage facilities, because inundation from a seiche can occur if the wave overflows a containment wall, such as the wall of a reservoir, water storage tank, dam, or other artificial body of water.

While the DWR canal would be considered a body of water that could potentially be subject to seiche, the canal exists approximately 187 feet from the Project's recharge basins, which would absorb any overflow. Therefore, there would be a less than significant impact with respect to the risk of release of pollutants due to project inundation, and no mitigation is required.

e) *Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

Less Than Significant Impact. The Proposed Project's construction contractor would be required to prepare and implement a SWPPP and associated BMPs in compliance with the CGP during grading and construction, as required by the LRWQCB and State Water Quality Control Board requirements. The SWPPP would specify BMPs that would be implemented for the Proposed Project to protect the water quality of receiving waters (Mojave River). Therefore, the Proposed Project would not conflict with the implementation of the State's or LRWQCB's water quality control plan.

The MWA has also prepared an Urban Water Management Plan (T&Y, 2021). The Urban Water Management Plan (UWMP) is the legal and technical water management foundation for urban water suppliers throughout California. MWA has assessed the available natural supplies through the applicable adjudications and agreements, the long- term availability of imported wastewater, the return flow attributable to water use in the MWA service area, as well as its long-term access to SWP Table A Contract supplies. In addition, MWA stores water both within MWA's service area boundaries and outside its boundaries to manage short-term water shortage conditions. Together, these supplies make up MWA's regional water asset portfolio that is actively managed by MWA and the regional retail agencies to ensure long-term reliability.

The purpose of the Proposed Project is to ensure groundwater reliability in the Oeste Sub-basin area. Therefore, the Proposed Project is consistent with the MWA's UWMP.

4.10.4 Mitigation Measures

No mitigation measures associated with impacts to Hydrology and Water Quality apply to the Proposed Project.

4.10.5 Conclusion

No potentially significant impacts of the Proposed Project are associated with Hydrology and Water Quality, and no mitigation would be required.

4.11 LAND USE PLANNING

4.11.1 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XI. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?				X
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?			X	

Discussion

a) Would the project physically divide an established community?

No Impact. The Proposed Project is a water recharge facility at the end of an existing dirt road. Therefore, the Proposed Project is consistent with the surrounding land uses, and there are no impacts with regard to the division of an established community.

b) Would the project 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?

Less Than Significant. Although the Project would be overseen and approved by the MWA on property owned by the MWA, land use is guided by the San Bernadino County is RL – Rural Living.

The San Bernardino County Development Code Section 82.02.040 exempts certain utilities, including as water, from having to obtain a permit or land use approvals. Specifically, this section states:

> *(8) Utilities. The erection, construction, alteration, or maintenance by a public utility or public agency of utilities intended to service existing or nearby approved developments shall be permitted in any zone. These include: water; gas; electric; supply or disposal systems; including wires, mains, drains, sewers, pipes, conduits, cables, fire-alarm boxes, police call boxes, traffic signals, hydrants, etc., but not including new transmission lines and structures. Commercial satellite and wireless communications antennas are not exempt, and are instead subject to Chapter 84.27 (Wireless Telecommunications Facilities).*

The Project will be constructed by the MWA, a public agency, and consists of a groundwater recharge basin to serve customers of the Oeste subbasin, and/or provide for water reliability of the Oeste subbasin.

Therefore, the Project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The impact is less than significant, and no mitigation is required.

4.11.2 Mitigation Measures

No mitigation measures associated with impacts to Land Use and Planning apply to the Proposed Project.

4.11.3 Conclusion

Potential impacts of the Proposed Project associated with Land Use and Planning would be less than significant, and no mitigation would be required.

4.12 MINERAL RESOURCES

4.12.1 Impact Analysis

4.12.2 Regulatory Setting

In 1975, the California legislature enacted the Surface Mining and Reclamation Act (SMARA). This act provides for the reclamation of mined lands and directs the State Geologist to classify (identify and map) the non-fuel mineral resources of the state to show where economically significant mineral deposits occur and where they are likely to occur based upon the best available scientific data.

4.12.3 Environmental Setting

Around the turn of the century, large deposits of limestone and granite were discovered, prompting cement manufacturing to become the leading industry in the valley. In 1916, the Southwestern Portland Cement Company (SPCC) began operation in Victorville. There are no mines in the Project vicinity.

CEQA THRESHOLDS	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact or Does Not Apply**
XII. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Discussion

a) *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

No Impact. The Project Site is designated Mineral Resource Zone (MRZ) 3a, which is defined as areas containing known or inferred mineral occurrences of undetermined mineral resource significance. MRZ-2 areas are where geologic data indicate that significant mineral resources are present. Since the Project Site is not designated MRZ-2, development of the Project Site would not impact the availability of known mineral resources in the surrounding area. Therefore, no impacts associated with any known mineral resource that would be of value to the region and the residents of the state would occur, and no mitigation would be required.

b) *Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*

No Impact. See response to Threshold Question XII a), above. Thus, the Project would have no impact on the availability of locally important mineral resource recovery sites.

4.12.4 Mitigation Measures

No mitigation measures associated with impacts to Mineral Resources apply to the Proposed Project.

4.12.5 Conclusion

No potentially significant impacts of the Proposed Project are associated with Mineral Resources, and no mitigation would be required.

4.13 NOISE

Environmental noise is commonly measured in A-weighted decibels (dBA). A decibel (dB) is a unit of sound energy intensity. Sound waves, traveling outward from a source, exert a sound pressure level (commonly called a "sound level") measured in dB. An A-weighted decibel (dBA) is a db corrected for the variation in frequency response that duplicates the sensitivity of human ears. Decibels are measured on a logarithmic scale. Generally, a three dBA increase in ambient noise levels represents the threshold at which most people can detect a change in the noise environment; an increase of 10 dBA is perceived as a doubling of loudness.

Generally, noise is perceptible at an increase of 3 dBA as illustrated below:

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud

Source: https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

Noise Descriptors

The noise descriptors utilized in the noise study for this Project include but are not limited to the following:

- Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
- Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24- hour day, obtained after addition of five (5) dB to sound levels in the evening from 7:00 to 10:00 PM and after addition of ten (10) dB to sound levels in the night before 7:00 AM and after 10:00 PM.
- Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time-varying noise level. The energy average noise level during the sample period.

Vibration

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Table 6: *Vibration Source Levels for Construction Equipment* identifies typical construction sources of vibration as identified by the Federal Transit Administration.

Table 6: Vibration Source Levels for Construction Equipment

	Peak Particle Velocity (inches/second) at 25 feet	**Approximate Vibration Level LV (dVB) at 25 feet**
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 (upper range)	105
	0.170 (typical)	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory roller	0.21	94
Hoe ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

4.13.1 Impact Analysis

CEQA THRESHOLDS	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact or Does Not Apply**
XIII. NOISE: Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project site in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	

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

a) *Would the project result in 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?*

Less Than Significant Impact.

Construction Noise

Construction operations must follow the County's General Plan and the Noise Ordinance, which states that construction, repair or excavation work performed must occur within Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays. There are no sensitive receptors within 1,000 feet of the Project Site, and the Project would comply with the County's Noise Ordinance. Therefore, no significant impacts are identified or anticipated, and no mitigation measures are required.

Operations Noise

There are no sensitive receptors or land uses within 1,000 feet of the Project Site. The closest sensitive receptors are residential land uses located approximately 0.25 mile to the west and south of the Project Site. It is anticipated that noise generated from Project operations would not be perceptible to the sensitive receptors near the Project Site due to the distance.

Therefore, the Project would be consistent with the County's Noise Ordinance with respect to the noise impacts from the Project's traffic within the Project Site. The impact would be less than significant, and no mitigation is required.

b) *Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?*

Less Than Significant Impact. Construction activities can produce vibration that may be felt by adjacent land uses. The closest land uses are approximately 0.25 mile west and south of the Project Site. The construction of the Proposed Project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a bulldozer. A large bulldozer has a vibration impact of 0.089 inches per second peak particle velocity (PPV) at 25 feet which is perceptible but below any risk to architectural damage.

At 0.25 mile, a large bulldozer would yield a worst-case 0.0 PPV (in/sec) which means the vibration would not be perceptible during grading of the Project Site and is below any threshold of damage. Therefore, impacts are less than significant, and no mitigation is required.

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

No Impact. The nearest airport is the Southern California Logistics Airport, located approximately 7 miles to the northwest of the site. Therefore, the Project is not located within the vicinity of a private airstrip or an airport land use plan or within 2 miles of a public airport or public use airport. Therefore, the Project would not expose people residing or working in the Project area to excessive noise levels. There would be no impact, and no mitigation is required.

4.13.2 Mitigation Measures

No mitigation measures associated with impacts to Noise apply to the Proposed Project.

4.13.3 Conclusion

No potentially significant impacts of the Proposed Project are associated with Noise, and no mitigation would be required.

4.14 POPULATION AND HOUSING

4.14.1 Impact Analysis

CEQA THRESHOLDS	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact or Does Not Apply**
XIV. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X	
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X

Discussion

a) *Would the project 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)?*

Less Than Significant Impact. The Proposed Project is the construction and operation of a groundwater recharge basin for the Oeste subbasin of the MWA. The Project will provide water service reliability for the population that draws from the Oeste subarea, as well as would provide water service for future connections consistent with expected population growth. It is not anticipated that population growth would occur due to the recharge basins.

Therefore, construction and operation of the Proposed Project would not significantly induce substantial unplanned population growth either directly or indirectly. Therefore, impacts would be less than significant, and no mitigation is required.

b) *Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

No Impact. The Project site is currently vacant and does not contain any structures. Therefore, the Project will not displace any existing housing and will not necessitate construction of replacement housing elsewhere. Thus, no impact is anticipated.

4.14.2 Mitigation Measures:

No mitigation measures associated with impacts to Population and Housing apply to the Proposed Project.

4.14.3 Conclusion

No potentially significant impacts of the Proposed Project are associated with Population and Housing, and no mitigation would be required.

4.15 PUBLIC SERVICES

4.15.1 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XV. PUBLIC SERVICES: a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?			X	
Police protection?			X	
Schools?				X
Recreation/Parks?				X
Other public facilities?				X

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire Protection

Less Than Significant Impact. The closest fire station to the Project site is Fire Station 13 at 10433 Mountain Rd, Piñon Hills, CA 92372, approximately 3.5 miles south of the Project site. This station would be the first to respond to calls for service from the site.

The Proposed Project is to construct and operate water recharge basins. The basins, once operational, would be unmanned and have no risk of fire that would increase fire response.

Therefore, potential impacts associated with fire protection would be less than significant, and no mitigation would be required.

Police Protection

Less Than Significant Impact. The closest police station to the Project Site is the Sheriff's station at 4050 Phelan Rd, Phelan, CA. Typically, impacts on police services are analyzed based on increases in permanent residents from projects involving residential developments. Although the Project does not involve an increase in residential development, the Proposed Project could generate a typical range of police service calls, such as vehicular burglaries or thefts and disturbances during construction.

The site will have perimeter fences/walls and will be secured at all times. The Project Site is within the San Bernardino County Sheriff's service area; therefore, the Project would not require an expansion of the police service area.

Development of the Project Site would not result in the need for new or physically altered police protection facilities. Therefore, potential impacts associated with police protection would be less than significant, and no mitigation would be required.

Schools

No Impact. The Proposed Project, a water recharge basin, will not directly increase the County's population as it does not increase residential land use designations nor construct any housing. Therefore, it would not generate the need for new or altered school facilities. Therefore, the Proposed Project would not result in substantial adverse physical impacts related to schools. Therefore, potential impacts associated with schools would have no impacts, and no mitigation would be required.

Recreational/Parks

No Impact. The Proposed Project will not directly require the construction or expansion of public recreational facilities as it does not propose new residential uses. Therefore, there would be no impacts, and no mitigation is required.

4.15.2 Mitigation Measures:

No mitigation measures associated with impacts to Public Services apply to the Proposed Project.

4.15.3 Conclusion

No potentially significant impacts of the Proposed Project are associated with Public Services, and no mitigation would be required.

4.16 RECREATION

4.16.1 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVI. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Discussion

a) *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

No Impacts. Impacts on parks and recreational facilities are typically analyzed based on increases in permanent residents from projects involving residential developments. The Project proposes to construct water recharge basins, and therefore, is not a residential development. Therefore, there would be no impacts to parks and other public recreational facilities, and no mitigation is required.

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

No Impact. The Proposed Project does not propose the development of any recreational facilities. Therefore, no impacts are anticipated.

4.16.2 Mitigation Measures

No mitigation measures associated with impacts to Recreation apply to the Proposed Project.

4.16.3 Conclusion

No potentially significant impacts of the Proposed Project are associated with Recreation, and no mitigation would be required.

4.17 TRANSPORTATION

4.17.1 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVII. TRANSPORTATION: Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?				X
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?			X	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
d) Result in inadequate emergency access?				X

a) Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities?

No Impact. The Project is located in the unincorporated community of Piñon Hills, San Bernardino County, California. The subject property is located at the western terminus of Cayucos Drive, between 263rd Street East and Oasis Road.

There are no bicycle, pedestrian or transit facilities near the Project Site, and the San Bernardino County General Plan does not identify any such facilities near the Project Site. Therefore, the Project does not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities. There would be no impact, and no mitigation is required.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less Than Significant Impact. CEQA Guidelines Section 15064.3 provides that transportation impacts of projects are, in general, best measured by evaluating the Project's Vehicle Miles Traveled (VMT). Automobile delay (often called Level of Service, LOS) is no longer be considered to be an environmental impact under CEQA, except in terms of consistency with a jurisdiction’s General Plan where an LOS is identified. A VMT analysis is generally required for projects that generate traffic, such as residential, commercial, and industrial project, in addition to linear or roadway projects.

The Project is the construction and operations of a water recharge basin, which is not a land use or linear transportation project that would generate traffic, other than the occasional operations manpower and equipment. Therefore, the Project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). Impacts are less than significant, and no mitigation is required.

c) *Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?*

No Impact. The Proposed Project does not include the construction or widening of any road facilities. Therefore, the Project does not increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. There is no impact, and no mitigation is required.

d) *Would the project result in inadequate emergency access?*

No Impact. The Proposed Project is the construction and operation of water recharge basins that would not impact any roadways. Therefore, there are no impacts, and no mitigation is required.

4.17.2 Mitigation Measures

No mitigation measures associated with impacts to Transportation apply to the Proposed Project.

4.17.3 Conclusion

No potentially significant impacts of the Proposed Project are associated with Transportation, and no mitigation would be required.

4.18 TRIBAL CULTURAL RESOURCES

A Cultural Resources Assessment for the Proposed Project was prepared by CRM Tech in May 2021 (Appendix C). The assessment addressed the ethnographic and archaeology of the Native American occupation in the Project area.

Mojave Water Agency AB 52 Tribal Consultation

On November 9, 2022, the Mojave Water Agency notified the following tribal entity representatives of the Project and that the 30-day timeframe in which to request consultation would end on December 9, 2022, in accordance with AB52. The results of the consultation are as follows:

- Mr. Raymond Huaute Cultural Resources Specialist Morongo Band of Mission Indians. Result: No response provided.
- Ms. Jill McCormick Historic Preservation Officer Quechan Tribe of the Fort Yuma Reservation. Result: No response provided.
- Ms. Donna Yocum Chairperson San Fernando Band of Mission Indians. Result: No response provided.
- Ms. Jessica Mauck Cultural Resources Management Department Yuhaaviatam of San Manuel Nation (formerly known as the San Manuel Band of Mission Indians). Result: No response provided.
- Mr. Mark Cochrane Co-Chairperson Serrano Nation of Mission Indians. Result: No response provided

4.18.1 Environmental Setting

Currently, the chronology most frequently applied in the Mojave Desert divides the region's prehistory into five periods marked by changes in archaeological remains, reflecting different ways in which Native peoples adapted to their surroundings.

The Victor Valley area is situated near the presumed boundary between the traditional territories of the Serrano and the Vanyume peoples. Linguistically the Vanyume were probably related to the Serrano, their southern neighbor, although politically they seem to have differed from the Serrano proper. The number of Vanyumes, never large, dwindled rapidly between 1820 and 1834, when southern California Indians were removed to the various missions and their asistencias, and the group virtually disappeared well before 1900. As a result, very little is known about the Vanyume today.

The Serrano's territory is centered at the San Bernardino Mountains, but also includes part of the San Gabriel Mountains, much of the San Bernardino Valley, and the Mojave River valley in the southern portion of the Mojave Desert, reaching as far east as the Cady, Bullion, Sheep Hole, and Coxcomb Mountains. Prior to European contact, Serrano subsistence was defined by the surrounding landscape and primarily based on the gathering of wild and cultivated foods and hunting, exploiting nearly all the resources available. They settled mostly on elevated terraces, hills, and finger ridges near where flowing water emerged from the mountains.

Loosely organized into exogamous clans led by hereditary heads, the clans were in turn affiliated with one of two exogamous moieties, the Wildcat (Tukutam) or the Coyote (Wahiiam). The exact nature of the clans, their structure, function, and number are not known, except that each clan was the largest autonomous political and landholding unit. The core of the unit was the patrilineage, although women retained their own lineage names after marriage. There was no pan-tribal political union among the clans.

The Serrano had a variety of technological skills that they used to acquire food, shelter, and clothing as well as to create ornaments and decorations. Common tools included manos and metates, mortars and pestles, hammerstones, fire drills, awls, arrow straighteners, and stone knives and scrapers.

These lithic tools were made from locally sourced material as well as materials procured through trade or travel. They also used wood, horn, and bone spoons and stirrers; baskets for winnowing, leaching, grinding, transporting, parching, storing, and cooking; and pottery vessels for carrying water, storage, cooking, and serving food and drink. Much of this material cultural, elaborately decorated, does not survive in the archaeological record. As usual, the main items found archaeologically relate to subsistence activities.

Although contact with Europeans may have occurred as early as 1771 or 1772, Spanish influence on Serrano lifeways was minimal until the 1810s, when a mission asistencia was established on the southern edge of Serrano territory. Between then and the end of the mission era in 1834, most of the Serrano in the western portion of their traditional territory were removed to the nearby missions. In the eastern portion, a series of punitive expeditions in 1866-1870 resulted in the death or displacement of almost all remaining Serrano population in the San Bernardino Mountains. Today, most Serrano descendants are affiliated with the San Manuel Band of Mission Indians, the Morongo Band of Mission Indians, or the Serrano Nation of Indians.

4.18.2 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVIII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or		X		

CEQA THRESHOLDS	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact or Does Not Apply**
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		

Discussion

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 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)?*

Less Than Significant Impact With Mitigation Incorporated. According to PRC Chapter 2.5, Section 21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and items with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources as defined in Section 5020.1.

California AB 52 was approved by Governor Brown on September 25, 2014. AB52 specifies that CEQA projects with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource may have a significant effect on the environment. As such, the bill requires lead agency consultation with California Native American tribes traditionally and culturally affiliated with the geographic area of a proposed project, if the tribe requested to the lead agency, in writing, to be informed of proposed projects in that geographic area. The legislation further requires that the tribe-requested consultation be completed prior to determining whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project.

Between November 9, 2022, the Mojave Water Agency notified the following tribal entity representatives of the Project and that the 30-day timeframe in which to request consultation would end on December 9, 2022, in accordance with AB52. While the tribes did not request consultation, **Mitigation Measures TCR-1** and **TCR-2** are included to ensure there would be no impacts in the event unanticipated finds are discovered. With the implementation of TRC-1 and TRC-2, the Project's impacts would be less than significant.

b) *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural* *landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a 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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?*

Less Than Significant Impact With Mitigation Incorporated. The Project Site is a mix of undisturbed and disturbed land, and there are no resources that have been identified as significant within or near the Project Site. As the Project proposes to excavate for water recharge basins, there is the potential to uncover unanticipated tribal cultural resources.

As discussed above, the Mitigation Measures TCR-1 and TCR-2 would be implemented to avoid potential impacts to tribal cultural resources that may be unearthed by Project construction activities. Mitigation Measure CR-3 would be implemented if any human remains – including Native American human remains – are unearthed by Project construction activities. Implementation of these measures will ensure that Project-specific impacts will be less than significant.

4.18.3 Mitigation Measures:

MM TCR-1 The Most Likely Descendent (MLD), as identified by the County Coroner shall be contacted, as detailed in CR-4, of any pre-contact and/or historic-era cultural resources discovered during project implementation and be provided information regarding the nature of the find, so as to determine if Tribal input is required with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by an archaeologist, in coordination with the applicable tribe, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents the applicable tribe, or other tribes as applicable, for the remainder of the project, should the applicable tribe elect to place a monitor on-site.

MM TCR-2 Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the MWA for dissemination to applicable tribe. The MWA shall, in good faith, consult with the applicable tribe throughout the life of the project.

4.18.4 Conclusion

Implementation of **Mitigation Measures TCR-1, TCR-2** and **Mitigation Measure CR-3** (Section 4.5) would reduce potentially significant impacts of the Proposed Project associated with Tribal Cultural Resources to less than significant.

4.19 UTILITIES AND SERVICE SYSTEMS

4.19.1 Environmental Setting

Water for the construction would be supplied to the Project site by the Phelan Piñon Hills Community Services District. Electricity is provided by SCE, and natural gas is provided by Southwest Gas.

4.19.2 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XIX. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				X
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
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?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

Discussion

a) *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?*

No Impact. The Proposed Project does not require wastewater, stormwater, electric power, nor natural gas or telecommunications facilities because it is the construction and operations of a water recharge basin. The water for dust control would not require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. There is no impact, and no mitigation is required.

b) *Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?*

Less than Significant Impact. Water for dust control would be supplied by Phelan Piñon Hills Community Services District. It is anticipated that the construction water usage would not be excessive, and the Phelan Piñon Hills Community Services District would have sufficient water supplies available to serve the construction of the Project and during operations such as basin grading and maintenance. The Project would recharge water into the Oeste Sub-basin thereby increasing groundwater availability for the Phelan Piñon Hills Community Services District's future use. There would be a less than significant impact, and no mitigation would be required.

c) *Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

Less Than Significant. The Project is the construction and operations of water recharge basins. It is anticipated that the construction contractor would provide "portapotties" for the few construction workers and pumped at the nearest wastewater treatment facility. Therefore, the Project has a less than significant impact on wastewater treatment capacity, and no mitigation is required.

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?*

Less than Significant Impact. Project construction is not anticipated to generate significant quantities of solid waste with the potential to affect the capacity of regional landfills. Waste anticipated to be generated during construction would be trash associated with employee lunches, water bottles, etc, and in a very minor amount.

The regional landfills have ample capacity to service the Project. The impact would be less than significant, and no mitigation is required.

e) *Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

Less than Significant Impact. All collection, transportation, and disposal of solid waste generated by the Project would comply with all applicable federal, state, and local statutes and regulations. Under AB 939, the Integrated Waste Management Act of 1989, local jurisdictions are required to develop source reduction, reuse, recycling, and composting programs to reduce the amount of solid waste entering landfills. Local jurisdictions are mandated to divert at least 50% of their solid waste generation into recycling. In addition, the state has set an ambitious goal of 75% recycling, composting, and source reduction of solid waste by 2020. To help reach this goal, the state has adopted AB 341 and AB 1826. AB 341 is a mandatory commercial recycling bill and AB 1826 is a mandatory organic recycling bill. The County adopted its Integrated Waste Management Plan in 1998, which includes the Countywide Summary Plan, Source Reduction and Recycling Elements, and Non-Disposal Facility Elements for the County and each city in the County. Waste generated by the Project would enter the County's waste stream but would not adversely affect the County's ability to meet the requirements of AB 939, AB 341, or AB 1826, since the Project's waste generation would represent a nominal percentage of the waste created within the County. The Project would comply with all regulatory requirements regarding solid waste, and impacts associated with solid waste disposal regulations would be less than significant.

4.19.3 Mitigation Measures

No mitigation measures associated with impacts to Utilities and Service Systems apply to the Proposed Project.

4.19.4 Conclusion

No potentially significant impacts of the Proposed Project are associated with Utilities and Service Systems, and no mitigation would be required.

4.20 WILDFIRE

4.20.1 Impact Analysis

CEQA THRESHOLDS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XX. WILDFIRE: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, Would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
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 wildfire?				X
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?				X
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?				X

Discussion

Section XX (*a-d*)

No Impact. The Proposed Project site is not located within a very high fire hazard severity zone according to County of San Bernardino General Plan maps or Local Responsibility and State Responsibility Area maps. Therefore, no impacts associated with wildfire would occur and no mitigation is required.

4.20.2 Mitigation Measures

No mitigation measures associated with impacts to Wildfire apply to the Proposed Project.

4.20.3 Conclusion

No potentially significant impacts of the Proposed Project are associated with Wildfire, and no mitigation would be required.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XXI. MANDATORY FINDINGS OF SIGNIFICANCE:				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?		X		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X		

Discussion

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant With Mitigation Incorporated. The Project Site is vacant, contains no drainages, does not contain suitable habitat for any sensitive species, and would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, other approved local, regional, or state habitat conservation plan. **Mitigation Measures BIO-1** and **BIO-2** and **BIO-3** to reduce potential impacts to western Joshua tree and nesting birds were identified to reduce potential impacts to less than significant levels.

According to the Cultural Resources Assessment (Appendix C), no cultural resources have been recorded within the Project Site, and the Project Site does not contain any resources that are important to major periods of California history or prehistory. However, the **Mitigation Measures CR-1** and **CR-2** to manage unanticipated discoveries of cultural and Native American resources, and **CR-3, TCR-1,** and **TCR-2** manage unanticipated discoveries of human remains were determined to be necessary to reduce impacts to less than significant. The Project Site is within an unknown potential paleontological resource according to the Cultural Resources study performed for the Project, although the level of knowledge of the area is not specifically known. **Mitigation Measure GEO-1** to manage unanticipated discoveries of paleontological resources is required to reduce impacts to less than significant.

Implementation of these measures will ensure that Project-specific impacts would be less than significant.

With the implementation of **Mitigation Measures BIO-1, BIO-2, BIO-3** and **CR-1, CR-2, CR-3, TCR-1, TCR-2** and **GEO-1,** the Proposed Project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or an endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.

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

Less Than Significant Impact. As demonstrated by the analysis in this Initial Study, the Proposed Project would not result in any significant and unavoidable environmental impacts in any environmental category with the implementation of Project-specific mitigation measures. Implementation of mitigation measures at the Project level would reduce the potential for incremental environmental effects of the Proposed Project when viewed in conjunction with the effects of past projects, current projects, or planned future projects. Project impacts would be less than significant with mitigation incorporated.

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

Less Than Significant. The Proposed Project would not cause substantial adverse effects on human beings, either directly or indirectly, according to the analysis.

Therefore, the Proposed Project would not directly or indirectly cause substantial adverse effects on human beings.

5 LIST OF PREPARERS

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6 REFERENCES

The following reports and/or studies are applicable to development of the Project site and are hereby incorporated by reference:

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Appendix A

Oeste Basins Air Quality, Greenhouse Gas, and Energy Impact Study
Mojave Water Agency, Pinon Hills, CA

MD Acoustics

March 14, 2023

Oeste Basins

Air Quality, Greenhouse Gas, and Energy Impact Study

Mojave Water Agency, Pinon Hills, CA

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GLOSSARY OF TERMS

AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH_4	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DPM	Diesel particulate matter
GHG	Greenhouse gas
HFCs	Hydrofluorocarbons
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NOx	Nitrogen Oxides
NO_2	Nitrogen dioxide
N_2O	Nitrous oxide
O_3	Ozone
PFCs	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SF_6	Sulfur hexafluoride
SIP	State Implementation Plan
SOx	Sulfur Oxides
SRA	Source/Receptor Area
TAC	Toxic air contaminants
VOC	Volatile organic compounds
WRCC	Western Regional Climate Center

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This air quality and greenhouse gas (GHG) analysis was prepared to evaluate whether the estimated criteria pollutants and GHG emissions generated from the project would cause a significant impact to the air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The assessment is consistent with the methodology and emission factors endorsed by Mojave Desert Air Quality Management District (MDAQMD), California Air Resource Board (CARB), and the United States Environmental Protection Agency (US EPA).

1.2 Project Summary

1.2.1 Site Location

The Project site is located on a 10-acre parcel (APN 3099-081-01) within the unincorporated area of San Bernardino County known as Pinon Hills, approximately 0.88 mile south of SR-18 and approximately 3.6 miles east of SR-138, as shown in Exhibit A. The site is surrounded by vacant land to the north, east, and west and the California Aqueduct to the south with residential uses further to the northwest and south.

1.2.2 Project Description

The project proposes to construct two, approximate 4.5-acre groundwater recharge basins on its 10-acre parcel in the Pinon Hills area with added turnout and associated piping. The site plan used for this is illustrated in Exhibit B.

Construction activities within the Project area will consist of site preparation and on-site grading. Table 1 summarizes the land use description for the Project Site.

Table 1: Land Use Summary

Land Use	Unit Amount	Size Metric
Other Non-Asphalt Surfaces	10	Acres

1.2.3 Sensitive Receptors

Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution than others due to their exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. For CEQA purposes, a sensitive receptor would be a location where a sensitive individual could remain for 24-hours or longer, such as residencies, hospitals, and schools (etc.).

The closest existing sensitive receptors (to the site area) are the residential land use located 575 feet to the southwest.

1.3 Executive Summary of Findings and Mitigation Measures

The following is a summary of the analysis results:

Construction-Source Emissions
Project construction-source emissions would not exceed applicable regional thresholds of significance established by the MDAQMD.

As discussed herein, the project will comply with all applicable MDAQMD construction-source emission reduction rules and guidelines. Project construction source emissions would not cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS).

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less-than-significant.

Operational-Source Emissions
The project's emissions meet MDAQMD regional thresholds and will not result in a significant cumulative impact. The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less-than significant.

Project-related GHG emissions meet the MDAQMD and County of San Bernardino thresholds and are also considered to be less than significant. The project also complies with the goals of the CARB Scoping Plan, AB-32, SB-32 and County of San Bernardino Greenhouse Gas Emissions Reduction Plan.
Mitigation Measures

A. <u>Construction Measures</u>
The project applicant shall ensure that all applicable MDAQMD Rules and Regulations are complied with during construction.

No construction measures are required.

B. <u>Operational Measures to Reduce GHG Emissions</u>

No operational measures are required.

Exhibit A

Location Map

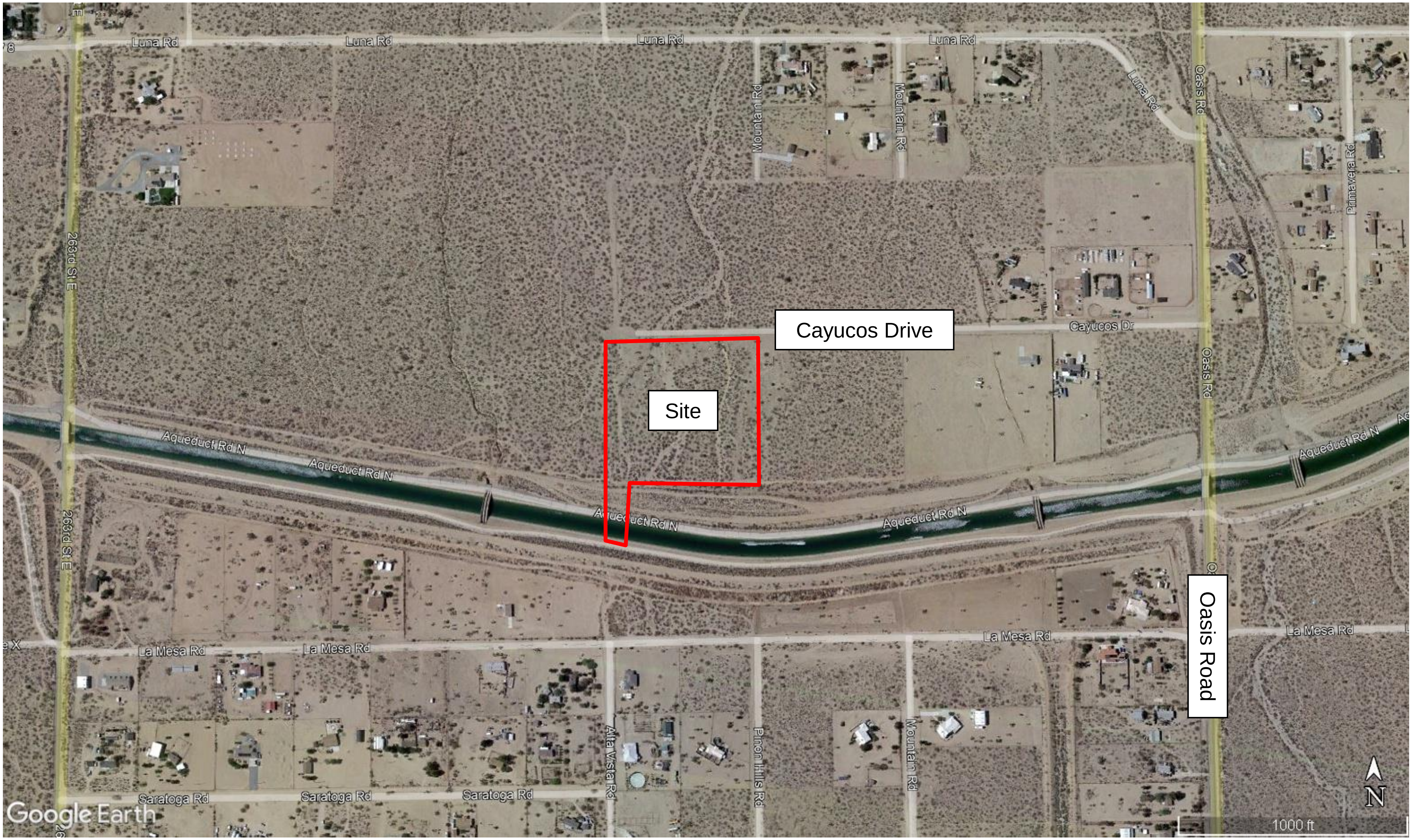
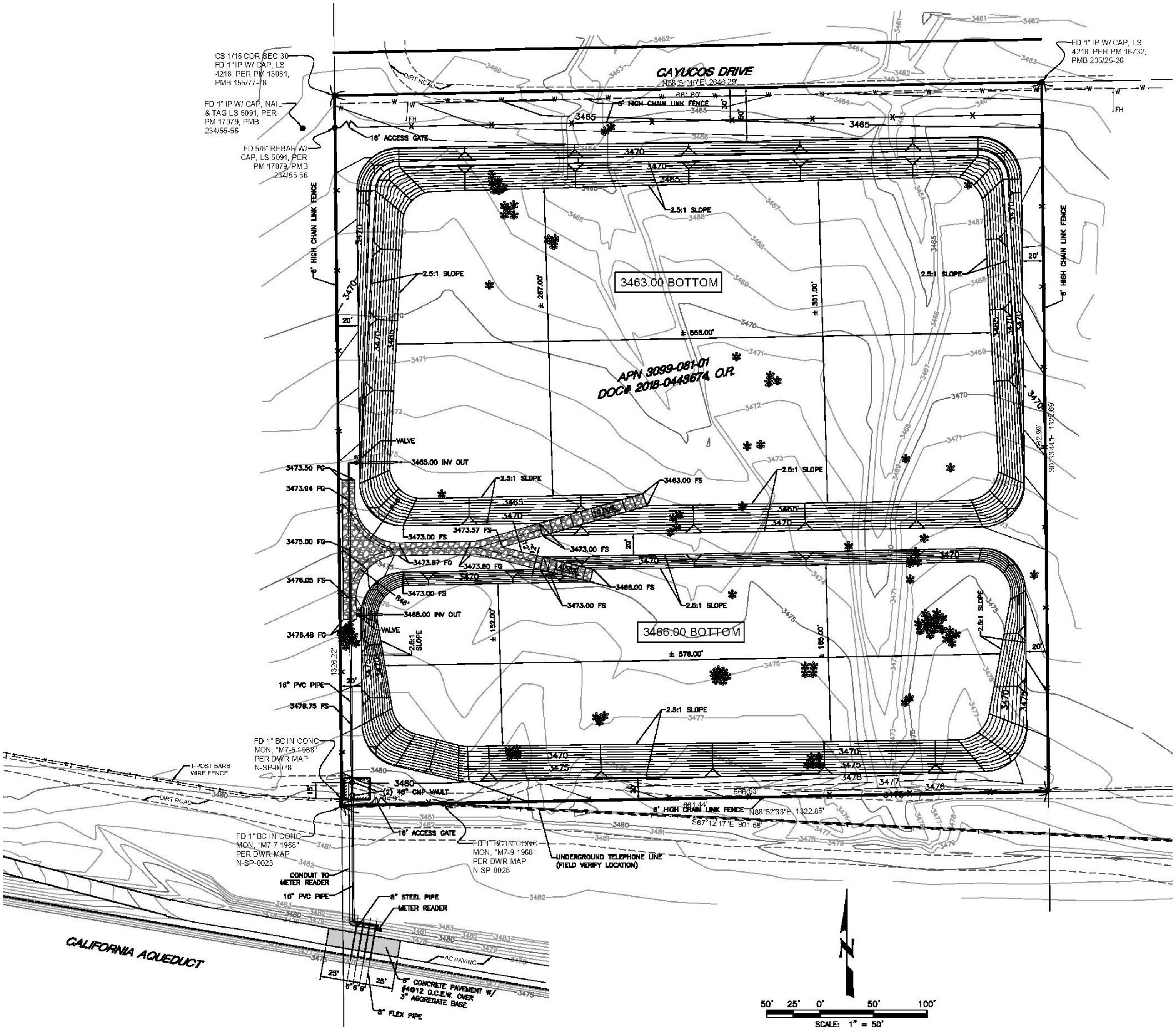


Exhibit B

Site Plan



2.0 Regulatory Framework and Background

2.1 Air Quality Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level. The Mojave Desert Air Quality Management District (MDAQMD) regulates at the air basin level.

2.1.1 National and State

The EPA is responsible for global, international, and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Air Quality Standards, also known as federal standards. There are six common air pollutants, called criteria pollutants, which were identified from the provisions of the Clean Air Act of 1970.

- Ozone
- Nitrogen Dioxide
- Lead
- Particulate Matter (PM10 and PM2.5)
- Carbon Monoxide
- Particulate Matter
- Sulfur Dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to project the public health.

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air district prepares their federal attainment plan, which sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. See http://www.arb.ca.gov/research/aaqs/aaqs.htm for additional information on criteria pollutants and air quality standards.

The federal and state ambient air quality standards are summarized in Table 2 and can also be found at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

Table 2: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentrations[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O3)	1-Hour	0.09 ppm	Ultraviolet Photometry	- -	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm		0.070 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM10)[8]	24-Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µ/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		- -		
Fine Particulate Matter (PM2.5)[8]	24-Hour	- -	- -	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 µg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 µg/m^3)	- -	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 µg/m^3)		9 ppm (10 µg/m^3)	- -	
	8-Hour (Lake Tahoe)	6 ppm (7 µg/m^3)		- -	- -	
Nitrogen Dioxide (NO_2)[9]	1-Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	- -	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (357 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	1-Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	- -	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	- -		- -	0.5 ppm (1300 mg/m^3)	
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[10]	- -	
	Annual Arithmetic Mean	- -		0.130ppm (for certain areas)[10]	- -	
Lead[11,12]	30 Day Average	1.5 µg/m^3	Atomic Absorption	- -		
	Calendar Qrtr	- -		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	- -		0.15 µg/m^3		
Visibility Reducing Particles[13]	8-Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[11]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Notes:

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.

8. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 μg/m³ to 12.0 μg/m³. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 μg/m³, as was the annual secondary standard of 15 μg/m³. The existing 24-hour PM10 standards (primary and secondary) of 150 μg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

9. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

10. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

11. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

12. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

13. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Several pollutants listed in Table 2 are not addressed in this analysis. Analysis of lead is not included in this report because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because proposed project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

2.1.2 Mojave Desert Air Quality Management District

The 1976 Lewis Air Quality Management Act established the MDAQMD and other air districts throughout the State. The federal CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the state.

The ARB is responsible for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP) for EPA approval. Significant authority for air quality control within them has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

California is divided geographically into air basins for the purpose of managing the air resources of the State on a regional basis. An air basin generally has similar meteorological and geographic conditions throughout. The State is currently divided into 15 air basins. The proposed project site is located within the Mojave Desert Air Basin (MDAB). The MDAQMD includes the desert portion of the San Bernardino County. The MDAQMD is responsible for controlling emissions primarily from stationary sources within the MDAQMD and also maintains air quality monitoring stations to document historical and current levels of air quality within the District. The MDAQMD is also responsible for developing, updating, and implementing the Ozone Attainment Plan (MDAQMD 2004) which establishes a plan to implement, maintain, and enforce a program of emission control measures to attain and maintain the federal ozone air quality standards. Attainment plans prepared by the various air pollution control districts throughout the state are used to develop the SIP for the State of California. The proposed project is located within the MDAQMD and, thus, is subject to the rules and regulations of the MDAQMD.

The MDAQMD and SCAG are responsible for formulating and implementing the air quality attainment plan (AQAP) for the Basin. Regional AQAPs were adopted in 1991, 1994, and 1997. The following SIP and AQAP are the currently approved plans for the Basin region:

- 1997 SIP for O_3, PM10, and NO_2
- 1995 Mojave Desert Planning Area Federal PM10 Attainment Plan; no formal action by the EPA

The MDAQMD completed the MDAQMD 2004 Ozone Attainment Plan (State and federal) in April 2004, which has been approved by the EPA.

The MDAQMD is downwind of the Los Angeles basin and the San Joaquin Valley. Prevailing winds transport ozone and ozone precursors from both regions into and through the MDAB during the summer ozone season. These transport couplings have been officially recognized by the CARB. Local MDAQMD emissions contribute to exceedances of both the NAAQS and CAAQS for ozone, but photochemical ozone modeling conducted by the MDAQMD and CARB indicates that the MDAB would be in attainment of both standards without the influence of this transported air pollution from upwind regions. Therefore, emissions reductions in the upwind area are critical to the attainment demonstration.

The following includes, but is not limited to, the MDAQMD rules that are applicable to the proposed project:

Rule 201 (Permit to Construct) requires written authorization to build, erect, install, alter, or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants. With respect to the proposed project, this rule would apply to any stationary equipment that is not otherwise exempt from this rule as an insignificant source of air pollutants (see Rule 219).

Rule 203 (Permit to Operate) requires written authorization to operate any equipment, the use of which may cause the issuance of air pollutants, or the use of which may reduce or control the issuance of air contaminants. With respect to the proposed project, this rule would apply to any stationary equipment that is not otherwise exempt from this rule as an insignificant source of air pollutants (see Rule 219).

Rule 219 (Equipment Not Requiring A Written Permit Pursuant to Regulation II) specifies stationary sources that the MDAQMD considers to be insignificant sources of air pollutants that are exempt from

Rules 201 and 202. With respect to the proposed project, the following sources would be exempt from permit requirements:

- Comfort air conditioning or ventilating systems which are not designed or used to remove air contaminants generated by, or released from, specific equipment units;
- Space heaters;
- Equipment used exclusively for steam cleaning;

Rule 402 (Nuisance). This rule specifies that a person may not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Rule 403.2 (Fugitive Dust Control for the Mojave Desert Planning Area). This rule requires owners or operators of a construction or demolition fugitive dust source to implement the fugitive dust control measures listed in Rule 403.2. These measures include periodic watering for short-term stabilization of disturbed surface area to minimize visible dust emissions, stabilization of graded surfaces if no development is planned within 30 days, reducing non-essential earth moving activity under high wind conditions, and more. In addition, for sites over 100 acres such as the proposed project, the control measures in Rule 403.2 must also be implemented. The additional control measures include preparing and submitting a dust control plan to the MDAQMD prior to commencing earth-moving activities. The dust control plan must describe all applicable dust control measures that will be implemented at the project site. Other additional control measures to minimize visible fugitive dust for sites over 100 acres include stabilizing access routes, maintaining natural topography to the extent possible, and constructing paved roads and parking lots first where feasible.

Rule 1113 (Architectural Coatings). This rule requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Rule 1160 (Internal Combustion Engines). This rule establishes limits for VOC, NOx, and CO emissions associated with stationary internal combustion engines. However, the provisions of the rule do not apply to the following engines:

- All internal combustion engines rated at less than 500 brake horsepower;
- All internal combustion engines operated less than 100 hours within any continuous four consecutive calendar quarter period; and
- Emergency internal combustion engines.

Regulation XIII (New Source Review). For new and modified stationary sources subject to permitting requirements (see Rule 201), this series of rules prescribes the use of Best Available Control Technology and the provision of emission offsets (i.e., mitigation) for equipment whose emissions exceed specified thresholds. The applicability of these requirements would be determined upon submittal of an application for permit to construct under Rule 201.

2.1.3 County of San Bernardino

County of San Bernardino General Plan

Local jurisdictions, such as the County of San Bernardino, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the County is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The County is also responsible for the implementation of transportation control measures as outlined in the 2016 AQMP and MDAQMD Attainment Plans. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the County assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the County does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the County and region will meet federal and state standards. Instead, the County relies on the expertise of the SCAQMD and MDAQMD and utilizes the SCAQMD CEQA Handbook and MDAQMD California Environmental Quality Act (CEQA) And Federal Conformity Guidelines (depending on the location/jurisdiction of the project) as guidance documents for the environmental review of plans and development proposals within its jurisdiction.

The County of San Bernardino General Plan contains the following air quality-related goals and policies that are applicable to the proposed project:

Goal CO 4 The County will ensure good air quality for its residents, businesses, and visitors to reduce impacts on human health and the economy.

CO 4.1 Because developments can add to the wind hazard (due to increased dust, the removal of wind breaks, and other factors), the County will require either as mitigation measures in the appropriate environmental analysis required by the County for the development proposal or as conditions of approval if no environmental document is required, that developments in areas identified as susceptible to wind hazards to address site-specific analysis of:

a. Grading restrictions and/or controls on the basis of soil types, topography or season.
b. Landscaping methods, plant varieties, and scheduling to maximize successful revegetation.

c. Dust-control measures during grading, heavy truck travel, and other dust generating activities.

CO 4.2 Coordinate air quality improvement technologies with the South Coast Air Quality Management District (SCAQMD) and the Mojave Desert Air Quality Management District (MDAQMD) to improve air quality through reductions in pollutants from the region.

CO 4.4 Because congestion resulting from growth is expected to result in a significant increase in the air quality degradation, the County may manage growth by insuring the timely provision of infrastructure to serve new development.

Programs

1. Consistent with the land use designations in the Land Use Policy Map (see the Land Use Element) that will improve growth management at a sub-regional level in relation to major activity centers, review new development to encourage new intensified development around transit nodes and along transit corridors.

2. Locate and design new development in a manner that will minimize direct and indirect emission of air contaminants through such means as:

    a. Promoting mixed-use development to reduce the length and frequency of vehicle trips;
    b. Providing for increased intensity of development along existing and proposed transit corridors; and
    c. Providing for the location of ancillary employee services (including but not limited to child care, restaurants, banking facilities, convenience markets) at major employment centers for the purpose of reducing midday vehicle trips.
    d. The County shall comply, to the extent feasible, with the recommendations on siting new sensitive land uses, as recommended in California Air Resources Board's Air Quality and Land Use Handbook: A Community Health Perspective, which includes the following:

    Notable siting recommendations include avoiding siting new sensitive land uses within:

    - 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day;

- 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration units exceed 300 hours per week);
- 1,000 feet of a chrome plater;
- 300 feet of any dry cleaning operation; and 300 feet of a large gas station (defined as a facility with a through put of 3.6 million gallons per year or greater); a 50 foot separation is recommended for typical gas dispensing facilities.

3. Incorporate phasing policies and requirements in the General Plan and development plans to achieve timely provision of infrastructure (particularly transportation facilities) to serve development through:

   a. Tying growth to Level of Service (LOS) standards; and
   b. Using phasing areas to manage growth.

County of San Bernardino Development Code

83.01.040 - Air Quality.

(a) **Equipment permit and Inspection Requirements.** Required permits shall be obtained from either the Mojave Air Pollution Management District or the South Coast Air Quality Management District depending on the location of the subject property and equipment for equipment that may cause air pollution. Before the equipment may be constructed, plans and specifications shall be submitted to the appropriate District for approval.

(b) **Permits from Air Quality Management Districts.** Permits shall be obtained from either the Mojave Air Pollution Management District or the South Coast Air Quality Management District depending on the location of the subject property and equipment. If requested by the Director, uses, activities, or processes that require Air Quality Management District approval to operate shall file a copy of the permit with the Department within 30 days of its approval.

(c) **Diesel Exhaust Emissions Control Measures.** The following emissions control measures shall apply to all discretionary land use projects approved by the County on or after January 15, 2009:

1. **On-Road Diesel Vehicles.** On-road diesel vehicles are regulated by the State of California Air Resources Board.

2. **Off-Road Diesel Vehicle/Equipment Operations.** All business establishments and contractors that use off-road diesel vehicle/equipment as part of their normal business

operations shall adhere to the following measures during their operations in order to reduce diesel particulate matter emissions from diesel fueled engines:

a. Off-road vehicles/equipment shall not be left idling on site for periods in excess of five minutes. The idling limit does not apply to:

    i. Idling when queuing,
    ii. Idling to verify that the vehicle is in safe operating condition,
    iii. Idling for testing, servicing, repairing, or diagnostic purposes,
    iv. Idling necessary to accomplish work for which the vehicle was designed (such as operating a crane),
    v. Idling required to bring the machine system to operating temperature, and
    vi. Idling necessary to ensure safe operation of the vehicle

b. Use reformulated ultra-low sulfur diesel fuel in equipment and use equipment certified by the U.S. Environmental Protection Agency (EPA) or that pre-dates EPA regulations.
c. Maintain engines in good working order to reduce emissions.
d. Signs shall be posted requiring vehicle drivers to turn off engines when parked.
e. Any requirements or standards subsequently adopted by the South Coast Air Quality Management District, the Mojave Air Quality Management District, or the California Air Resources Board.
f. Provide temporary traffic control during all phases of construction.
g. Onsite electrical power connections shall be provided for electric construction tools to eliminate the need for diesel-powered electric generators, where feasible.
h. Maintain construction equipment engines in good working order to reduce emissions. The developer shall have each contractor certify that all construction equipment is properly serviced and maintained in good operating condition.
i. Contractors shall use ultra-low sulfur diesel fuel for stationary construction equipment as required by Air Quality Management District (AQMD) Rules 431.1 and 431.2 to reduce the release of undesirable emissions.
j. Substitute electric and gasoline-powered equipment for diesel-powered equipment, where feasible.

2. **Project Design.** Distribution centers, warehouses, truck stops and other facilities with loading docks where diesel trucks may reside overnight or for periods in excess of three hours shall be designed to enable any vehicle using these facilities to utilize on-site electrical connections to power the heating and air conditioning of the cabs of such trucks, instead of operating the diesel engines and diesel refrigeration units of

such trucks and trailers for these purposes. This requirement shall also apply to Recreational Vehicle Parks (as defined in Section 810.01.200(k) of this title) and other development projects where diesel engines may reasonably be expected to operate on other than an occasional basis.

2.2 Greenhouse Gas Regulatory Setting

2.2.1 International

Many countries around the globe have made an effort to reduce GHGs since climate change is a global issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

The 2014 UN Climate Change Conference in Lima Peru provided a unique opportunity to engage all countries to assess how developed countries are implementing actions to reduce emissions.

Kyoto Protocol. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008 – 2012 (UNFCCC 1997). On December 8, 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes: New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 2013 – 2020; a revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

The Paris Agreement. The Paris Agreement became effective on November 4, 2016. Thirty days after this date at least 55 Parties to the United Nations Framework Convention on Climate Change (Convention), accounting in total for at least an estimated 55 % of the total global greenhouse gas emissions, had deposited their instruments of ratification, acceptance, approval or accession with the Depositary.

The Paris Agreement built upon the Convention and – for the first time – attempted to bring all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.

The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. To reach these ambitious goals, appropriate financial flows, a new technology framework and an enhanced capacity building framework will be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Agreement also provides for enhanced transparency of action and support through a more robust transparency framework.

2.2.2 National

Greenhouse Gas Endangerment. On December 2, 2009, the EPA announced that GHGs threaten the public health and welfare of the American people. The EPA also states that GHG emissions from on-road vehicles contribute to that threat. The decision was based on *Massachusetts v. EPA* (Supreme Court Case 05-1120) which argued that GHGs are air pollutants covered by the Clean Air Act and that the EPA has authority to regulate those emissions.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). The second phase of the national program would involve proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 by September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. This Rule also excludes CO2- equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020.[1]

Mandatory Reporting of Greenhouse Gases. On January 1, 2010, the EPA started requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

Climate Adaption Plan. The EPA Plan identifies priority actions the Agency will take to incorporate considerations of climate change into its programs, policies, rules and operations to ensure they are effective under future climatic conditions. The following link provides more information on the EPA Plan: https://www.epa.gov/arc-x/planning-climate-change-adaptation

Energy Independence Security Act

The Energy Independence and Security Act of 2007 (EISA) facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for

[1] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: https://www.gpo.gov/fdsys/pkg/FR-2018-08-24/pdf/2018-16820.pdf.

consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;

- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and
- While superseded by the USEPA and NHTSA actions described above, (i) establishing miles per gallon targets for cars and light trucks and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.
- Additional provisions of EISA address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of green jobs.[2]

Executive Order 13432

In response to the Massachusetts v. Environmental Protection Agency ruling, the President signed Executive Order 13432 on May 14, 2007, directing the USEPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a regulatory process that responds to the Supreme Court's decision. Executive Order 13432 was codified into law by the 2009 Omnibus Appropriations Law signed on February 17, 2009. The order sets goals in the areas of energy efficiency, acquisition, renewable energy, toxics reductions, recycling, sustainable buildings, electronics stewardship, fleets, and water conservation. Light-Duty Vehicle Greenhouse Gas and Corporate Average Fuel Economy Standards.

On May 19, 2009, President Obama announced a national policy for fuel efficiency and emissions standards in the United States auto industry. The adopted federal standard applies to passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpasses the prior Corporate Average Fuel Economy standards (CAFE)[3] and requires an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of CO2 per mile by model year 2016, based on USEPA calculation methods. These standards were formally adopted on April 1, 2010. In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO2 per mile. According to the USEPA, a model year 2025 vehicle would emit one-half of

[2] A green job, as defined by the United States Department of Labor, is a job in business that produces goods or provides services that benefit the environment or conserve natural resources.

[3] The Corporate Average Fuel Economy standards are regulations in the United States, first enacted by Congress in 1975, to improve the average fuel economy of cars and light trucks. The U.S Department of Transportation has delegated the National Highway Traffic Safety Administration as the regulatory agency for the Corporate Average Fuel Economy standards.

the GHG emissions from a model year 2010 vehicle.[4] In 2017, the USEPA recommended no change to the GHG standards for light-duty vehicles for model years 2022-2025.

In August 2018, the USEPA and NHTSA proposed the Safer Affordable Fuel-Efficient Vehicles Rule that would, if adopted, maintain the CAFE and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. The proposal, if adopted, would also exclude CO2- equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020.[5]

2.2.3 California

California Code of Regulations (CCR) Title 24, Part 6. CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. 2013 and 2016 standards have been approved and became effective July 1, 2014 and January 1, 2016, respectively. 2019 standards were published July 1, 2019 and became effective January 1, 2020.

California Code of Regulations (CCR) Title 24, Part 11. All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards.. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions. The following links provide more information on Title 24, Part 11:
https://www.dgs.ca.gov/BSC/Codes
https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

[4] United States Environmental Protection Agency, EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks, August 2012, https://nepis.epa.gov/ Exe/ZyPDF.cgi/P100EZ7C.PDF?Dockey=P100EZ7C.PDF.

[5] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at https://www.gpo.gov/fdsys/pkg/FR-2018-08-24/pdf/2018-16820.pdf.

California Green Building Standards. On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Housing and Community Development (HCD) updated CALGreen through the 2015 Triennial Code Adoption Cycle, during the 2016 to 2017 fiscal year. During the 2019-2020 fiscal year, the Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle.

The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

The 2019 CalGreen Code includes the following changes and/or additional regulations:

Single-family homes built with the 2019 standards will use about 7 percent less energy due to energy efficiency measures versus those built under the 2016 standards. Once rooftop solar electricity generation is factored in, homes built under the 2019 standards will use about 53 percent less energy than those under the 2016 standards. Nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades[6].

HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2 for projects that disturb one or more acres of land. This section requires projects that disturb one acre or more of land or less than one acre of land but are part of a larger common plan of development or sale must comply with the post-construction requirement detailed in the applicable National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board. The NPDES permits require post-construction runoff (post-project hydrology) to match

[6] https://ww2.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf

the preconstruction runoff pre-project hydrology) with installation of post-construction stormwater management measures.

HCD added sections 5.106.4.1.3 and 5.106.4.1.5 in regards to bicycle parking. Section 5.106.4.1.3 requires new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility. In addition, Section 5.106.4.1.5 states that acceptable bicycle parking facility for Sections 5.106.4.1.2 through 5.106.4.1.4 shall be convenient from the street and shall meeting one of the following: (1) covered, lockable enclosures with permanently anchored racks for bicycles; (2) lockable bicycle rooms with permanently anchored racks; or (3) lockable, permanently anchored bicycle lockers.

HCD amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles.

HCD updated section 5.303.3.3 in regards to showerhead flow rates. This update reduced the flow rate to 1.8 GPM.

HCD amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3. The update requires nonresidential developments to comply with a local water efficient landscape ordinance or the current California Department of Water Resource's' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent. Some updates were also made in regards to the outdoor potable water use in landscape areas for public schools and community colleges.

HCD updated Section 5.504.5.3 in regards to the use of MERV filters in mechanically ventilated buildings. This update changed the filter use from MERV 8 to MERV 13.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance, provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official. The following link provides more on CalGreen Building Standards:
http://www.bsc.ca.gov/Home/CALGreen.aspx

Executive Order S-3-05. California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following targets:

- By 2010, California shall reduce greenhouse gas emissions to 2000 levels;
- By 2020, California shall reduce greenhouse gas emissions to 1990 levels.
- By 2050, California shall reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs.

Executive Order S-01-07. Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

SB 97. Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Resource Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance are provided and no specific mitigation measures are identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. ARB is the state agency charged with monitoring and regulating sources of greenhouse gases. AB 32 states the following:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB Board approved the 1990 greenhouse gas emissions level of 427 million metric tons of carbon dioxide equivalent (MMTCO2e) on December 6, 2007 (California Air Resources Board 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO2e. Emissions in 2020 in a “business as usual” scenario are estimated to be 596 MMTCO2e.

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. The ARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 MMTCO2e by 2020, representing approximately 25 percent of the 2020 target.

The ARB’s Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State’s emissions to 1990 levels by the year 2020 (California Air Resources Board 2008). The Scoping Plan identifies recommended measures for multiple greenhouse gas emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 greenhouse gas target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, Including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State’s long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.[4]

Senate Bill 100. Senate Bill 100 (SB 100) requires 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 100 was adopted September 2018.

The interim thresholds from prior Senate Bills and Executive Orders would also remain in effect. These include Senate Bill 1078 (SB 1078), which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) which changed the target date to 2010. Executive Order S-14-08, which was signed on November 2008 and expanded the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed the CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

Senate Bill 350. Signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

SB 375. Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG), which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 13 percent below 2005 per capita GHG emissions levels by 2035. On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), which meets the CARB emission reduction requirements.

On September 3, 2020, SCAG's Regional Council approved and fully adopted the Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy), and the addendum to the Connect SoCal Program Environmental Impact Report. Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. Connect SoCal outlines more than $638 billion in transportation system investments through 2045. Connect SoCal is supported by a combination of transportation and land use strategies that help the region achieve state greenhouse gas emission reduction goals and federal Clean Air Act requirements, preserve open space areas, improve public health and roadway safety, support our vital goods movement industry and utilize resources more efficiently. By integrating the Forecasted Development Pattern with a suite of financially constrained transportation investments, Connect SoCal can reach the regional target of reducing greenhouse gases, or GHGs, from autos and light-duty trucks by 8 percent per capita by 2020, and 19 percent by 2035 (compared to 2005 levels).

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as "transit priority projects."

Senate Bill X7-7. Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. In addition, SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

Assembly Bill 939, Assembly Bill 341, and Senate Bill 1374. Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. AB 341 requires at least 75 percent of generated waste be source reduced, recycled, or composted by the year 2020. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

Executive Order S-13-08. Executive Order S-13-08 indicates that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resource Agency 2009) was adopted, which is the "… first statewide, multi-sector, region-specific, and information-based climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. Executive Order B-30-15, establishing a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030, was signed by Governor Brown in April 2015.

Executive Order B-29-15. Executive Order B-29-15, mandates a statewide 25% reduction in potable water usage and was signed into law on April 1, 2015.

Executive Order B-37-16. Executive Order B-37-16, continuing the State's adopted water reduction, was signed into law on May 9, 2016. The water reduction builds off the mandatory 25% reduction called for in EO B-29-15.

Executive Order N-79-20. Executive Order N-79-20 was signed into law on September 23, 2020 and mandates 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles in the state be zero-emission vehicles by 2045 for all operations where feasible and by 2035 for drayage trucks; and to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

SBX1 2. Signed into law in April 2011, SBX1 2, requires one-third of the State's electricity to come from renewable sources. The legislation increases California's current 20 percent renewables portfolio standard target in 2010 to a 33 percent renewables portfolio standard by December 31, 2020.

2.2.4 Mojave Desert Air Quality Management District

The project is within the MDAB, which is under the jurisdiction of the MDAQMD.

As shown in Table 3, the MDAQMD has identified thresholds of 100,000 tons per year or 548,000 pounds per day of CO2e emissions for individual projects.

Table 3: MDAQMD Air Quality Significance Thresholds

Pollutant	Annual Thresholds (tons/year)	Daily Thresholds (pounds/day)
NOx	25	137
VOC	25	137
PM10	15	82
PM2.5	15	82
SOx	25	137

CO	100	548
Lead	0.6	3
Greenhouse Gases (CO2e)	100,000	548,000

Source: http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=2910

2.2.5 County of San Bernardino

County of San Bernardino Greenhouse Gas Emissions Reduction Plan

The County of San Bernardino adopted its "Greenhouse Gas Emissions Reduction Plan" in December 2011. The purpose of the GHG Reduction Plan is to reduce the County's internal and external GHG emissions by 15 percent below current (2011) levels by year 2020. The GHG Reduction Plan includes a two-tiered development review procedure to determine if a project could result in a significant impact related to greenhouse gas emissions or otherwise comply with the Plan pursuant to Section 15183.5 of the state CEQA Guidelines.

The initial screening procedure is to determine if a project will emit 3,000 metric tons of carbon dioxide equivalents (MTCO2e) per year or more. Projects that do not exceed this threshold require no further climate change analysis. Projects exceeding this threshold must meet a minimum 31 percent emissions reduction in order to garner a less than significant determination. This can be met by either (1) achieving 100 points from a menu of mitigation options provided in the GHG Plan or (2) quantifying proposed reduction measures. Projects failing to meet the 31 percent reduction threshold would have a potentially significant impact related to climate change and greenhouse gas emissions.

According to the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan*, "all development projects, including those otherwise determined to be exempt from CEQA will be subject to applicable Development Code provisions, including the GHG performance standards, and state requirements, such as the California Building Code requirements for energy efficiency. With the application of the GHG performance standards, projects that are exempt from CEQA and small projects that do not exceed 3,000 MTCO2e per year will be considered to be consistent with the Plan and determined to have a less than significant individual and cumulative impact for GHG emissions." The Reduction Plan also states that "a review standard of 3,000 MTCO2e per year will be used to identify projects that require the use of Screening Tables or a project-specific technical analysis to quantify and mitigate project emissions." Furthermore, "for projects exceeding 3,000 MTCO2e per year of GHG emissions, the County will use Screening Tables as a tool to assist with calculating GHG reduction measures and the determination of a significance finding. Projects that garner a 100 or greater points would not require quantification of project specific GHG emissions. The point system was devised to ensure to Project compliance with the reduction measures in the GHG Plan such that the GHG emissions from new development, when considered together with those existing development, will allow the County to meet its 2020 target and support reductions in GHG emissions beyond 2020. Consistent with the CEQA Guidelines, such projects are consistent with the Plan and therefore will be determined to have a less than significant individual and cumulative impact for GHG emissions.

County of San Bernardino General Plan

The County of San Bernardino General Plan contains the following greenhouse gas related policies and programs that are applicable to the proposed project:

CO 4.5 Reduce emissions through reduced energy consumption.

Programs

1. Implement programs to phase in energy conservation improvements through the annual budget process.

CO 4.6 Provide incentives such as preferential parking for alternative-fuel vehicles (e.g., CNG or hydrogen).

CO 4.10 Support the development of alternative fuel infrastructure that is publicly accessible.

CO 4.12 Provide incentives to promote siting or use of clean air technologies (e.g., fuel cell technologies, renewable energy sources, UV coatings, and hydrogen fuel).

CO 4.13 Reduce Greenhouse Gas (GHG) emissions within the County boundaries.

Programs

1. Emission Inventories. The County will prepare GHG emissions inventories including emissions produced by: (1) the County's operational activities, services and facilities, over which the County has direct responsibility and control, and (2) private industry and development, that is located within the area subject to the County's discretionary land use authority.

    a. Establish an inventory of existing GHG emissions.
    b. Establish a projected inventory for year 2020.

2. GHG Emissions Reduction Plan. The County will adopt a GHG Emissions Reduction Plan that includes:

    a. Measures to reduce GHG emissions attributable to the County's operational activities, services and facilities, over which the County has direct responsibility and control; and,
    b. Measures to reduce GHG emissions produced by private industry and development that is located within the area subject to the County's discretionary land use authority and ministerial building permit authority; and,
    c. Implementation and monitoring procedures to provide periodic review of the plan's progress and allow for adjustments overtime to ensure fulfillment of the plan's objectives.

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3.0 Setting

3.1 Existing Physical Setting

The project site is located in the southwestern portion of the County of San Bernardino, which is part of the Mojave Desert Air Basin (MDAB) that includes the desert portion of San Bernardino County and the far eastern end of Riverside County

3.1.1 Local Climate and Meteorology

The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains which dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada Mountains to the north; air masses pushed onshore in southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevada's in the north by the Tehachapi Pass (3,800-foot elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 feet). The Mojave Desert is bordered in the southwest by the San Bernardino Mountains, separated from the San Gabriel's by the Cajon Pass (4,200 feet). A lesser channel lies between the San Bernardino Mountains and the Little San Bernardino Mountains (the Morongo Valley).

The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose primary channel is the San Gorgonio Pass (2,300 feet) between the San Bernardino and San Jacinto Mountains.

During the summer the MDAB is generally influenced by a Pacific Subtropical High cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time the reach the desert. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south. The MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inches of precipitation). The MDAB is classified as a dry-hot desert climate (BWh), with portions classified as dry-very hot desert (BWhh), to indicate at least three months have maximum average temperatures over 100.4° F.

The temperature and precipitation levels for Victorville, the nearest station with available data are in Table 4. Table 4 shows that July is typically the warmest month and January is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table 4: Meteorological Summary

Month	Temperature (˚F)		Average Precipitation (inches)
	Average High	Average Low	
January	58.5	30.4	1.02
February	62.2	33.6	1.04
March	66.8	37.1	0.83
April	73.7	41.7	0.34
May	82.0	48.1	0.15
June	91.4	54.6	0.05
July	98.0	61.3	0.16
August	97.1	60.5	0.20
September	91.1	54.7	0.28
October	80.5	45.0	0.32
November	67.5	35.5	0.50
December	59.2	29.8	0.72
Annual Average	**77.3**	**44.4**	**5.6**

Notes:
[1] Source : https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9099

3.1.2 Local Air Quality

The MDAQMD maintains an air-monitoring network that measures levels of several air pollutants throughout the air basin. Since not all air monitoring stations measure all of the tracked pollutants, the data from the following two monitoring stations, listed in the order of proximity to the project site have been used. The nearest air monitoring station to the project site is the Victorville monitoring station located approximately 18.5 miles east of the project site at 14306 Park Avenue, Victorville, CA. Table 5 presents the monitored pollutant levels within the vicinity. However, it should be noted that due to the air monitoring station distance from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

<Table 5, next page>

Table 5: Local Area Air Quality Levels

Pollutant (Standard)[2]	Year		
	2019	**2020**	**2021**
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.104	0.112	0.112
Days > CAAQS (0.09 ppm)	**3**	**4**	**8**
Maximum 8-Hour Concentration (ppm)	0.081	0.094	0.098
Days > NAAQS (0.07 ppm)	**29**	**35**	**34**
Days > CAAQS (0.070 ppm)	**34**	**38**	**35**
Carbon Monoxide:			
Maximum 8-Hour Concentration (ppm)	*	*	*
Days > NAAQS (9 ppm)	0	0	0
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppm)	0.056	0.059	0.057
Days > NAAQS (0.25 ppm)	0	0	0
Inhalable Particulates (PM10):			
Maximum 24-Hour Concentration ($\mu g/m^3$)	170.0	261.4	591.6
Days > NAAQS (150 $\mu g/m^3$)	**2**	**2**	**1**
Days > CAAQS (50 $\mu g/m^3$)	*	*	*
Annual Average (ug/m^3)	27.2	34.0	33.9
Annual > NAAQS (50 $\mu g/m^3$)	No	No	No
Annual > CAAQS (20 $\mu g/m^3$)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):			
Maximum 24-Hour Concentration ($\mu g/m^3$)	17.8	48.4	87.1
Days > NAAQS (35 $\mu g/m^3$)	0	4	1
Annual Average ($\mu g/m^3$)	7.0	9.7	10.2
Annual > NAAQS (15 µg /m3)	No	No	No
Annual > CAAQS (12 $\mu g/m^3$)	No	No	No

1. Source: obtained from https://www.arb.ca.gov/adam/topfour/topfour1.php
2 CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; $\mu g/m^3$ = micrograms/cubic meter
3 No data available.

The monitoring data presented in Table 5 shows that ozone and particulate matter (PM10) are the air pollutants of primary concern in the project area, which are detailed below.

Ozone

During the 2019 to 2021 monitoring period, the State 1-hour concentration standard for ozone were exceeded between three and eight days each year at the Victorville Station. The State 8-hour ozone standard has been exceeded between 29 and 35 days each year over the past three years at the Victorville Station. The Federal 8-hour ozone standard has been exceeded between 34 and 38 days each year of the past three years at the Victorville Station.

Carbon Monoxide

CO is another important pollutant that is due mainly to motor vehicles. The Victorville Station did not record an exceedance of the state or federal 8-hour CO standards for the last three years.

Nitrogen Dioxide
The Victorville Station did not record an exceedance of the State or Federal NO_2 standards for the last three years.

Particulate Matter
During the 2019 to 2021 monitoring period, the Federal 24-hour concentration standard for PM10 was exceeded between one and two days each year at the Victorville Station. The Federal 24-hour standard for PM2.5 has been exceeded four days in 2020 and one day in 2021 at the Victorville Station.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

3.1.3 Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the area is designated as an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered “unclassified.” National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or ‘form’ of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the three-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard. Table 6 lists the attainment status for the criteria pollutants in the basin.

As indicated below in Table 3, the MDAB has been designated by the EPA as a non-attainment area for ozone (O3) and suspended particulates (PM10). Currently, the Basin is in attainment with the ambient air quality standards for carbon monoxide (CO), lead, sulfur dioxide (SO2), nitrogen dioxide (NO2) and particulate matter (PM2.5).

<Table 6, next page>

Table 6: Attainment Status of MDAQMD[1] – Portion of Mojave Desert Air Basin

Pollutant	Federal Designation	State Designation
1-Hour Ozone	--	Nonattainment
8-Hour Ozone	Nonattainment	Nonattainment
CO	Unclassified/Attainment	Attainment
PM10	Nonattainment	Nonattainment
PM2.5	Unclassified/Attainment	Nonattainment
Lead	Unclassified/Attainment	Attainment
SO2	Unclassified/Attainment	Attainment
NO2	Unclassified/Attainment	Attainment

Notes:
[1] MDAQMD = Mojave Desert Air Quality Management District
[2] Source: California Air Resources Board (2019) (https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations) and MDAQMD (https://www.mdaqmd.ca.gov/air-quality/mdaqmd-attaiment-status).

3.2 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO_2 and nitrous oxide (NO_2) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. Table 7 provides a description of each of the greenhouse gases and their global warming potential.

Additional information is available: https://www.arb.ca.gov/cc/inventory/data/data.htm

<Table 7 on next page>

Table 7: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (N_20), also known as laughing gas is a colorless gas. It has a lifetime of 114 years. Its global warming potential is 298.	Microbial processes in soil and water, fuel combustion, and industrial processes. In addition to agricultural sources, some industrial processes (nylon production, nitric acid production) also emit N_20.
Methane	Methane (CH_4) is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 25.	A natural source of CH_4 is from the decay of organic matter. Methane is extracted from geological deposits (natural gas fields). Other sources are from the decay of organic material in landfills, fermentation of manure, and cattle farming.
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). They are gases formed synthetically by replacing all hydrogen atoms in methane or methane with chlorine and/or fluorine atoms. Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone; therefore, their production was stopped as required by the Montreal Protocol.
Hydrofluorocarbons	Hydrofluorocarbons (HFCs) are a group of greenhouse gases containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above the Earth's surface. They have a lifetime 10,000 to 50,000 years. They have a global warming potential range of 6,200 to 9,500.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Notes:

1. Sources: Intergovernmental Panel on Climate Change 2014a and Intergovernmental Panel on Climate Change 2014b. https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html

4.0 Modeling Parameters and Assumptions

4.1 Construction

Emissions are estimated using the CalEEMod (Version 2022.1) software, which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions from a variety of land use projects. CalEEMod was developed in collaboration with the air districts of California. Regional data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions. The model is considered to be an accurate and comprehensive tool for quantifying air quality and GHG impacts from land use projects throughout California.

The CalEEMod program uses the EMFAC2017 computer program to calculate the emission rates specific for the MDAQMD portion of San Bernardino County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2017 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Using CalEEMod, the peak daily air pollutant emissions were calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions.

The analysis assesses the emissions associated with the construction of the proposed project as indicated in Table 1. Per the site plan, the overall area to be disturbed during construction of the proposed project was estimated to be approximately 10 acres. Construction is estimated to occur over approximately 3 months beginning in June 2023. The phases of the construction activities which have been analyzed below are: 1) site preparation and 2) grading. For details on construction modeling and construction equipment for each phase, please see Appendix A.

4.2 Operations

Operational or long-term emissions occur over the life of the Project. Both mobile and area sources generate operational emissions. Area source emissions arise from consumer product usage, heaters that consume natural gas, gasoline-powered landscape equipment, and architectural coatings (painting). Mobile source emissions from motor vehicles are the largest single long-term source of air pollutants from the operation of the Project. Small amounts of emissions would also occur from area sources such as the consumption of natural gas for heating, hearths, from landscaping emissions, and consumer product usage. The operational emissions were estimated using the latest version of CalEEMod.

Mobile Sources
Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The project was estimated to generate approximately one trip per month. The program then applies the emission factors for each trip which is provided by the EMFAC2017 model to determine the vehicular traffic pollutant emissions. The CalEEMod default trip lengths were used in this analysis. Please see CalEEMod output comments sections in Appendix A for details.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. As specifics were not known about the landscaping equipment fleet, CalEEMod defaults were used to estimate emissions from landscaping equipment.

Per MDAQMD Rule 1113 as amended on April 23, 2012, the architectural coatings that would be applied after January 1, 2013 will be limited to an average of 150 grams per liter or less.

Energy Usage

2022.1 CalEEMod defaults were utilized.

5.0 Thresholds of Significance

5.1 Air Quality Thresholds of Significance

5.1.1 CEQA Guidelines for Air Quality

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The CEQA Guidelines Section 15064.7 provides the significance criteria established by the applicable air quality management district or air pollution control district, when available, may be relied upon to make determinations of significance. The potential air quality impacts of the project are, therefore, evaluated according to thresholds developed by MDAQMD in their CEQA Guidelines.

5.1.2 Regional Significance Thresholds

According to the MDAQMD, a project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable MDAQMD rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and it is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan).

Violation of Air Quality Standards or Substantial Contribution to Air Quality Violations. The MDAQMD currently recommends that projects with construction-related and/or operational emissions that exceed any of the following emissions thresholds should be considered significant:

- 25 tons per year or 137 pounds per day pounds per day of VOC
- 25 tons per year or 137 pounds per day of NOx
- 100 tons per year or 548 pounds per day of CO
- 25 tons per year or 137 pounds per day of Sox
- 15 tons per year or 82 pounds per day of PM10
- 12 tons per year or 65 pounds per day of PM2.5

For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the MDAQMD significance thresholds identified above and in Table 5.

5.2 Greenhouse Gas Thresholds of Significance

5.2.1 CEQA Guidelines for Greenhouse Gas

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on greenhouse gases, the type, level, and impact of emissions generated by the project must be evaluated.

The following greenhouse gas significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

(b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

However, despite this, currently neither the CEQA statutes, OPR guidelines, nor the draft proposed changes to the CEQA Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency. As previously discussed (see Section 2.2.4 of this report), MDAQMD has identified thresholds of 100,000 tons per year or 548,000 pounds per day of CO2e emissions for individual projects. The MDAQMD thresholds were used in this analysis.

The project's emissions will be compared to a screening threshold of 3,000 MTCO2e/year and the project is expected to comply with the performance standards for commercial uses, as detailed in the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan.*

6.0 Air Quality Emissions Impact

6.1 Construction Air Quality Emissions Impact

The latest version of CalEEMod was used to estimate the onsite and offsite construction emissions. The emissions incorporate Rule 403.2. Rule 403.2 (fugitive dust) is not considered a mitigation measure as the project by default is required to incorporate this rule during construction.

6.1.1 Regional Construction Emissions

The construction emissions for the project would not exceed MDAQMD's daily or annual emissions thresholds as demonstrated in Table 8, and therefore would be considered less than significant.

Table 8: Regional Significance - Construction Emissions

Year	Pollutant Emissions					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Daily Emissions (pounds/day)						
2023	3.11	35.90	28.50	0.15	9.11	4.68
MDAQMD Thresholds	**137**	**137**	**548**	**137**	**82**	**65**
Exceeds Thresholds	No	No	No	No	No	No
Annual Emissions (tons/year)						
2023	0.08	1.13	0.80	0.00	0.24	0.10
MDAQMD Annual Thresholds	**25**	**25**	**100**	**25**	**15**	**12**
Exceeds Thresholds	No	No	No	No	No	No

Notes:
[1] Source: CalEEMod Version 2022.1
[2] On-site emissions from equipment operated on-site that is not operated on public roads. On-site grading PM10 and PM2.5 emissions show mitigated values for fugitive dust for compliance with MDAQMD Rule 403.
[3] Off-site emissions from equipment operated on public roads.
[4] Construction, architectural coatings and paving phases may overlap.

6.1.3 Odors

The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Diesel exhaust and VOCs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project.

6.1.4 Construction-Related Toxic Air Contaminant Impact

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. The Office of Environmental Health Hazard Assessment (OEHHA) has issued the Air Toxic Hot Spots Program Risk Assessment Guidelines and Guidance Manual for the Preparation of Health Risk Assessments, February 2015 to provide a description of the algorithms, recommended exposure variates, cancer and noncancer health values, and the air modeling protocols needed to perform a health risk assessment (HRA) under the Air Toxics Hot Spots Information and Assessment Act of 1987. Hazard identification includes identifying all substances that are evaluated for cancer risk and/or non-cancer acute, 8-hour, and chronic health impacts. In addition, identifying any multi-pathway substances that present a cancer risk or chronic non-cancer hazard via non-inhalation routes of exposure.

Given the relatively limited number of heavy-duty construction equipment and construction schedule, the proposed project would not result in a long-term substantial source of toxic air containment emissions and corresponding individual cancer risk. Furthermore, construction-based particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed any regional thresholds. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

6.2 Operational Air Quality Emissions Impact

6.2.1 Regional Operational Emissions

The operations-related criteria air quality impacts created by the proposed project have been analyzed through the use of CalEEMod model. The operating emissions were based on year 2023, which is a conservative estimate of the opening year for the project. The summer and winter emissions created by the proposed project's long-term operations were calculated and the highest emissions from either summer or winter are summarized in Table 9.

Table 9: Regional Significance - Operational Emissions

Activity	Pollutant Emissions[1]					
	VOC	NOx	CO	SO2	PM10	PM2.5
Daily Emissions (pounds/day)						
Area Sources[2]	0.07	0.00	0.00	0.00	0.00	0.00
Energy Usage[3]	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources[4]	0.00	0.01	0.09	0.00	0.01	0.00
Total Emissions	**0.07**	**0.01**	**0.09**	**0.00**	**0.01**	**0.00**
MDAQMD Daily Thresholds	**137**	**137**	**548**	**137**	**82**	**65**
Exceeds Threshold?	No	No	No	No	No	No
Annual Emissions (tons/year)						
Area Sources[2]	0.01	0.00	0.00	0.00	0.00	0.00
Energy Usage[3]	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources[4]	0.00	0.00	0.00	0.00	0.00	0.00
Total Emissions	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
MDAQMD Annual Thresholds	**25**	**25**	**100**	**25**	**15**	**12**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Source: CalEEMod Version 2022.1
[2] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[3] Energy usage consists of emissions from on-site natural gas usage.
[4] Mobile sources consist of emissions from vehicles and road dust.

Table 9 provides the project's unmitigated operational emissions. Table 9 shows that the project does not exceed the MDAQMD regional emissions thresholds. Therefore, operational emissions are considered to be less than significant.

6.2.2 Operations-Related Toxic Air Contaminant Impacts

MDAQMD recommends avoiding siting new sensitive land uses such as residences, schools, daycare centers, playgrounds, or medical facilities within 1,000 feet of a major transportation project (50,000 or more vehicles per day).

The proposed project involves the construction of a groundwater recharge basin and would be not considered a sensitive receptor. The project is not considered a major transportation project. The project is only anticipated to generate approximately one vehicle trip per month. Therefore, as the proposed project is not a sensitive receptor and does not generate more than 50,000 vehicles per day, a project-specific health risk assessment is not required or warranted. Impacts to nearby sensitive receptors are considered to be less than significant.

6.2.3 Operations-Related Odor Impacts

Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from occasional heavy equipment emissions during basin maintenance. As the project is that of a recharge basin, no significant impact related to odors would occur during the on-going operations of the proposed project.

6.3 Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature.

The project area is out of attainment for both ozone and particulate matter. Construction and operation of cumulative projects will further degrade the air quality of the Mojave Desert Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the MDAQMD methodology, projects that do not exceed the MDAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact.

Project operations would generate emissions of NOx, ROG, CO, SO_2, PM10, and PM2.5, which would not exceed the MDAQMD regional thresholds and would not be expected to result in ground level concentrations that exceed the NAAQS or CAAQS. Therefore, operation of the project would not result in a cumulatively considerable net increase for non-attainment of criteria pollutants or ozone precursors. As a result, the project would result in a less than significant cumulative impact for operational emissions.

6.4 Air Quality Compliance

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). According to the MDAQMD, a project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan.

A project is conforming if it complies with all applicable District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast. An example of a non-conforming project would be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area (relative to the applicable land use plan). The "one map approach" is employed by the County of San Bernardino, as it permits the use of a single map showing both General Plan land use designations and zoning classifications. The one-map approach assures that there will always be land use consistency between the County's General Plan and its Zoning Code.

The proposed project will be a ground water recharge basin. Per the County’s Land Use Zoning map, the current land use zoning is Phelan/Pinon Hills/Rural Living. As shown by the results of this air analysis, the project's emissions do not exceed any MDAQMD thresholds during either short-term construction or long-term operation of the project. Therefore, as the project is would be a basin serving the region, the proposed project is not anticipated to exceed the Attainment Plan assumptions for the project site.

Based on the above, the proposed project would not conflict with implementation of the MDAQMD Attainment Plans, impacts are considered to be less than significant.

7.0 Greenhouse Gas Impact Analysis

7.1 Construction Greenhouse Gas Emissions Impact

The greenhouse gas emissions from project construction equipment and worker vehicles are shown in Table 10. The emissions are from all phases of construction. The total construction emissions amortized over a period of 30 years are estimated at 16.37 metric tons of CO_2e per year. Annual CalEEMod output calculations are provided in Appendix A.

Table 10: Construction Greenhouse Gas Emissions

Year	Metric Tons Per Year					
	Bio-CO2	NBio-CO2	Total CO2	CH4	N20	CO2e (MT)
2023	0.00	476.00	476.00	0.01	0.05	491.00
Annualized Construction Emissions						16.37

Notes:
[1.] $MTCO_2e$=metric tons of carbon dioxide equivalents (includes carbon dioxide, methane and nitrous oxide).
[2.] The emissions are averaged over 30 years.
* CalEEMod output (Appendix A)

7.2 Operational Greenhouse Gas Emissions Impact

Operational emissions occur over the life of the project. Table 11 below shows that the subtotal for the proposed project would result in annual emissions of 0.49 MT CO2e per year (without the addition of amortized construction emissions which would add an additional 16.37 MT CO2e per year; see Appendix A CalEEMod Annual Output for details). The total emissions of 16.86 MTCO2e/year would not exceed the San Bernardino County screening threshold of 3,000 metric tons per year of CO2e. As shown in Table 11, the project's total GHG emissions would also not exceed the MDAQMD annual threshold of 100,000 MTCO2e or the MDAQMD daily threshold of 548,000 pounds of CO2e.

According to the San Bernardino County thresholds of significance established above, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations would exceed 3,000 metric tons per year of CO2e. Therefore, as the project's total emissions do not exceed 3,000 metric tons per year of CO2e, operation of the proposed project would not create a significant cumulative impact to global climate change.

<Table 11, next page>

Table 11: Opening Year Project-Related Greenhouse Gas Emissions

Category	Greenhouse Gas Emissions (Metric Tons/Year)[1]							(lbs/day)
	Bio-CO2	NonBio-CO_2	CO_2	CH_4	N_2O	R	CO_2e	CO2e
Area Sources[2]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy Usage[3]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources[4]	0.00	0.48	0.48	0.00	0.00	0.00	0.49	22.20
Solid Waste[5]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water[6]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Refrigerants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Emissions	0.00	0.48	0.48	0.00	0.00	0.00	**0.49**	**22.20**
Construction[7]	0.00	15.87	15.87	0.00	0.00	0.01	16.37	21,603.00
Combined Emissions	0.00	16.35	16.35	0.00	0.00	0.01	**16.86**	-
MDAQMD GHG Thresholds							**100,000**	**548,000**
County of San Bernardino GHG Emissions Reduction Plan Threshold							**3,000**	**-**
Exceeds Threshold?							**No**	**No**

Notes:
[1] Source: CalEEMod Version 2022.1
[2] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.
[3] Energy usage consist of GHG emissions from electricity and natural gas usage.
[4] Mobile sources consist of GHG emissions from vehicles.
[5] Solid waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction GHG emissions based on a 30-year amortization rate.

7.3 Greenhouse Gas Plan Consistency

The proposed project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

According to the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan*, "all development projects, including those otherwise determined to be exempt from CEQA will be subject to applicable Development Code provisions, including the GHG performance standards, and state requirements, such as the California Building Code requirements for energy efficiency. With the application of the GHG performance standards, projects that are exempt from CEQA and small projects that do not exceed 3,000 MTCO2e per year will be considered to be consistent with the Plan and determined to have a less than significant individual and cumulative impact for GHG emissions." The Reduction Plan also states that "the 3,000 MTCO2e per year value was chosen as the medial value and is used in defining small projects that must include the Performance Standards as described in Attachment B (of the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan*), but do not need to use the Screening Tables or alternative GHG mitigation analysis described in Attachment D (of the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan*)."

The project’s total net operational GHG emissions do not exceed the County's screening threshold of 3,000 MTCO2e per year. Therefore, the project does not need to accrue points using the screening tables and is consistent with the GHG Plan, pursuant to Section 15183.5 of the State CEQA Guidelines. As mentioned above, the project is expected to comply with the performance standards for commercial uses as detailed in the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan* (see Appendix A for details on the performance standards for commercial projects). The proposed project will not result in substantial emissions of greenhouse gases and will not conflict with the Green County initiatives.

7.4 Cumulative Greenhouse Gas Impacts

Although the project is expected to emit GHGs, the emission of GHGs by a single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather, it is the increased accumulation of GHG from more than one project and many sources in the atmosphere that may result in global climate change. Therefore, in the case of global climate change, the proximity of the project to other GHG emission generating activities is not directly relevant to the determination of a cumulative impact because climate change is a global condition. According to CAPCOA, "GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective."[7] The resultant consequences of that climate change can cause adverse environmental effects. A project's GHG emissions typically would be very small in comparison to state or global GHG emissions and, consequently, they would, in isolation, have no significant direct impact on climate change.

The state has mandated a goal of reducing statewide emissions to 1990 levels by 2020, even though statewide population and commerce are predicted to continue to expand. In order to achieve this goal, CARB is in the process of establishing and implementing regulations to reduce statewide GHG emissions. Currently, the County of San Bernardino Greenhouse Gas Emissions Reduction Plan's initial screening procedure is to determine if a project will emit 3,000 metric tons of carbon dioxide equivalents (MTCO2E) per year or more. Projects that do not exceed this threshold require no further climate change analysis. Therefore, consistent with CEQA Guidelines Section 15064h(3),[8] the County, as lead agency, has determined that the project's contribution to cumulative GHG emissions and global climate change would be less than significant if the project is consistent with the applicable regulatory plans and policies to reduce GHG emissions.

As discussed in Section 7.3 above, the project is consistent with the goals and objectives of the County of San Bernardino Greenhouse Gas Emissions Reduction Plan. Therefore, the project's incremental

[7] Source: California Air Pollution Control Officers Association, CEQA & Climate change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act, (2008).

[8] The State CEQA Guidelines were amended in response to SB 97. In particular, the State CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction program renders a cumulative impact insignificant. Per State CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project will comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such a plan or program must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, [and] plans or regulations for the reduction of greenhouse gas emissions."

contribution to greenhouse gas emissions and their effects on climate change would not be cumulatively considerable.

8.0 Energy Analysis

Information from the CalEEMod 2022.1 Daily and Annual Outputs contained in the air quality and greenhouse gas analyses above was utilized for this analysis. The CalEEMod outputs detail project related construction equipment, transportation energy demands, and facility energy demands.

8.1 Construction Energy Demand

8.1.1 Construction Equipment Fuel Estimates

Using the CalEEMod data input, the project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. CARB's 2017 Emissions Factors Tables show that on average aggregate fuel consumption (gasoline and diesel fuel) would be approximately 18.5 hp-hr-gal.[9] As presented in Table 12 below, project construction activities would consume an estimated 14,407 gallons of diesel fuel.

Table 12: Construction Equipment Fuel Consumption Estimates

Phase	Number of Days	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/ day	Total Fuel Consumption (gal diesel fuel)[1]
Site Preparation	22	Off Highway Trucks	1	8	376	0.38	1,143	1,359
	22	Plate Compactors	1	8	8	0.43	28	33
	22	Rubber Tired Dozers	1	8	367	0.4	1,174	1,397
	22	Scrapers	1	8	423	0.48	1624	1932
	22	Tractors/Loaders/Backhoes	4	7	84	0.37	870	1035
Grading	44	Off Highway Trucks	1	8	376	0.38	1,143	2,719
	44	Scrapers	1	8	423	0.48	1624	3863
	44	Tractors/Loaders/Backhoes	4	7	84	0.37	870	2,070
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								**14,407**

Notes:
[1]Using Carl Moyer Guidelines Table D-21 Fuel consumption rate factors (bhp-hr/gal) for engines less than 750 hp.
(Source: https://ww2.arb.ca.gov/sites/default/files/2020-06/2017_cmpgl.pdf)

8.1.3 Construction Worker Fuel Estimates

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 20,350 VMT. Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas

[9] Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/day (from CARB's 2017 Emissions Factors Tables and fuel consumption rate factors as shown in Table D-21 of the Moyer Guidelines:(https://ww2.arb.ca.gov/sites/default/files/2020-06/2017_cmpgl.pdf).

analysis using information generated using CARB's EMFAC model (see Appendix B for details). Table 13 shows that an estimated 658 gallons of fuel would be consumed for construction worker trips.

Table 13: Construction Worker Fuel Consumption Estimates

Phase	Number of Days	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	22	20	18.5	8140	30.95	263
Grading	44	15	18.5	12,210	30.95	395
Total Construction Worker Fuel Consumption						**658**

Notes:
[1]Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2022.1 defaults.

8.1.4 Construction Vendor/Hauling Fuel Estimates

Table 14 shows the estimated fuel consumption for hauling during grading. With respect to estimated VMT, the hauling trips would generate an estimated 200,640 VMT. Table 14 show that an estimated 29,769 gallons of fuel would be consumed for vendor and hauling trips.

Table 14: Construction Hauling Fuel Consumption Estimates (HHD Trucks)[1]

Phase	Number of Days	Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	22	0	20	0	6.74	0
Grading	44	228	20	200,640	6.74	29,769
Total Construction Hauling Fuel Consumption						**29,769**

Notes:
[1]Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod 2022.1 defaults.

8.1.5 Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately 3-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. In addition, the CARB Airborne Toxic Control Measure limits idling times of construction vehicles to no more than five minutes, thereby minimizing unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Furthermore, the project has been designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards.

Construction of the proposed commercial development would require the typical use of energy resources. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies).

Equipment employed in construction of the project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

8.2 Operational Energy Demand

Energy consumption in support of or related to project operations would include transportation energy demands (energy consumed by employee and patron vehicles accessing the project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

8.2.1 Transportation Fuel Consumption

The largest source of operational energy use would be vehicle operation of workers. The site is located in a rural area. Using the CalEEMod output, it is assumed that an average trip for all vehicles was 25 miles. To show a worst-case analysis, one vehicle trip per month was assumed. Table 15 shows the worst-case estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks.[10] Table 15 shows that an estimated 88 gallons of fuel would be consumed per year for the operation of the proposed project.

Table 15: Estimated Vehicle Operations Fuel Consumption

Vehicle Type	Vehicle Mix	Number of Vehicles[1]	Average Trip (miles)[2]	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Light Auto	Automobile	0.14	25	3.50	31.82	0.11	40.18
Light Truck	Automobile	0.02	25	0.40	27.16	0.01	5.33
Light Truck	Automobile	0.05	25	1.19	25.6	0.05	17.00
Medium Truck	Automobile	0.03	25	0.83	20.81	0.04	14.58
Light Heavy Truck	2-Axle Truck	0.01	25	0.15	13.81	0.01	4.06
Light Heavy Truck 10,000 lbs +	2-Axle Truck	0.00	25	0.04	14.18	0.00	1.07
Medium Heavy Truck	3-Axle Truck	0.00	25	0.08	9.58	0.01	2.94
Heavy Heavy Truck	4-Axle Truck	0.00	25	0.06	7.14	0.01	2.85
Total		0.25	--	6.25	--	0.24	--
Total Annual Fuel Consumption							**87.99**

Notes:
[1] The trip generation assessment, the project is to generate approximately one total new trip per month. Default CalEEMod vehicle fleet mix utilized.
[2] Based on the size of the site and relative location, trips were assumed to be local rather than regional.

Trip generation generated by the proposed project are consistent with other similar commercial uses of similar scale and configuration. That is, the proposed project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips, nor associated excess and wasteful

[10] Average fuel economy based on aggregate mileage calculated in EMFAC 2017 for 2023. See Appendix B for EMFAC output.

vehicle energy consumption. Therefore, project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

8.3 Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, the project site is located in an already developed area. Access to/from the project site is from existing roads. These roads are already in place so the project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA because SCAG is not planning for intermodal facilities in the project area.

Regarding the State's Energy Plan and compliance with Title 24 CCR energy efficiency standards, the applicant is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by the SCE and Southern California Gas Company.

Regarding the State's Renewable Energy Portfolio Standards, the project would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CALGreen). CalGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

9.0 References

The following references were used in the preparing this analysis.

California Air Pollution Control Officers Association
2009 Health Risk Assessments for Proposed Land Use Projects

California Air Resources Board
2008 Resolution 08-43

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2017 California's 2017 Climate Change Scoping Plan. November.

2020 Historical Air Quality, Top 4 Summary

County of San Bernardino
2011 County of San Bernardino Greenhouse Gas Emissions Reduction Plan. September.

2007 County of San Bernardino 2007 General Plan

2007 County of San Bernardino 2007 Development Code. March 13.

Governor's Office of Planning and Research
2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2009 CEQA Guideline Sections to be Added or Amended

Mojave Desert Air Quality Management District (MDAQMD)
2016 California Environmental Quality Act (CEQA) And Federal Conformity Guidelines. August

Office of Environmental Health Hazard Assessment
2015 Air Toxics Hot Spots Program Risk Assessment Guidelines

Appendix A:

CalEEMod Emissions Output

Oeste Basins Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Oeste Basins
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	4.50
Precipitation (days)	14.6
Location	34.486956678941425, -117.65131374027008
County	San Bernardino-Mojave Desert
City	Unincorporated
Air District	Mojave Desert AQMD
Air Basin	Mojave Desert
TAZ	5108
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	10.0	Acre	10.0	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.11	35.9	28.5	0.15	1.23	7.87	9.11	1.13	3.54	4.68	—	20,804	20,804	0.25	2.55	35.0	21,603
Mit.	3.11	35.9	28.5	0.15	1.23	4.83	5.83	1.13	1.42	2.55	—	20,804	20,804	0.25	2.55	35.0	21,603
% Reduced	—	—	—	—	—	39%	36%	—	60%	45%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.46	6.22	4.36	0.02	0.20	1.15	1.34	0.18	0.36	0.55	—	2,873	2,873	0.04	0.31	1.85	2,968
Mit.	0.46	6.22	4.36	0.02	0.20	0.77	0.97	0.18	0.22	0.41	—	2,873	2,873	0.04	0.31	1.85	2,968
% Reduced	—	—	—	—	—	33%	28%	—	38%	25%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08	1.13	0.80	< 0.005	0.04	0.21	0.24	0.03	0.07	0.10	—	476	476	0.01	0.05	0.31	491
Mit.	0.08	1.13	0.80	< 0.005	0.04	0.14	0.18	0.03	0.04	0.07	—	476	476	0.01	0.05	0.31	491

% Reduced	—	—	—	—	—	33%	28%	—	38%	25%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	3.11	35.9	28.5	0.15	1.23	7.87	9.11	1.13	3.54	4.68	—	20,804	20,804	0.25	2.55	35.0	21,603
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.46	6.22	4.36	0.02	0.20	1.15	1.34	0.18	0.36	0.55	—	2,873	2,873	0.04	0.31	1.85	2,968
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.08	1.13	0.80	< 0.005	0.04	0.21	0.24	0.03	0.07	0.10	—	476	476	0.01	0.05	0.31	491

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	3.11	35.9	28.5	0.15	1.23	4.83	5.83	1.13	1.42	2.55	—	20,804	20,804	0.25	2.55	35.0	21,603
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2023	0.46	6.22	4.36	0.02	0.20	0.77	0.97	0.18	0.22	0.41	—	2,873	2,873	0.04	0.31	1.85	2,968
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.08	1.13	0.80	< 0.005	0.04	0.14	0.18	0.03	0.04	0.07	—	476	476	0.01	0.05	0.31	491

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.07	0.01	0.09	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	21.9	21.9	< 0.005	< 0.005	0.09	22.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.07	0.01	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	19.9	19.9	< 0.005	< 0.005	< 0.005	20.2
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.07	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	2.91	2.91	< 0.005	< 0.005	0.01	2.95
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	0.01	0.09	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.9	21.9	< 0.005	< 0.005	0.09	22.2

Area	0.07	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.07	0.01	0.09	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	21.9	21.9	< 0.005	< 0.005	0.09	22.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	0.01	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	< 0.005	20.2
Area	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.07	0.01	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	19.9	19.9	< 0.005	< 0.005	< 0.005	20.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.91	2.91	< 0.005	< 0.005	0.01	2.95
Area	0.07	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.07	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	2.91	2.91	< 0.005	< 0.005	0.01	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49
Area	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	0.01	0.09	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.9	21.9	< 0.005	< 0.005	0.09	22.2
Area	0.07	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.07	0.01	0.09	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	21.9	21.9	< 0.005	< 0.005	0.09	22.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	0.01	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	< 0.005	20.2
Area	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.07	0.01	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.00	19.9	19.9	< 0.005	< 0.005	< 0.005	20.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.91	2.91	< 0.005	< 0.005	0.01	2.95
Area	0.07	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.07	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	2.91	2.91	< 0.005	< 0.005	0.01	2.95

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49
Area	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49

3. Construction Emissions Details

3.1. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.99	29.1	26.5	0.05	1.23	—	1.23	1.13	—	1.13	—	5,801	5,801	0.24	0.05	—	5,820
Dust From Material Movement	—	—	—	—	—	7.61	7.61	—	3.48	3.48	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.18	1.75	1.60	< 0.005	0.07	—	0.07	0.07	—	0.07	—	350	350	0.01	< 0.005	—	351
Dust From Material Movement	—	—	—	—	—	0.46	0.46	—	0.21	0.21	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.32	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	57.9	57.9	< 0.005	< 0.005	—	58.1
Dust From Material Movement	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	1.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	304	304	0.01	0.01	1.28	309
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.7	16.7	< 0.005	< 0.005	0.03	16.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.76	2.76	< 0.005	< 0.005	0.01	2.80
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Site Preparation (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.99	29.1	26.5	0.05	1.23	—	1.23	1.13	—	1.13	—	5,801	5,801	0.24	0.05	—	5,820
Dust From Material Movement	—	—	—	—	—	2.97	2.97	—	1.36	1.36	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	1.75	1.60	< 0.005	0.07	—	0.07	0.07	—	0.07	—	350	350	0.01	< 0.005	—	351
Dust From Material Movement	—	—	—	—	—	0.18	0.18	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.32	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	57.9	57.9	< 0.005	< 0.005	—	58.1
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	1.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	304	304	0.01	0.01	1.28	309
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.7	16.7	< 0.005	< 0.005	0.03	16.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.76	2.76	< 0.005	< 0.005	0.01	2.80
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.81	17.3	17.0	0.04	0.70	—	0.70	0.65	—	0.65	—	4,388	4,388	0.18	0.04	—	4,403
Dust From Material Movement	—	—	—	—	—	1.27	1.27	—	0.15	0.15	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	2.08	2.05	< 0.005	0.08	—	0.08	0.08	—	0.08	—	529	529	0.02	< 0.005	—	531
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.38	0.37	< 0.005	0.02	—	0.02	0.01	—	0.01	—	87.6	87.6	< 0.005	< 0.005	—	87.9
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	1.47	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	228	228	0.01	0.01	0.96	232
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.34	18.5	4.03	0.11	0.30	4.13	4.44	0.30	1.06	1.36	—	16,188	16,188	0.02	2.50	34.0	16,968
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	25.1	25.1	< 0.005	< 0.005	0.05	25.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	2.36	0.49	0.01	0.04	0.49	0.53	0.04	0.13	0.16	—	1,952	1,952	< 0.005	0.30	1.77	2,044
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.15	4.15	< 0.005	< 0.005	0.01	4.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.43	0.09	< 0.005	0.01	0.09	0.10	0.01	0.02	0.03	—	323	323	< 0.005	0.05	0.29	338

3.4. Grading (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.81	17.3	17.0	0.04	0.70	—	0.70	0.65	—	0.65	—	4,388	4,388	0.18	0.04	—	4,403

Dust From Material Movement	—	—	—	—	—	0.49	0.49	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	2.08	2.05	< 0.005	0.08	—	0.08	0.08	—	0.08	—	529	529	0.02	< 0.005	—	531
Dust From Material Movement	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.38	0.37	< 0.005	0.02	—	0.02	0.01	—	0.01	—	87.6	87.6	< 0.005	< 0.005	—	87.9
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	1.47	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	228	228	0.01	0.01	0.96	232
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.34	18.5	4.03	0.11	0.30	4.13	4.44	0.30	1.06	1.36	—	16,188	16,188	0.02	2.50	34.0	16,968

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	25.1	25.1	< 0.005	< 0.005	0.05	25.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	2.36	0.49	0.01	0.04	0.49	0.53	0.04	0.13	0.16	—	1,952	1,952	< 0.005	0.30	1.77	2,044
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.15	4.15	< 0.005	< 0.005	0.01	4.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.43	0.09	< 0.005	0.01	0.09	0.10	0.01	0.02	0.03	—	323	323	< 0.005	0.05	0.29	338

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectu Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.07	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.07	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.4.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.5.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	6/1/2023	6/30/2023	5.00	22.0	—
Grading	Grading	7/1/2023	8/31/2023	5.00	44.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Site Preparation	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Site Preparation	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Site Preparation	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Site Preparation	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Site Preparation	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Site Preparation	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	228	20.0	HHDT
Grading	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	228	20.0	HHDT
Grading	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	33.0	0.00	—
Grading	—	80,409	44.0	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	10.0	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	532	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00	0.00	0.25	13.0	0.00	0.00	25.0	1,304

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	26,214

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	0.00	532	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	0.00	532	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	27.7	annual days of extreme heat
Extreme Precipitation	3.60	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	33.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	97.1
AQ-PM	44.6
AQ-DPM	6.26
Drinking Water	32.0
Lead Risk Housing	22.4
Pesticides	0.00
Toxic Releases	38.4
Traffic	14.0
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	14.3
Haz Waste Facilities/Generators	0.00
Impaired Water Bodies	0.00
Solid Waste	93.2

Sensitive Population	—
Asthma	26.7
Cardio-vascular	57.9
Low Birth Weights	69.2
Socioeconomic Factor Indicators	—
Education	41.9
Housing	50.3
Linguistic	39.2
Poverty	59.4
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	36.44296163
Employed	4.786346721
Median HI	27.8583344
Education	—
Bachelor's or higher	28.85923264
High school enrollment	17.07943026
Preschool enrollment	1.873476197
Transportation	—
Auto Access	64.27563198
Active commuting	33.79956371
Social	—
2-parent households	55.88348518

Voting	63.63403054
Neighborhood	—
Alcohol availability	91.65918132
Park access	5.838573078
Retail density	5.581932504
Supermarket access	10.68907994
Tree canopy	0.41062492
Housing	—
Homeownership	82.0993199
Housing habitability	45.6691903
Low-inc homeowner severe housing cost burden	38.94520724
Low-inc renter severe housing cost burden	50.46836905
Uncrowded housing	77.4541255
Health Outcomes	—
Insured adults	40.47221866
Arthritis	0.0
Asthma ER Admissions	62.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	24.1
Cognitively Disabled	4.4
Physically Disabled	16.0
Heart Attack ER Admissions	27.1

Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	47.3
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	5.0
SLR Inundation Area	0.0
Children	90.2
Elderly	20.2
English Speaking	72.9
Foreign-born	17.1
Outdoor Workers	28.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	97.7
Traffic Density	18.5
Traffic Access	23.0
Other Indices	—
Hardship	52.8
Other Decision Support	—
2016 Voting	78.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	32.0
Healthy Places Index Score for Project Location (b)	21.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	No demolition required. No building construction required. No paving required. Estimated to last 3 months.
Construction: Off-Road Equipment	Based off of equipment listed in project document "Initial Study and Mitigated Negative Declaration"

Appendix B:

EMFAC2017 Output

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: Air District
Region: South Coast AQMD
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Y	Vehicle Cat	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coas	2023	HHDT	Aggregate	Aggregate	Gasoline	75.10442936	8265.097	1502.689	1.936286145	1936.286145	1913466.474	8265.097	13656273.03	7.14	**HHD**
South Coas	2023	HHDT	Aggregate	Aggregate	Diesel	109818.6753	13648008	1133618	1911.530188	1911530.188		13648008			
South Coas	2023	LDA	Aggregate	Aggregate	Gasoline	6635002.295	2.53E+08	31352477	7971.24403	7971244.03	8020635.698	2.53E+08	255180358.3	31.82	**LDA**
South Coas	2023	LDA	Aggregate	Aggregate	Diesel	62492.97958	2469816	297086.6	49.3916685	49391.6685		2469816			
South Coas	2023	LDA	Aggregate	Aggregate	Electricity	150700.3971	6237106	751566	0	0		6237106			
South Coas	2023	LDT1	Aggregate	Aggregate	Gasoline	758467.6481	27812996	3504563	1023.913006	1023913.006	1024279.466	27812996	27821405.09	27.16	**LDT1**
South Coas	2023	LDT1	Aggregate	Aggregate	Diesel	360.7799144	8408.618	1256.88	0.366459477	366.4594769		8408.618			
South Coas	2023	LDT1	Aggregate	Aggregate	Electricity	7122.93373	303507.5	35798.19	0	0		303507.5			
South Coas	2023	LDT2	Aggregate	Aggregate	Gasoline	2285150.139	85272416	10723315	3338.798312	3338798.312	3356536.438	85272416	85922778.34	25.60	**LDT2**
South Coas	2023	LDT2	Aggregate	Aggregate	Diesel	15594.68309	650362.8	76635.83	17.73812611	17738.12611		650362.8			
South Coas	2023	LDT2	Aggregate	Aggregate	Electricity	28809.63735	917592.8	145405.4	0	0		917592.8			
South Coas	2023	LHDT1	Aggregate	Aggregate	Gasoline	174910.3847	6216643	2605904	583.3851736	583385.1736	811563.1022	6216643	11211395.79	13.81	**LHDT1**
South Coas	2023	LHDT1	Aggregate	Aggregate	Diesel	125545.0822	4994753	1579199	228.1779285	228177.9285		4994753			
South Coas	2023	LHDT2	Aggregate	Aggregate	Gasoline	30102.75324	1034569	448486.2	111.5753864	111575.3864	209423.5025	1034569	2969599.008	14.18	**LHDT2**
South Coas	2023	LHDT2	Aggregate	Aggregate	Diesel	50003.13116	1935030	628976.5	97.84811618	97848.11618		1935030			
South Coas	2023	MCY	Aggregate	Aggregate	Gasoline	305044.5141	2104624	610089	57.849018	57849.018	57849.018	2104624	2104623.657	36.38	**MCY**
South Coas	2023	MDV	Aggregate	Aggregate	Gasoline	1589862.703	55684188	7354860	2693.883526	2693883.526	2744536.341	55684188	57109879.73	20.81	**MDV**
South Coas	2023	MDV	Aggregate	Aggregate	Diesel	36128.1019	1425691	176566.9	50.65281491	50652.81491		1425691			
South Coas	2023	MDV	Aggregate	Aggregate	Electricity	16376.67653	537591.7	83475.95	0	0		537591.7			
South Coas	2023	MH	Aggregate	Aggregate	Gasoline	34679.50542	330042.9	3469.338	63.26295123	63262.95123	74893.26955	330042.9	454344.9436	6.07	**MH**
South Coas	2023	MH	Aggregate	Aggregate	Diesel	13122.69387	124302	1312.269	11.63031832	11630.31832		124302			
South Coas	2023	MHDT	Aggregate	Aggregate	Gasoline	25624.3151	1363694	512691.3	265.2060557	265206.0557	989975.6425	1363694	9484317.768	9.58	**MHDT**
South Coas	2023	MHDT	Aggregate	Aggregate	Diesel	122124.488	8120623	1221858	724.7695868	724769.5868		8120623			
South Coas	2023	OBUS	Aggregate	Aggregate	Gasoline	5955.291639	245774	119153.5	48.07750689	48077.50689	86265.88761	245774	579743.8353	6.72	**OBUS**
South Coas	2023	OBUS	Aggregate	Aggregate	Diesel	4286.940093	333969.8	41558.29	38.18838072	38188.38072		333969.8			
South Coas	2023	SBUS	Aggregate	Aggregate	Gasoline	2783.643068	112189.6	11134.57	12.19474692	12194.74692	39638.85935	112189.6	323043.5203	8.15	**SBUS**
South Coas	2023	SBUS	Aggregate	Aggregate	Diesel	6671.825716	210853.9	76991.94	27.44411242	27444.11242		210853.9			
South Coas	2023	UBUS	Aggregate	Aggregate	Gasoline	957.7686184	89782.63	3831.074	17.62416327	17624.16327	17863.66378	89782.63	91199.2533	5.11	**UBUS**
South Coas	2023	UBUS	Aggregate	Aggregate	Diesel	13.00046095	1416.622	52.00184	0.239500509	239.5005093		1416.622			
South Coas	2023	UBUS	Aggregate	Aggregate	Electricity	16.11693886	1320.163	64.46776	0			1320.163			

Appendix B-1

Oeste Recharge Basins Project Mojave Water Agency
Habitat and Jurisdictional Assessment

ELMT Consulting

July 2021

OESTE RECHARGE BASINS PROJECT
MOJAVE WATER AGENCY

SAN BERNARDINO COUNTY, CALIFORNIA

Habitat and Jurisdictional Assessment

Prepared For:

Mojave Water Agency
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Prepared By:

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2201 N. Grand Avenue #10098
Santa Ana, California 92711
Contact: *Travis J. McGill*

July 2021

MOJAVE WATER AGENCY'S OESTE RECHARGE BASINS PROJECT

SAN BERNARDINO COUNTY, CALIFORNIA

Habitat and Jurisdictional Assessment

The undersigned certify that the statements furnished in this report and exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented is a complete and accurate account of the findings and conclusions to the best of our knowledge and beliefs.

Travis J. McGill
Director/Biologist

Thomas J. McGill, Ph.D.
Managing Director

July 2021

Table of Contents

EXHIBITS

APPENDIX

Section 1 Introduction

This report contains the findings of ELMT Consulting's (ELMT) habitat and jurisdictional assessment for Mojave Water Agency's Oeste Recharge Basins Project (Project) located west of the City of Victorville and east of the City of Palmdale in the unincorporated San Bernardino County, California community of Pinon Hills. ELMT biologists Travis J. McGill and Jacob H. Lloyd Davies conducted a field survey and evaluated the condition of the habitat within the project site on April 13, 2021.

The habitat assessment was conducted to characterize existing site conditions and to assess the probability of occurrence of special-status[1] plant and wildlife species that could pose a constraint to project implementation. This report provides an in-depth assessment of the suitability of the on-site habitat to support special-status plant and wildlife species identified by the California Natural Diversity Data Base (CNDDB) and other electronic databases as potentially occurring in the vicinity of the project site. In addition, this report discusses the findings of a focused survey for desert tortoise (*Gopherus agassizii*), a habitat suitability assessment for burrowing owl (*Athene cunicularia*), and a western Joshua tree (*Yucca brevifolia*) inventory.

The site was also evaluated for its potential to support natural drainage features, ponded areas, and/or water bodies that have the potential to fall under the regulatory authority of the of the United States Army Corps of Engineers (Corps), Regional Water Quality Control Board (Regional Board), or California Department of Fish and Wildlife (CDFW) pursuant to Sections 401 and 404 of the Federal Clean Water Act (CWA), the California Porter-Cologne Water Quality Control Act, and Section 1600 *et seq.* of the Fish and Game Code.

1.1 PROJECT LOCATION

The project site is generally located south of State Route 18, north and east of State Route 138, and west of United States Route 395 in unincorporated San Bernardino County, California (Exhibit 1, *Regional Vicinity*). The site is depicted on the Mescal Creek quadrangle of the United States Geological Survey's (USGS) 7.5-minute topographic map series within Section 30 of Township 5 North, Range 7 West (Exhibit 2, *Site Vicinity*). Specifically, the project site is located adjacent to and north of the California Aqueduct, south of Cayucos Drive, approximately 0.36 miles west of Oasis Drive within Assessor Parcel Number 309-908-101 (Exhibit 3, *Project Site*). Pipelines connecting the site to the Aqueduct are proposed along the Aqueduct to the parcel.

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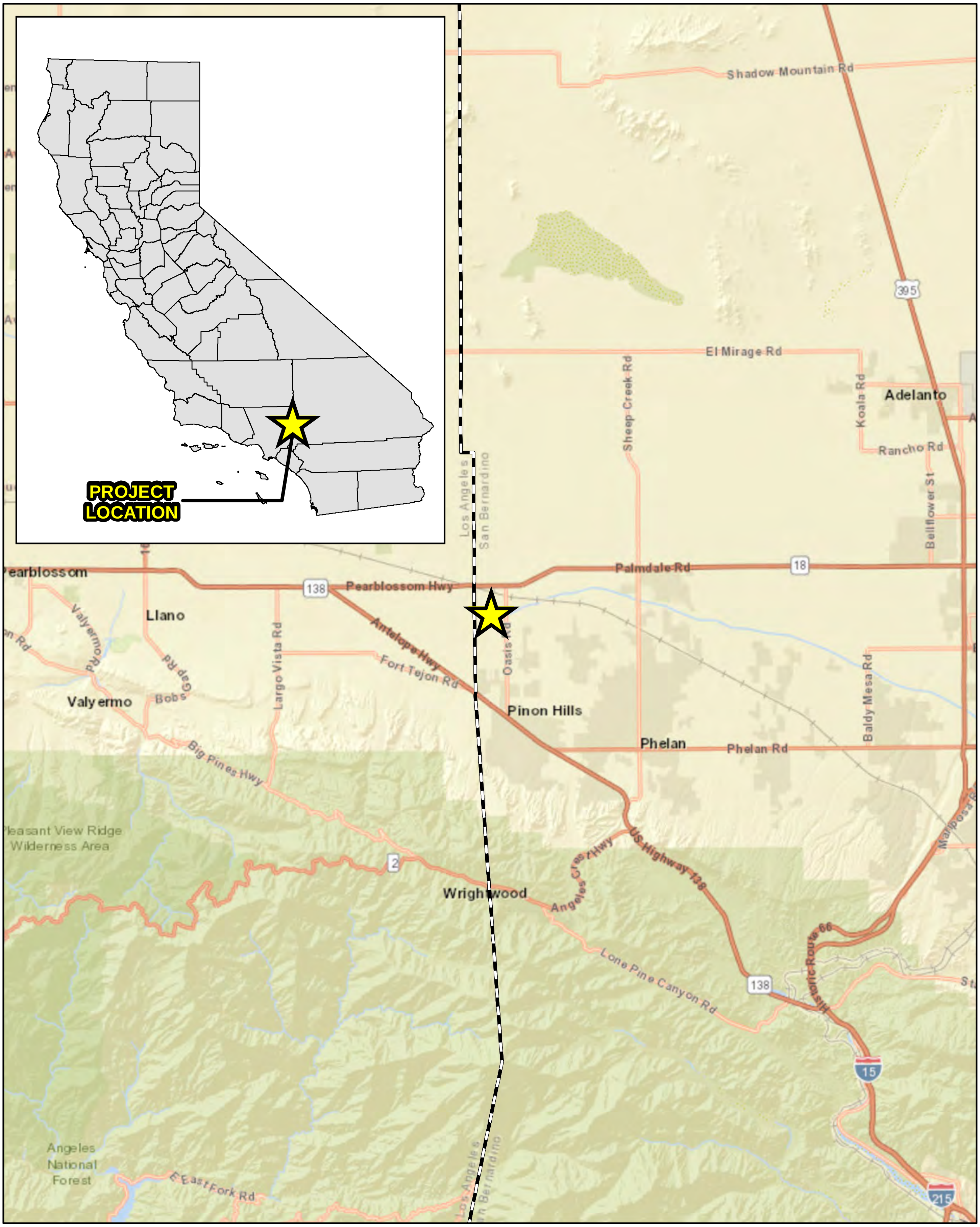
[1] As used in this report, "special-status" refers to plant and wildlife species that are federally or State listed, proposed, or candidates; plant species that have been designated a California Native Plant Society (CNPS) Rare Plant Rank; and wildlife species that are designated by the California Department of Fish and Wildlife (CDFW) as fully protected, species of special concern, or watch list species.



MOJAVE WATER AGENCY'S OESTE RECHARGE BASINS PROJECT
HABITAT AND JURISDICTIONAL ASSESSMENT

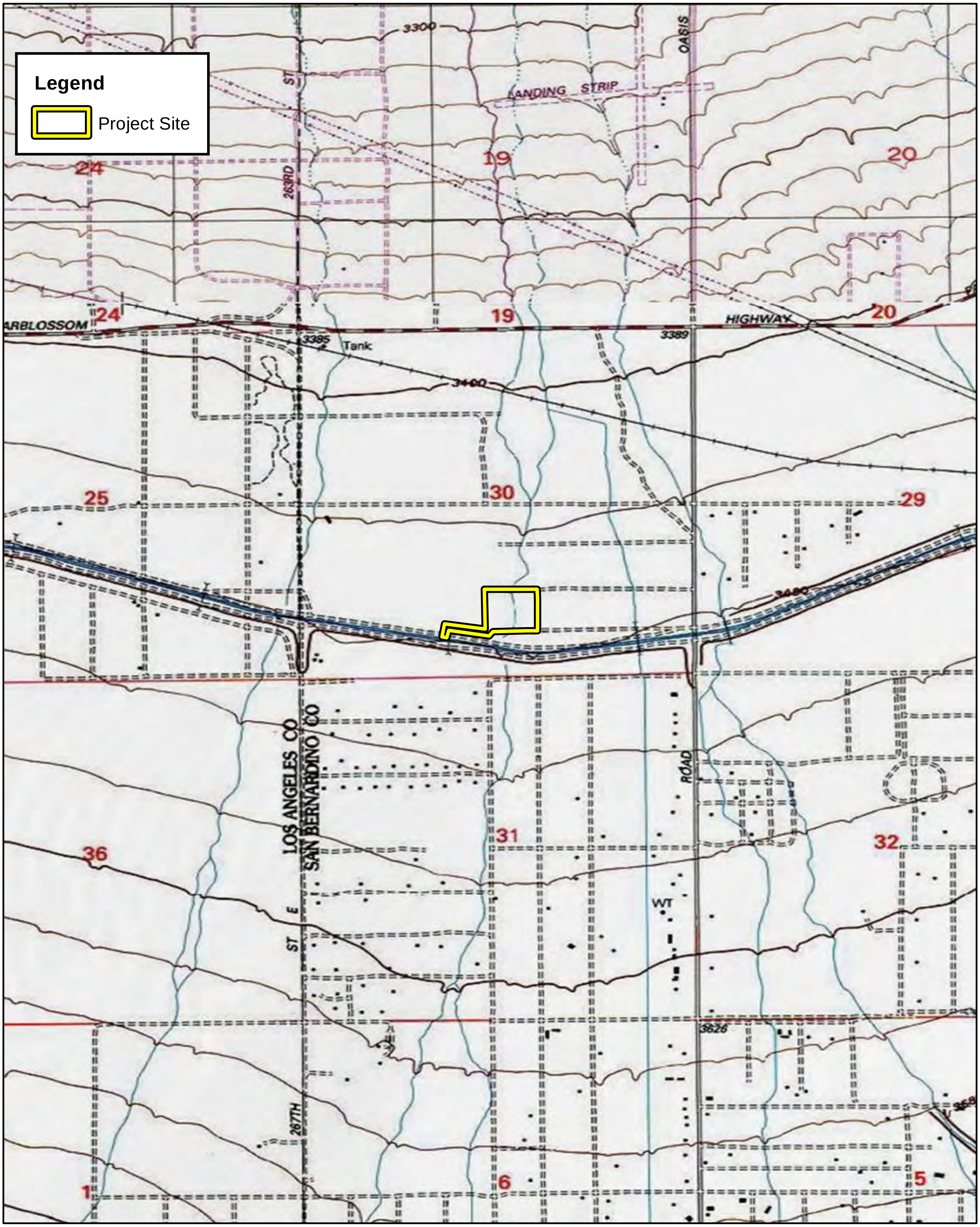
Regional Vicinity

ELMT CONSULTING

0 1.25 2.5 5 Miles

Source: World Street Map, San Bernardino County

Exhibit 1



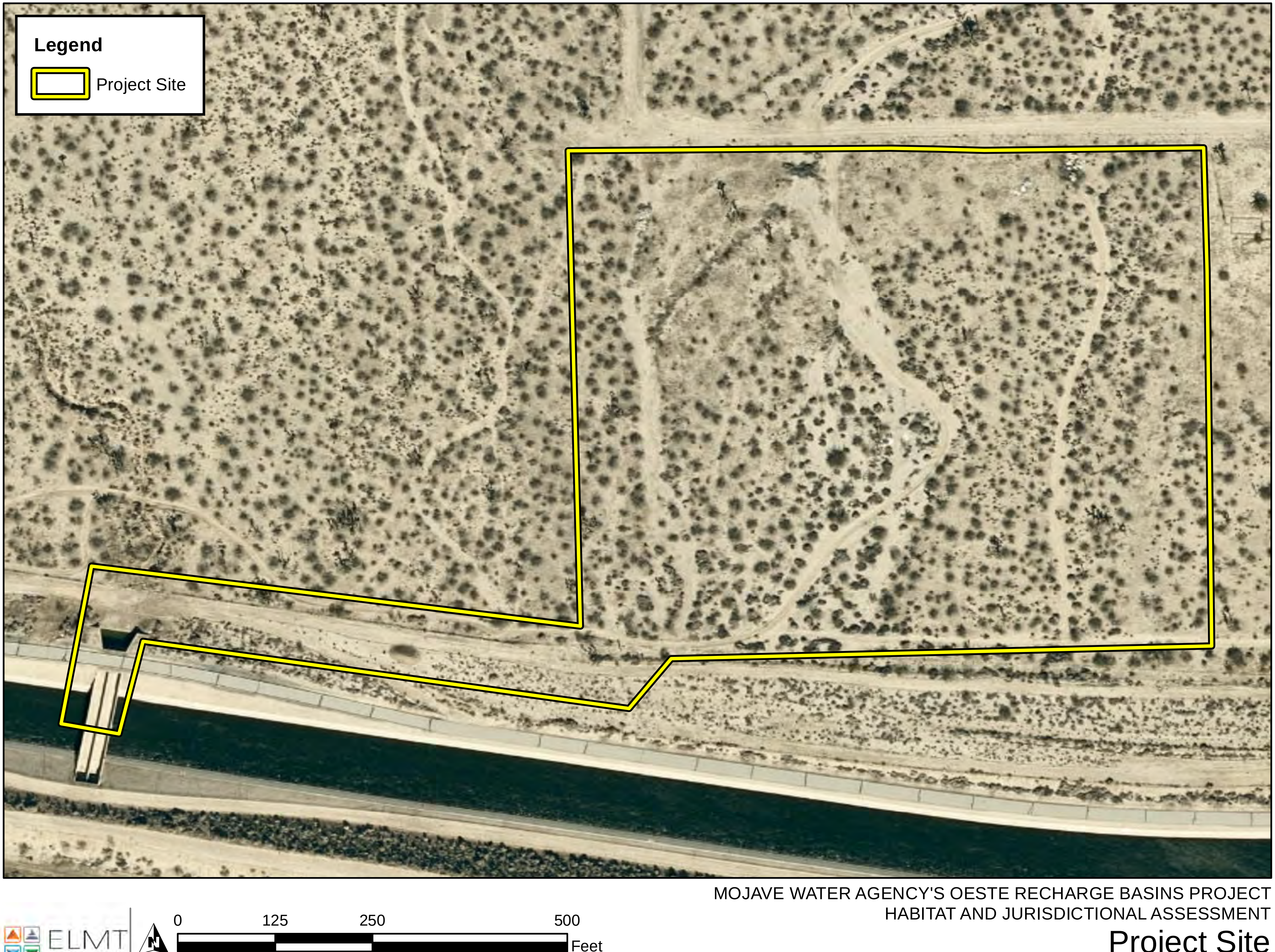
MOJAVE WATER AGENCY'S OESTE RECHARGE BASINS PROJECT
HABITAT AND JURISDICTIONAL ASSESSMENT

0 1,000 2,000 4,000 Feet

Site Vicinity

Source: USA Topographic Map, San Bernardino County

Exhibit 2



MOJAVE WATER AGENCY'S OESTE RECHARGE BASINS PROJECT
HABITAT AND JURISDICTIONAL ASSESSMENT

Project Site

Exhibit 3

Source: ESRI Aerial Imagery, San Bernardino County

Section 2 Methodology

A literature review and records search were conducted to determine which special-status biological resources have the potential to occur on or within the general vicinity of the project site. In addition to the literature review, a general habitat assessment or field investigation of the project site was conducted. The field investigation was conducted to document existing conditions within the project site and assess the potential for special-status biological resources to occur.

2.1 LITERATURE REVIEW

Prior to conducting the field investigation, a literature review and records search was conducted for special-status biological resources potentially occurring on or within the vicinity of the project site. Previously recorded occurrences of special-status plant and wildlife species and their proximity to the project site were determined through a query of the CDFW QuickView Tool in the Biogeographic Information and Observation System (BIOS), CNDDB Rarefind 5, the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California, Calflora Database, compendia of special-status species published by CDFW, and the United States Fish and Wildlife Service (USFWS) species listings.

All available reports, survey results, and literature detailing the biological resources previously observed on or within the vicinity of the project site were reviewed to understand existing site conditions and note the extent of any disturbances that have occurred on the project site that would otherwise limit the distribution of special-status biological resources. Standard field guides and texts were reviewed for specific habitat requirements of special-status and non-special-status biological resources, as well as the following resources:

- Google Earth Pro historic aerial imagery (1994-2020);
- San Bernardino County General Plan;
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), Soil Survey[2];
- USFWS Critical Habitat designations for Threatened and Endangered Species; and
- USFWS National Wetlands Inventory (NWI).

The literature review provided a baseline from which to inventory the biological resources potentially occurring on the subject property. The CNDDB database was used, in conjunction with ArcGIS software, to locate the nearest recorded occurrences of special-status species and determine the distance from the project site.

[2] A soil series is defined as a group of soils with similar profiles developed from similar parent materials under comparable climatic and vegetation conditions. These profiles include major horizons with similar thickness, arrangement, and other important characteristics, which may promote favorable conditions for certain biological resources.

2.2 FIELD INVESTIGATION

ELMT biologists Travis J. McGill and Jacob H. Lloyd Davies evaluated the extent and conditions of the plant communities found within the boundaries of the project site on April 13, 2021. Plant communities identified on aerial photographs during the literature review were verified in the field by walking meandering transects through the on-site plant communities and along boundaries between plant communities. The plant communities were evaluated for their potential to support special-status plant and wildlife species. In addition, field staff identified any natural corridors and linkages that may support the movement of wildlife through the area. Special attention was given to special-status habitats and/or undeveloped areas, which have higher potentials to support special-status plant and wildlife species.

All plant and wildlife species observed, as well as dominant plant species within each plant community, were recorded. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of on-site plant communities, and presence of potential jurisdictional drainage and/or wetland features were noted.

2.3 SOIL SERIES ASSESSMENT

On-site and adjoining soils were researched prior to the field survey using the USDA NRCS Soil Survey for San Bernardino County Mojave River Area. In addition, a review of the local geological conditions and historical aerial photographs was conducted to assess the ecological changes that the project site has undergone.

2.4 PLANT COMMUNITIES

Plant communities were mapped using 7.5-minute USGS topographic base maps and aerial photography. The plant communities were classified in accordance with Sawyer, Keeler-Wolf and Evens (2009), CDFW (2010) and Holland (1986), delineated on an aerial photograph, and then digitized into ArcGIS. The ArcGIS application was used to compute the area of each plant community in acres.

2.5 PLANTS

Common plant species observed during the field survey were identified by visual characteristics and morphology in the field and recorded in a field notebook. Unusual and less familiar plants were photographed in the field and identified in the laboratory using taxonomic guides. Taxonomic nomenclature used in this study follows the 2012 Jepson Manual (Hickman 2012). In this report, scientific names are provided immediately following common names of plant species (first reference only).

2.6 WILDLIFE

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other sign were recorded during surveys in a field notebook. Field guides were used to assist with identification of wildlife species during the survey included The Sibley Field Guide to the Birds of Western North America (Sibley 2003), A Field

Guide to Western Reptiles and Amphibians (Stebbins 2003), and A Field Guide to Mammals of North America (Reid 2006). Although common names of wildlife species are fairly well standardized, scientific names are provided immediately following common names in this report (first reference only).

2.7 JURISDICTIONAL DRAINAGES AND WETLANDS

Aerial photography was reviewed prior to conducting a field investigation in order to locate and inspect any potential natural drainage features, ponded areas, or water bodies that may fall under the jurisdiction of the Corps, Regional Board, and/or CDFW. In general, surface drainage features indicated as blue-line streams on USGS maps that are observed or expected to exhibit evidence of flow are considered potential riparian/riverine habitat and are also subject to state and federal regulatory jurisdiction. In addition, ELMT reviewed jurisdictional waters information through examining historical aerial photographs to gain an understanding of the impact of land-use on natural drainage patterns in the area. The USFWS NWI and Environmental Protection Agency (EPA) Water Program “My Waters” data layers were also reviewed to determine whether any hydrologic features and wetland areas have been documented on or within the vicinity of the Project site.

2.8 JOSHUA TREE INVENTORY

On October 15, 2019, a petition was submitted to the California Fish and Game Commission (FGC) to list the western Joshua tree as a Threatened Species under the California Endangered Species Act (CESA) (Center for Biological Diversity 2019). The FGC referred the petition to the California Department of Fish and Wildlife (CDFW) for evaluation. In February of 2020, CDFW determined that the petition provided sufficient scientific information to indicate that the petitioned actions may be warranted and recommended that the FGC accept the petition for further consideration under CESA. Then, on September 22, 2020, the FGC voted to advance the western Joshua tree to candidate threatened species under CESA. Candidate species for listing receive full protection under CESA. On October 29, 2020, the State of California Office of Administrative Law approved the adoption of Section 749.10 Title 14, California Code of Regulations (CCR), entitled Special Order Relating to the Take of western Joshua tree (*Yucca brevifolia* var. *brevifolia*) during the Candidacy Period.

Transects were oriented north to south across the survey area and were spaced at 10-meter (33 feet) intervals throughout the project footprint to ensure maximum visual coverage of the project area. Each Joshua tree encountered was recorded using a handheld geographic positioning systems (GPS) device. In addition, the height of the Joshua trees encountered were recorded using a 2.5-meter pole and placed in one of three height categories including: < 1 meter tall, 1 to 5 meters tall, and ≥ 5 meters tall in accordance with the emergency regulation for the western Joshua tree compensatory mitigation program.

2.9 DESERT TORTOISE PRESENCE/ABSENCE SURVEY

The potential presence of Mojave desert tortoise requires that biologists conduct focused surveys/pedestrian transects covering the project’s action area in order to determine the presence or absence of desert tortoise within the action area (U.S. Fish and Wildlife Service [USFWS], 2018). The action area is defined as all areas to be directly or indirectly affected by the project (50 CFR §402.02). For this project, the action area includes the limits of disturbance (approximately 10 acres) and all areas that have the potential to be indirectly impacted by the proposed project. Site characteristics including topography, presence of suitable habitat, and human disturbance were utilized to determine the lateral extent of the action area beyond the project footprint. For consistency, the action area is hereinafter referred to as the survey area. Since the development footprint is less than 200 hectares (500 acres) in size, the Small Project Field Survey Protocol was used to determine the presence/absence of desert tortoise.

Transects were oriented north to south across the survey area and were spaced at 10-meter (33 feet) intervals throughout all suitable habitat to provide 100 percent visual coverage and increase the likelihood of locating desert tortoise and/or sign. All transects were walked at a pace that allowed for careful/detailed observation along transect routes and the immediate vicinity.

ELMT biologists conducted a desert tortoise presence/absence survey from 0800 to 1100 hours on April 14, 2021, which falls within the desert tortoise's most active periods (April through May and September through October). Weather conditions during the survey included clear skies, calm wind conditions, and temperatures ranging from 56 to 68 degrees Fahrenheit. If present, any live desert tortoises and/or sign (burrows, scat, carapace, drinking depressions) were recorded on USFWS pre-project survey field data sheets and marked using a Garmin GPSMap 64 Global Positioning System (GPS).

All burrows observed were thoroughly inspected for the presence of desert tortoise or evidence of recent use using non-intrusive methods (i.e., mirror, digital camera). Burrow characteristics including class, shape, orientation, size, and evidence of deterioration were recorded on field data sheets, when observed. In addition, each burrow, when observed, was photographed and given a class rating to describe the overall status and condition of the burrow.

Table 1: Burrow Classification

Condition Class[1]	Description
1	Currently active, with desert tortoise or recent desert tortoise sign
2	Good condition, definitely desert tortoise; no evidence of recent use
3	Deteriorated condition; this includes collapsed burrows; definitely desert tortoise
4	Good condition; possibly desert tortoise
5	Deteriorated condition; this includes collapsed burrows; possibly desert tortoise

[1] Condition class rating system as set forth by USFWS (2010)

2.10 BURROWING OWL SUITABILITY ASSESSMENT

Prior to conducting the field investigation, a literature review and records search was conducted for burrowing owl potentially occurring on or within the vicinity of the project site. Previously recorded occurrences of burrowing owl and their proximity to the project site were determined through a query of the CDFW's QuickView Tool in the Biogeographic Information and Observation System (BIOS) and California Natural Diversity Database (CNDDB) Rarefind 5.

Transects were oriented north to south across the survey area and were spaced at 10-meter (33 feet) intervals throughout all suitable habitat to provide 100 percent visual coverage and increase the likelihood of locating burrowing owl and/or sign. All transects were walked at a pace that allowed for careful/detailed observation along transect routes and the immediate vicinity. Methods to detect the presence of burrowing owl included direct observation, aural detection, and signs of presence including pellets, white wash, feathers, or prey remains. In addition, all suitable burrows encountered, including rock piles and remnant building foundations, were thoroughly examined for signs of presence. The presence of suitable natural burrows (> 4 inches in diameter) or suitable man-made structures (rock piles and non- natural substrates), regardless of a lack of burrowing owl sign, were recorded on a hand-held GPS device.

Section 3 Existing Conditions

3.1 LOCAL CLIMATE

The Mojave Desert is found at elevations of 2,000 to 5,000 feet above mean sea level and is characterized by cool winter temperatures and warm summer temperatures, with its rainfall occurring almost entirely in the winter. Climatological data obtained for the City of Victorville indicates the annual precipitation averages 6.18 inches per year. Almost all of the precipitation in the form of rain occurs in the months between October and April, with hardly any occurring between the months of May and September. The wettest month is February, with a monthly average total precipitation of 1.22 inches. The average minimum and maximum temperatures for the region are 45.7 and 78.9 degrees Fahrenheit (°F) respectively with December and January (monthly average 41° F) being the coldest months and July being the hottest (monthly average 100° F). Temperatures during the site visit were in the mid-70 to mid-80s (° F).

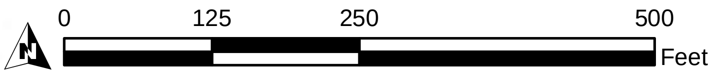
3.2 TOPOGRAPHY AND SOILS

On-site surface elevation ranges from approximately 3,468 to 3,485 feet above mean sea level. The site slopes gently northward away from the adjacent Aqueduct and is relatively flat outside of the Aqueduct and a series of swales sheet flow across the site.

According to the NRCS Custom Soil Resource Report, the project site is underlain entirely by Cajon sand (2 to 9 percent slopes) (Exhibit 4, *Soils*). Portions of the project site, especially within the swales and along the northern and southern boundaries of the site have been compacted and disturbed by recreational off-highway vehicle use and illegal dumping, while soils outside of these areas are relatively undisturbed. Soils underlaying portions of the site that occur within the California Aqueduct are heavily compacted and disturbed.

3.3 SURROUNDING LAND USES

The project site is located in a largely undeveloped area in unincorporated northern Pinon Hills. The site is surrounded immediately by undeveloped, vacant land to the east, north, and west, and the California Aqueduct to the south. Beyond these immediate land uses, the site is further surrounded in all directions by undeveloped, vacant land and residential parcels in varying densities. A network of dirt trails and access roads traverse the site and surrounding area, both north and south of the Aqueduct.



MOJAVE WATER AGENCY'S OESTE RECHARGE BASINS PROJECT
HABITAT AND JURISDICTIONAL ASSESSMENT

Soils

Source: ESRI Aerial Imagery, Soil Survey Geographic Database, San Bernardino County

Exhibit 4

Section 4 Discussion

4.1 SITE CONDITIONS

The survey area supports undeveloped land varying between undisturbed to heavily disturbed. The majority of the survey area supports undisturbed, natural plant communities. Dirt trails and unofficial off road vehicle access roads, that connect to a network of larger trails and roads in the area, traverse the project site. In addition, the northern boundary has been impacted by illegal dumping. Portions of the project site that occur within the California Aqueduct are fully developed.

4.2 VEGETATION

During the field investigation two (2) plant communities were observed within the boundary of the project site: creosote bush scrub and Joshua tree woodland (Exhibit 5, *Vegetation*). In addition, two (2) land cover types that would be classified as disturbed and developed were observed on-site. These areas are not vegetation classifications, but rather land cover types. The vegetation communities and land cover types are described in further detail below.

4.2.1 Creosote Bush Scrub

The creosote bush scrub plant community occurs primarily in the northeast and central-western portions of the project site. This plant community is dominated by creosote (*Larrea tridentata*). Common plant species found within this plant community include hoary saltbush (*Atriplex canescens*), cheesebush (*Ambrosia salsola*), burrobush (*Ambrosia dumosa*), matchweed (*Gutierrezia microcephala*), Nevada ephedra (*Ephedra nevadensis*), silver cholla (*Cylindropuntia echinocarpa*), California buckwheat (*Eriogonum fasciculatum*), cryptantha (*Cryptantha* sp.), desert dandelion (*Malacothrix glabrata*), spiny hopsage (*Grayia spinosa*), rubber rabbitbrush (*Ericameria nauseosa*), pale sun cup (*Camissoniopsis pallidus*), desert croton (*Croton californicus*), small-flowered blazing star (*Mentzelia albicaulis*), and flat topped buckwheat (*Eriogonum deflexum*).

4.2.2 Joshua Tree Woodland

The Joshua tree woodland plant community occurs primarily in the northwest and southeast portions of the project site. This plant community is dominated by Joshua tree (*Yucca brevifolia*) and supports the same species diversity as the creosote bush scrub plant community, but in different densities and distributions. The understory of the Joshua tree woodland is dominated by low-growing perennials and annuals such as pale sun cup, desert croton, and flat topped buckwheat, and features fewer larger woody shrubs such as creosote and rubber rabbitbrush.

4.2.3 Disturbed

Disturbed areas are generally areas that have been subject to a high level of human disturbances from anthropogenic activities and no longer comprise a native plant community. These areas are unpaved and are primarily or entirely devoid of vegetation, or support ruderal/weedy plant species. Within the boundaries

0 125 250 500 Feet

Source: ESRI Aerial Imagery, San Bernardino County

MOJAVE WATER AGENCY'S OESTE RECHARGE BASINS PROJECT
HABITAT AND JURISDICTIONAL ASSESSMENT

Vegetation

Exhibit 5

of the project site, disturbed areas occur along the northern and southern boundaries and within the swale bottoms where routine recreational off-highway vehicle use is most common. Plant species occurring within these disturbed areas include London rocket (*Sisybrium irio*), red brome (*Bromus rubens*), and Mediterranean grass (*Schismus arabicus*).

4.2.4 Developed

Developed areas generally encompass all buildings/structures, parks, and paved, impervious surfaces. Within the boundaries of the project site, developed areas include all portions of the site that occur within the California Aqueduct. These areas are largely devoid of vegetation or support only weedy/early successional species adapted to growing in such conditions.

4.3 WILDLIFE

Plant communities provide foraging habitat, nesting and denning sites, and shelter from adverse weather or predation. This section provides a discussion of those wildlife species that were observed during the field survey or that are expected to occur within the project site. The discussion is to be used as a general reference and is limited by the season, time of day, and weather condition in which the field survey was conducted. Wildlife detections were based on calls, songs, scat, tracks, burrows, and direct observation.

4.3.1 Fish

No fish or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) with frequent sources of water that would provide suitable habitat for fish were observed on or immediately adjacent to the project site. Therefore, no fish are expected to occur and are presumed absent from the project site. It should be noted that while portions of the site occur within the California Aqueduct, none of these areas support the aforementioned required hydrogeomorphic features that would support fish species.

4.3.2 Amphibians

No amphibians or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) that would provide suitable habitat for amphibian species were observed on or immediately adjacent to the project site. Therefore, no amphibians are expected to occur on the project site and are presumed absent. It should be noted that while portions of the site occur within the California Aqueduct, none of these areas support the aforementioned required hydrogeomorphic features that would support amphibian species.

4.3.3 Reptiles

The plant communities supported by the project site provide suitable foraging and cover habitat for a variety of reptilian species adapted to conditions within the Mojave Desert. The only reptilian species observed during the field investigation were common side-blotched lizard (*Uta stansburiana elegans*) and Great Basin gopher snake (*Pituophis catenifer deserticola*). Additional reptilian species that have potential to occur on-site include desert horned lizard (*Phrynosoma platyrhinos calidiarum*), great basin whiptail (*Aspidoscelis tigris tigris*), southwestern speckled rattlesnake (*Crotalus mitchellii pyrrhus*), and western zebra-tailed lizard (*Callisaurus draconoides rhodostictus*), Great Basin collard lizard (*Crotaphytus* *bicinctores*), northern Mohave rattlesnake (*Crotalus scutulatus scutulatus*) and Great Basin gopher snake (*Pituophis catenifer deserticola*). It should be noted that no desert tortoise or signs were observed during the field investigation.

4.3.4 Birds

The plant communities supported by the project site provide suitable foraging and nesting habitat for a variety of resident and migrant bird species adapted to conditions within the Mojave Desert. Avian species detected during the survey included red-tailed hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferans*), common raven (*Corvus corax*), mourning dove (*Zenaida macroura*), and house finch (*Haemorhous mexicanus*).

4.3.5 Mammals

The plant communities supported by the project site provide suitable foraging and denning habitat for a variety of mammalian species adapted to conditions within the Mojave Desert. Most mammal species are nocturnal and are difficult to observe during a diurnal field visit. The only mammalian species observed during the field investigation were white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), kangaroo rat (*Dipodomys* sp.), and coyote (*Canis latrans*). Common mammalian species that have the potential to occur on-site include black-tailed jackrabbit (*Lepus californicus*). Common mammalian species that have potential to occur on-site include desert woodrat (*Neotoma lepida*), desert cottontail (*Sylvilagus audubonii*), and coyote (*Canis latrans*). No bat species are expected to occur due to a lack of suitable roosting habitat (i.e., trees, crevices, abandoned structures) within and surrounding the project site.

4.4 NESTING BIRDS

No active nests or birds exhibiting nesting behaviors were observed during the field survey, which was conducted during the nesting season. The creosote bush scrub and Joshua tree woodland plant communities on-site provide suitable foraging and nesting habitat for year-round and seasonal avian residents, as well as migrating songbirds that have adapted to conditions in the Mojave Desert. A pre-construction nesting bird clearance survey shall be conducted within three (3) days prior to ground disturbance to ensure no nesting birds will be impacted from proejct implementaiton.

4.5 WILDLIFE CORRIDORS AND LINKAGES

Habitat linkages provide links between larger undeveloped habitat areas that are separated by development. Wildlife corridors are similar to linkages but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet inadequate for others. Wildlife corridors are significant features for dispersal, seasonal migration, breeding, and foraging. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

According to the San Bernardino County General Plan, the project site has not been identified as occurring within a Wildlife Corridor or Linkage. Although partially constrained by the California Aqueduct, culverts and crossings are present under the Aqueduct that allow for local wildlife to move north and south of the Aqueduct. In addition, while the site is further constrained by nearby development (i.e. State Route 18 and surrounding residential development, the open and natural habitats on and surrounding the project site allow for local wildlife to move from the project site into the undeveloped areas surrounding the site in search of food, shelter, or nesting habitat. As designated by the San Bernardino County General Plan Open Space Element, the nearest major open space areas or regional wildlife corridors to the project site include Lone Pine Canyon and Cajon Canyon, located approximately 10.4 miles southeast of the site.

The project site is separated from these identified regional wildlife corridors and linkages by existing development and roadways, and undeveloped land; however, there are no riparian corridors or creeks connecting the project site to these areas. The undeveloped land in the immediate vicinity of the project site provides local wildlife movement opportunities for wildlife species moving through the immediate area. The project site does not function as a major wildlife movement corridor or linkage. As such, implementation of the proposed project is not expected to have a significant impact to wildlife movement opportunities or prevent local wildlife movement through the area since there is ample habitat adjacent to the project site to support wildlife movement opportunities.

4.6 STATE AND FEDERAL JURISDICTIONAL AREAS

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates discharge of dredge and/or fill materials into “waters of the United States” pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the Regional Board regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act and the CDFW regulates alterations to streambed and associated plant communities pursuant to Section 1602 of the California Fish and Game Code.

The USFWS NWI and the USGS National Hydrography Dataset were reviewed to determine if any blueline streams or riverine resources have been documented within or immediate surrounding the project site. Based on this review, two (2) riverine resource were identified within the survey area: one identified as La Montaine Creek, which flows through the middle of the project site; and one unnamed feature that extends from the box culvert under the California Aqueduct.

Based on a review of historic aerials 1952 to 1968, La Montaine Creek historically flowed across the project site from south to north. Then in 1974, when the California Aqueduct is first observed in historic aerials, La Montaine Creek was cut off by the installation of the aqueduct and water flow within La Montaine Creek terminated at the aqueduct and no longer reached the project site. During the installation of the Aqueduct, a box culvert was installed under the Aqueduct approximately 550 feet southwest of the southwest corner of the project site that is an emergency outlet and only conveys flows during large flash flood events. This box culvert, under the aqueduct, diverts water away from the project site and La Montaine Creek to the northwest. Then in the 1994 aerial photographs, a rural residential community is first observed, which further eliminated water flows within La Montaine Creek, south of the California Aqueduct, outside of the project footprint. The residential community, south of the aqueduct, has further reduced, if not eliminated the potential for water to reach the emergency box culvert. As a result, water flows out of the San Gabriel Mountains are not expected to flow north of the aqueduct and reach the project site.

During the field survey, ELMT carefully assessed the site for depressions, inundation, presence of hydrophytic vegetation, staining, cracked soil, ponding, and indicators of active surface flow and corresponding physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris. Suspected jurisdictional areas were checked for the presence of definable channels, soils, and hydrology. No evidence (i.e., water staining, wrack lines, sediment deposits) of regular flows along the length of the historic drainage features were observed. Further, no ponding/standing water was observed onsite. The historic features do not support riparian vegetation or suitable habitat for special-status wildlife species and does not function as a wildlife movement corridor or linkage.

The historic braded channels of Montaine Creek continue to be observed onsite, but are maintained by off-road vehicle use, which has created dirt access roads in the place of the drainage features. The continued off-road vehicle activities and illegal dumping further alter the historic drainage patterns across the site. Without the frequent off-road vehicle use upland vegetation would be expected to establish in the historic drainages. As a result, of the installation of the California Aqueduct, development of the residential community south of the aqueduct, and off-road vehicle use, the historic drainage features onsite have been effectively cut off and no longer convey upstream water flows and would not be considered jurisdictional.

4.7 SPECIAL-STATUS BIOLOGICAL RESOURCES

The CNDDB Rarefind 5, CNDDB Quickview Tool in BIOS and the CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California were queried for reported locations of special-status plant and wildlife species as well as special-status natural plant communities in the Mescal Creek, El Mirage, Shadow Mountain SE, and Phelan USGS 7.5-minute quadrangles. These four quadrangles were queried due to the proximity of the project site to quadrangle boundaries, surrounding development, and regional topography. The habitat assessment evaluated the conditions of the habitat(s) within the boundaries of the project site to determine if the existing plant communities, at the time of the survey, have the potential to provide suitable habitat(s) for special-status plant and wildlife species.

The literature search identified twenty-nine (29) special-status plant species and twenty-six (26) special-status wildlife species as having the potential to occur within the Mescal Creek, El Mirage, Shadow Mountain SE, and Phelan quadrangles. No special-status plant communities were identified within these quadrangles. Special-status plant and wildlife species were evaluated for their potential to occur within the project boundaries based on habitat requirements, availability and quality of suitable habitat, and known distributions. Species determined to have the potential to occur within the general vicinity are presented in *Table B-1: Potentially Occurring Special-Status Biological Resources*, provide in Appendix B. Refer to Table B-1 for a determination regarding the potential occurrence of special-status plant and wildlife species within the project site.

4.7.1 Special-Status Plants

According to the CNDDB and CNPS, twenty-nine (29) special-status plant species have been recorded in Mescal Creek, El Mirage, Shadow Mountain SE, and Phelan quadrangles (refer to Appendix B). The only special-status plant species observed on-site was western Joshua tree (*Yucca brevifolia*; CNPS N/A). No other special-status plant species were observed on-site during the field investigation, which was conducted during the blooming period for most of the special-status plant species known to occur in the vicinity of the site. Based on habitat requirements for the identified special-status species, and known distributions, it was determined that the creosote bush scrub and Joshua tree woodland plant communities found onsite have a low potential to support white pygmy-poppy (*Canbya candida*; CNPS 4.2), Mojave paintbrush (*Castilleja plagiotoma*; CNPS 4.3), Torrey's box-thorn (*Lycium torreyi*; CNPS 4.2), crowned muilla (*Muilla coronata*; CNPS 4.2), and short-joint beavertail (*Opuntia basilaris* var. *brachyclada*; CNPS 1B.1). It was further determined that the project site does not have the potential to support any of the other special-status plant species documented as occurring within the vicinity of the project site. Of these special-status plant species are not federally or state listed, they are listed as CNPS Rare Plant Rank Species, with the exception of western Joshua tree which is a candidate for listing by the State.

White pygmy-poppy, Torrey's box-thorn, crowned muilla, and Mojave paintbrush are CNPS Rare Plant Rank 4 species, which is a watch list of plants of limited distribution and are fairly common in the Mojave Desert. These species are not regulated under the federal or state Endangered Species Acts. In an effort to increase coverage for unlisted but regionally sensitive plants under the California Environmental Quality Act (CEQA), the CNPS began publishing sensitivity rankings for special-status plant species. These species, therefore, do not rise to the level of a species of concern under CEQA. Project impacts to white pygmy-poppy, Torrey's box-thorn, crowned muilla, and Mojave paintbrush, if found, would therefore be less than significant, and no mitigation is required.

Short-joint beavertail is designated as a CNPS Rare Plant Rank 1B.2 (plants considered rare, threatened or endangered in California and elsewhere) species. No short-joint beavertail was observed on-site. Therefore, no focused surveys or additional mitigation are recommended.

4.7.2 Special-Status Wildlife

According to the CNDDB, twenty-six (26) special-status wildlife species have been reported in the Mescal Creek, El Mirage, Shadow Mountain SE, and Phelan quadrangles (refer to Appendix B). No special-status wildlife species were observed on-site during the habitat assessment. Based on habitat requirements for specific species and the availability and quality of on-site habitats, it was determined that the proposed project site has a moderate potential to provide suitable habitat for Costa's hummingbird (*Calypte costae*), and loggerhead shrike (*Lanius ludocivianus*). It was further determined that the project site does not have the potential to support any of the other special-status wildlife species known to occur in the vicinity of the project site.

None of the aforementioned special-status wildlife species are federally or state listed as endangered or threatened. In order to ensure impacts to Costa's hummingbird and loggerhead shrike do not occur as a result of project implementation, a pre-construction nesting bird clearance survey shall be conducted prior to ground disturbing activities. With implementation of the pre-construction clearance survey, impacts to these species will be less than significant and no mitigation will be required.

Based on regional significance, the potential occurrence of Mohave ground squirrel (*Xerospermophilus mohavensis*) is described in further detail below.

<u>Mohave ground squirrel</u>

The Mohave ground squirrel is endemic to the western Mojave Desert, California. It occupies portions of Inyo, Kern, Los Angeles, and San Bernardino counties in the western Mojave Desert. In general, the species ranges from near Palmdale on the southwest to Lucerne Valley on the southeast, Olancha on the northwest and the Avawatz Mountains on the northeast (Gustafson 1993). The historical range of suitable habitat for this species as decreased by 10 to 16% due to urbanization and range-wide declines in trapping success over the last few decades suggesting that their populations are declining. This species was listed as threatened under the California Endangered Species Act in 1985.

The Mohave ground squirrel is a medium-sized ground squirrel that measures 8.3 to 9.1 inches (in; 21 to 23 centimeters; cm) in total length, 2.2 to 2.8 in (5.7 to 7.2 cm) in tail length, and 1.3 to 1.5 in (3.2 to 3.8 cm) in hind foot length (Hall 1981). The Mohave ground squirrel occupies all major desert scrub habitats in the western Mojave Desert. It has been observed in the following habitats described by Holland (1986) as:

- Mojave creosote scrub, dominated by creosote bush and burrobush,
- Desert saltbush scrub, dominated by various species of saltbush (*Atriplex*),
- Desert sink scrub, which is similar in composition to saltbush scrub, but is sparser and grows on poorly drained soils with high alkalinity,
- Desert greasewood scrub, with very sparse vegetation generally located on valley bottoms and dry lake beds,
- Shadscale scrub, which is dominated by *Atriplex confertifolia* and/or *A. spinescens,* and
- Joshua tree woodland, which includes Joshua trees widely scattered over a variety of shrub species (Gutafson 1993).

Mohave ground squirrel was not observed during the field investigation. Although a focused trapping survey was not performed, the habitat assessment conducted for this report and review of available information provided, allowed ELMT to offer its professional opinion as to the presence or absence of this species within the proposed project footprint.

Three criteria are typically used in assessing potential impacts to the Mohave ground squirrel:

Criteria 1: Is the site within the range of the species?

Per the San Bernardino County Biotic Resources Map (2012) and *Current Status of the Mohave Ground Squirrel* (Leitner 2010) the project site is within the historic range of Mohave ground squirrel. Although the project site is located within the historic range for Mohave ground squirrel, the site is at the southernmost portion of the range. Further, the site is not located within any core areas identified by Philip Leitner as documented in the 2010 report, "Current Status of the Mohave Ground Squirrel: A Five-Year Update (2008-2012)" (2015) and "Current Status of the Mohave Ground Squirrel: An Update Covering the Period 2013-2020 (2021). Further, the project site is not located within or immediately adjacent to any corridors or other known populations identified by Leitner.

The project site and immediate vicinity are dominated by plant communities Mohave ground squirrel are associated with but are heavily disturbed by off road vehicle use and illegal dumping. Based on the data provided in "Current Status of the Mohave Ground Squirrel: A Five-Year Update (2008-2012)" MGS have not been detected in the immediate vicinity of the project site during protocol grid and regional surveys (Exhibit 6, *MGS Observations*). The closest documented Mohave ground squirrel was captured approximately 13 miles northeast of the project site at a solar project site near Adelanto between 2008-2012 (Leitner 2015), and approximately 22 miles north of the project site near the Los Angeles/San Bernardino/Kern County borders. The area in the immediate vicinity of the project site has been surveyed to protocol level and regionally on several occasions, yet all of the surveys have been negative for Mohave ground squirrel in the vicinity of the project site.

Criteria 2: Is there native habitat with a relatively diverse shrub component?

There is native habitat with a relatively low diversity in shrub components within the boundaries of the project. The project site and immediate vicinity are dominated by creosote bush scrub and Joshua tree woodland plant communities that are favored by Mohave ground squirrel. However, the area is heavily disturbed by off road vehicle use and illegal dumping. Adequate cover and forage for Mohave ground squirrel appeared to be limited within and around the study site. Further, no winterfat (*Eurotia lanata*), nor spiny hopsage (*Grayia spinosa*) were found on the study site which are two plant species that are considered important forage for Mohave ground squirrel. Dr. Leitner postulated, based on trapping surveys in the southern portion of the Mohave ground squirrel range, that densities of < 24/ha for spiny hopsage and < 100/ha of winterfat on a site was considered poor forage and may be related to the absence of Mohave ground squirrel. Further, no wildlife corridors are expected to exist between the closest core MGS population and the project site. The maximum documented movement of MGS is 3.9 miles (Harris and Leitner 2005). Therefore, while the site provides native habitat, the urban disturbances, and location from core populations reduces the potential for Mohave ground squirrel to occupy the project site.

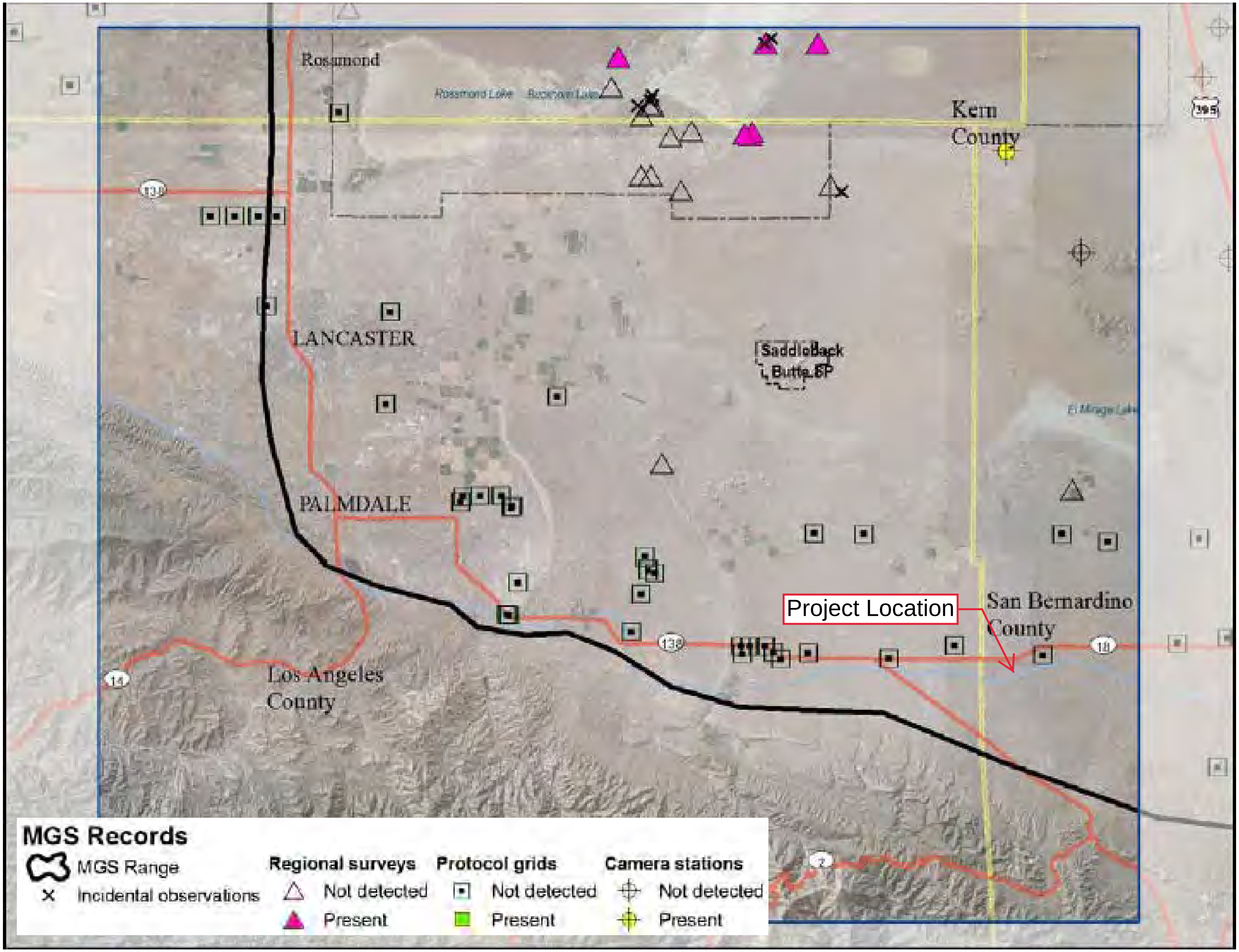
Criteria 3: Is the site surrounded by development and therefore isolated from potentially occupied habitat?

The project site is immediate bounded by undeveloped, vacant land to the west, east, and north that primarily supports native desert scrub plant communities, and to the south by the California Aqueduct. However, residential land uses exist in low densities approximately 1,000 feet to the north and east of the project site, and the California Aqueduct exists immediately to the south of the Project site. Surrounding development likely isolates the site from potentially occupied habitat.

Based on habitat requirements for Mohave ground squirrel, known distributions, site conditions, and regional trapping studies, it was determined this species is presumed absent from the project site. Trapping surveys for Mohave ground squirrel are not recommended.

4.8 CRITICAL HABITAT

Under the federal Endangered Species Act, "Critical Habitat" is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. All federal agencies are required to consult with the United States Fish and Wildlife Service (USFWS)



MOJAVE WATER AGENCY'S OESTE RECHARGE BASINS PROJECT
HABITAT AND JURISDICTIONAL ASSESSMENT

MGS Locations

Exhibit 6

Not to Scale

Source: Current Status of the Mohave Ground Squirrel: A Five-Year Update (Phil Leitner), San Bernardino County regarding activities they authorize, fund, or permit which may affect a federally listed species or its designated Critical Habitat. The purpose of the consultation is to ensure that projects will not jeopardize the continued existence of the listed species or adversely modify or destroy its designated Critical Habitat. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing is on federal lands, uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highways Administration or a CWA Permit from the Corps). If a there is a federal nexus, then the federal agency that is responsible for providing the funding or permit would consult with the USFWS.

The project site is not located within federally designated Critical Habitat. Further, the closest Critical Habitat designation is located approximately 8.7 miles southeast of the project site for mountain yellow legged frog (*Rana muscosa*) (Exhibit 7, *Critical Habitat*). Therefore, no impacts to federally designated Critical Habitat will occur from implementation of the proposed project.

4.9 JOSHUA TREE INVENTORY

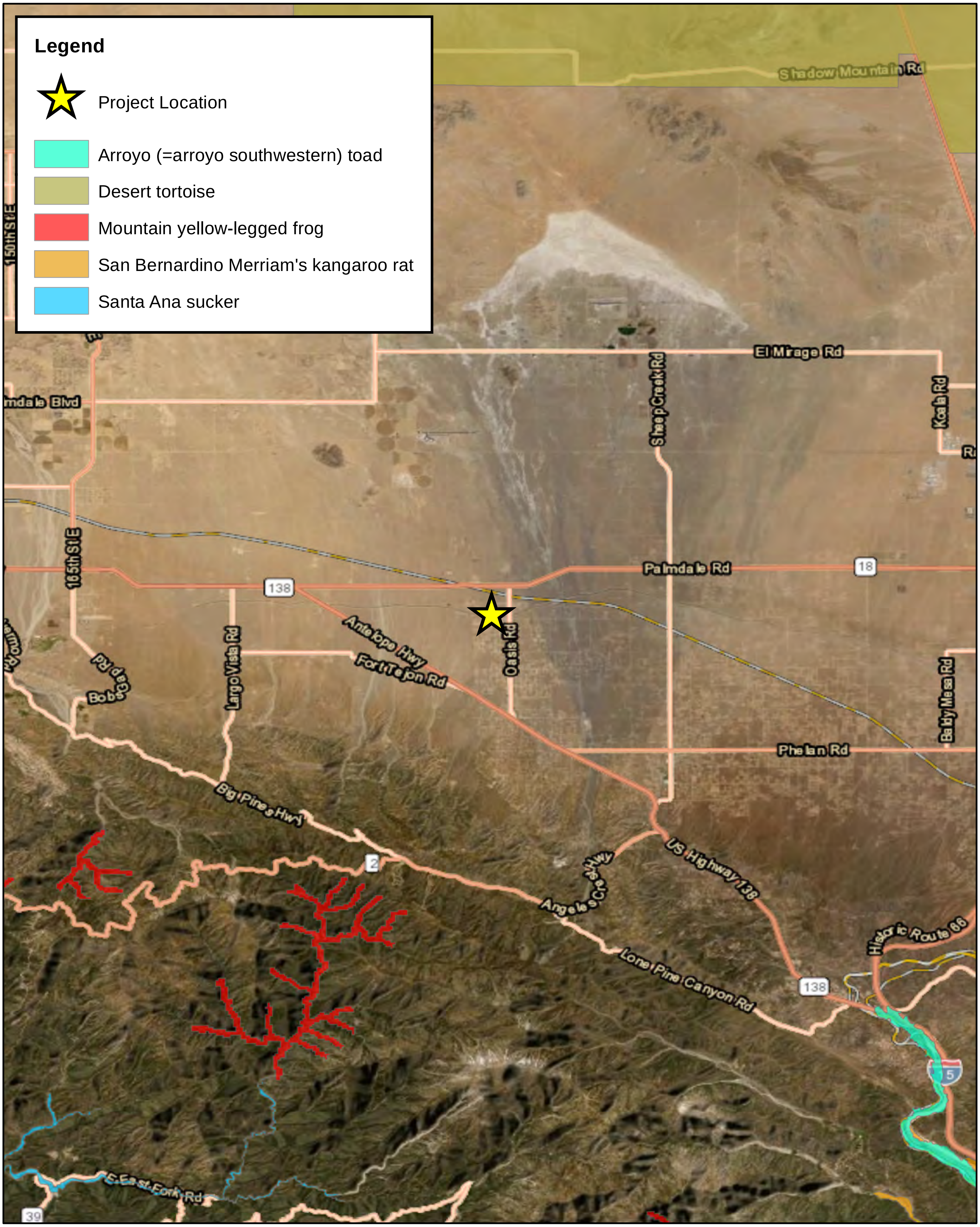
Species Background

Joshua tree habitats are characterized as open woodlands of widely scattered Joshua trees with a low to more or less dense community of broad-leaved evergreen and deciduous shrubs found in Desert Scrub habitats. This species is endemic to the Mojave Desert and occupies an elevation range of 1,600 and 6,660 feet above mean sea level. This species is recognized in several vegetation communities in varying densities. Known occupied communities include sagebrush scrub, desert shrub, southwestern shrubsteppe, pinyon-juniper woodland, and desert grasslands. When this species is dominant in high densities, the occupied habitat may be classified as a Joshua tree woodland, although densities are typically low due to their extensive and competitive root systems. Mature size varies greatly due to irregular branching, and large individuals can exceed 40 feet in height. Like other large members of family Agavaceae, western Joshua trees grow slowly, with estimated growth rates ranging from 2.3 to 4.6 inches per year depending on individual age and conditions. Western Joshua trees are long-lived species, with most estimates of average lifespan ranging from 150 to 300 years, although some estimates exceed 700 years. The largest known western Joshua tree exceeds 60 feet in height and is an estimated 1,000 years old. Like other long-lived plant species, seed production occurs very slowly and irregularly, although rhizome production and clonal growth can occur. Western Joshua trees are only known to be pollinated by once species: the yucca moth (*Tegeticula synthetica*).

Survey Results

A total of one hundred twenty (120) western Joshua trees in three size categories were recorded within the boundaries of the project site. There were thirty-three (33) trees less than one meter in height, seventy-five (75) trees one meter to less than five meters in height, and twelve (12) trees over five meters in height. Exhibit 8, *Joshua Tree Locations,* shows the location of each western Joshua tree and the corresponding height category.

In accordance with Section 2081 subdivision (b) of the California Fish and Game Code, a take permit will need to be prepared and process for impacts to western Joshua trees.



MOJAVE WATER AGENCY'S OESTE RECHARGE BASINS PROJECT
HABITAT AND JURISDICTIONAL ASSESSMENT

Criitcal Habitat

Feet

Source: ESRI Aerial Imagery, USFWS Critical Habitat, San Bernardino County

Exhibit 7

MOJAVE WATER AGENCY'S OESTE RECHARGE BASINS PROJECT
HABITAT AND JURISDICTIONAL ASSESSMENT

Joshua Tree Locations

Exhibit 8

Source: ESRI Aerial Imagery, San Bernardino County

4.10 DESERT TORTOISE PRESENCE/ABSENCE SURVEY

Species Background

The Mojave population of the desert tortoise was listed as Threatened on April 2, 1990 and a recovery plan was published in June 1994 (revised May 2011) to describe a strategy for recovering the Mojave population of the desert tortoise including the identification of five recovery units, recommendations for a system of Desert Wildlife Management Areas (DWMAs) within the recovery units, and development and implementation of specific recovery actions, especially within DWMAs. The establishment of recovery units and DWMAs was intended to facilitate an ecosystem approach to land management and desert tortoise recovery. Based on the 2018 Revised Recovery Plan, the survey area is located within the Western Mojave Recovery Unit, but is not located within any designated DWMAs. Additionally, the survey area is not located within designated Critical Habitat for the desert tortoise and no desert tortoise have been recorded on the project site.

The Mojave population of the desert tortoise inhabits areas north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, and southwestern Utah, and in the Sonoran Desert in California. Throughout the majority of the Mojave Desert, desert tortoises occur most commonly on gentle sloping soils characterized by an even mix of sand and gravel and sparsely vegetated low-growing vegetation where there is abundant inter-shrub space. Typical habitat for the Mojave desert tortoise has been characterized as creosote bush scrub below 5,500 feet in elevation with a high diversity of perennial and ephemeral plants. The dominant shrub commonly associated with desert tortoise habitat is creosote bush (*Larrea tridentata*); however, other shrubs including burrobush (*Ambrosia dumosa*), Mojave yucca (*Yucca schidigera*), cheesebush (*Ambrosia salsola*), and Mojave prickly-pear (*Opuntia mojavensis*) also provide suitable habitat. The desert tortoise spends 95 percent of its life underground and will opportunistically utilize burrows of various lengths, deep caves, rock and caliche crevices, or overhangs for cover. Therefore, a moderately friable soil is required to allow for burrow construction and ensure that burrows do not collapse.

Survey Results

Despite a systematic search of the project site, no live tortoises, suitable burrows, or signs were observed on the project site during the presence/absence survey. The plant communities found on the project site and on-site topography provide suitable foraging and burrowing habitat for desert tortoises. However, adjacent and nearby development (i.e. California Aqueduct, surrounding paved highways, boundary fencing associated with surrounding residential development), the project site and adjacent habitats have been sufficiently fragmented to preclude sustainable desert tortoise populations from the area. In addition, decades of anthropogenic disturbance such as illegal dumping and off-road vehicle use precluded the project site from supporting desert tortoise. Based on the results of the focused survey, desert tortoise is presumed absent from the project stie.

However, out of an abundance of caution, a pre-construction desert tortoise clearance surveys should be conducted prior to ground disturbing activities to ensure no desert tortoise occur within the limits of disturbance.

4.11 BURROWING OWL HABITAT SUITABILITY ASSESSMENT

Species Background

Burrowing owl is currently designated as a CDFW California Species of Special Concern. It is a grassland specialist distributed throughout western North America where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments with level to gently-sloping areas characterized by open vegetation and bare ground. Burrowing owls rarely dig their own burrows and are instead dependent upon the presence of burrowing mammals (i.e., ground squirrels, coyotes, and badgers) whose burrows are often used for roosting and nesting. The presence or absence of colonial mammal burrows is often a major factor that limits the presence or absence of burrowing owls. Where mammal burrows are scarce, burrowing owls have been found occupying man-made cavities, such as buried and non-functioning drain pipes, stand-pipes, and dry culverts. They also require low growth or open vegetation allowing line-of-sight observation of the surrounding habitat to forage as well as watch for predators. In California, the burrowing owl breeding season extends from the beginning of February through the end of August.

Survey Results

Despite a systematic search of the project site, no burrowing owls or sign (i.e., pellets, feathers, castings, or whitewash) were observed during the field investigation. The project site lacks suitable burrows (>4 inches in diameter) capable of providing roosting and nesting opportunities for burrowing owls. Further, the tall vegetation onsite limits line-of-sight opportunities favored by burrowing owl. Based on the results of the field investigation, it was determined that the project site does not have the potential to support burrowing owls and focused surveys are not recommended.

Section 5 Conclusion and Recommendations

The project site is located in a largely undeveloped area in unincorporated northern Pinon Hills. The site is surrounded immediately by undeveloped, vacant land to the east, north, and west, and the California Aqueduct to the south. Beyond these immediate land uses, the site is further surrounded in all directions by undeveloped, vacant land and residential parcels in varying densities. During the field investigation, two (2) plant communities were observed within the boundary of the project site: creosote bush scrub and Joshua tree woodland. In addition, one (1) land cover type that would be classified as disturbed was observed on-site.

Special-Status Plant Species

The only special-status plant species observed on-site was western Joshua tree. No other special-status plant species were observed on-site during the field investigation, which was conducted during the blooming period for most of the special-status plant species known to occur in the vicinity of the site. Based on habitat requirements for the identified special-status species, and known distributions, it was determined that the project site has a low potential to support white pygmy-poppy, Mojave paintbrush, Torrey's box-thorn, crowned muilla, and short-joint beavertail. It was further determined that the plant communities supported by the project site do not have the potential to support any of the other special-status plant communities documented as occurring within the vicinity of the site and are presumed absent.

A total of 120 western Joshua trees in three size categories were recorded within the boundaries of the project site. In association with Section 2081 subdivision (b) of the California Fish and Game Code, a take permit will need to be prepared and process for impacts to western Joshua trees.

Special-Status Wildlife Species

No special-status wildlife species were observed on-site during the field investigation. Based on habitat requirements for specific species and the availability and quality of on-site habitats, it was determined that the proposed project site has a moderate potential to provide suitable habitat for Costa's hummingbird and loggerhead shrike. It was further determined that the project site does not provide suitable habitat for any of the other special-status wildlife species known to occur in the vicinity of the site.

In order to ensure impacts to the aforementioned species do not occur from implementation of the project, a pre-construction nesting bird clearance survey shall be conducted prior to ground disturbance, BIO-1 below. Additionally, out of abundance of caution, a pre-construction desert tortoise clearance survey, BIO-2 below, is recommended to ensure desert tortoise remain absent from the project site.

BIO-1: Pre-Construction Nesting Bird Clearance Survey

All construction activities shall comply with the federal Migratory Bird Treaty Act of 1918 (MBTA) and California Fish and Game Code Sections 3503, 3511 and 3513. The MBTA governs the taking and killing of migratory birds, their eggs, parts, and nests and prohibits the take of any migratory bird, their eggs, parts, and nests. Compliance with the MBTA shall be accomplished by completing the following:

Construction activities involving vegetation removal shall be conducted between September 1 and January 31. If construction occurs inside the peak nesting season (between February 1 and August 31), a pre-construction survey by a qualified Biologist shall be conducted within 72 hours prior to construction activities to identify any active nesting locations. If the Biologist does not find any active nests, the construction work shall be allowed to proceed. The biologist conducting the clearance survey shall document a negative survey with a report indicating that no impacts to active avian nests shall occur.

If the Biologist finds an active nest within the pre-construction survey area and determines that the nest may be impacted, the Biologist shall delineate an appropriate buffer zone around the nest. The size of the buffer shall be determined by the Biologist and shall be based on the nesting species, its sensitivity to disturbance, expected types of disturbance, and location in relation to the construction activities. These buffers are typically 300 feet from the nests of non-listed species and 500 feet from the nests of raptors and listed species. Any active nests observed during the survey shall be mapped on an aerial photograph. Only construction activities (if any) that have been approved by a Biological Monitor shall take place within the buffer zone until the nest is vacated. The Biologist shall serve as a Construction Monitor when construction activities take place near active nest areas to ensure that no inadvertent impacts on these nests occur. Results of the pre-construction survey and any subsequent monitoring shall be provided to the Property Owner/Developer and the City. The monitoring report shall summarize the results of the nest monitoring, describe construction restrictions currently in place, and confirm that construction activities can proceed within the buffer area without jeopardizing the survival of the young birds.

BIO-2: *Pre-Construction Desert Tortoise Clearance Survey*

A pre-construction clearance survey be conducted thirty (30) days prior to ground disturbing areas in undeveloped areas to confirm the absence of desert tortoise within the boundaries of the survey area. Survey transects should be spaced at 10-meter (33-foot) intervals throughout the undeveloped portions of the project area to provide 100 percent visual coverage and increase the likelihood of locating desert tortoise and/or sign. All burrows, if present, will be thoroughly inspected for the presence of desert tortoise or evidence of recent use using non-intrusive methods (i.e., mirror, digital camera). Burrow characteristics including class, shape, orientation, size, and evidence of deterioration will be recorded on field data sheets.

Although not anticipated, if desert tortoise are found onsite during the pre-construction clearance survey, coordination will need to occur with the USFWS and CDFW to determine if avoidance and minimization measures can be implemented to avoid any direct or indirect impacts to desert tortoise, or if “Take” permits will need to be obtained prepared and approved by the USFWS and CDFW.

Riparian Habitat and Special-Status Natural Communities

No riparian habitat or special-status natural communities were observed onsite. As a result, of the installation of the California Aqueduct, development of the residential community south of the aqueduct, and off-road vehicle use, the historic drainage features that occurred onsite have been effectively cut off and no longer convey upstream water flows and would not be considered jurisdictional.

Wildlife Corridors

The project site is separated from regional wildlife corridors and linkages by existing development, roadways, and undeveloped land; however, there are no riparian corridors or creeks connecting the project site to these areas. The undeveloped land in the immediate vicinity of the project site provides local wildlife movement opportunities for wildlife species moving through the immediate area. The project site does not function as a major wildlife movement corridor or linkage. As such, implementation of the proposed project is not expected to have a significant impact to wildlife movement opportunities or prevent local wildlife movement through the area since there is ample habitat adjacent to the project site to support wildlife movement opportunities. Due to the lack of any identified impacts to wildlife movement, migratory corridors or linkages or native wildlife nurseries, no mitigation is required.

Local, Regional, and State Plans

The project site is not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan. Therefore, impacts to any local, regional, or state habitat conservation plans are not expected to occur from development of the proposed project, and mitigation is not required.

Certain desert plant species (i.e. silver cholla [*Cylindropuntia echinocarpa*])–Joshua trees and Mojave yuccas (*Yucca schidigera*) are regulated pursuant to Section 88.01.060 of the San Bernardino County Development Code and Section 80073 of the California Desert Native Plant Act. Therefore, impacts to these species should be avoided in all instances. In the event that avoidance is not feasible, the project applicant will be required to obtain a Tree or Plant Removal Permit from the County of San Bernardino, in addition to an ITP for Joshua tree, prior to removal of any regulated tree or plant.

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Appendix A Site Photographs

Photograph 1: From the northwest corner of the project site looking south along the western boundary.

Photograph 2: From the northwest corner of the project site looking east along the northern boundary.

Photograph 3: From the northeast corner of the project site looking west along the northern boundary.

Photograph 4: From the northeast corner of the project site looking south along the eastern boundary.

Photograph 5: From the southeast corner of the project site looking northwest.

Photograph 6: From the southwest portion of the project site looking east along the southern boundary.

Photograph 7: From the southwest portion of the project site looking north along the western boundary.

Photograph 8: From the southwest corner of the project site looking south towards the California Aqueduct.

Photograph 9: From the southwest corner of the project site looking east along the access road that borders the southern boundary.

Photograph 10: A stand of western Joshua trees that includes trees within each of the three size categories.

Appendix B Potentially Occurring Special-Status Biological Resources

Table B-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat Description	Observed On-site	Potential to Occur
SPECIAL-STATUS WILDLIFE SPECIES				
Ammospermophilus nelsoni Nelson's antelope squirrel	Fed: None CA: **THR**	Endemic to the southern floor of the San Joaquin Valley, the Cuyama and Panoche valleys in San Luis Obispo County, and the Carrizo and Elkhorn Plains of the United States. Found in arid grasslands and shrublands with light to medium vegetation density. Prefers alkaline, loamy soils from 160 to 3,600 feet in elevation. This species utilizes kangaroo rat burrows.	No	**Presumed Absent** Marginal habitat is present within the project site; however the project site occurs outside of the known range for this species.
Anaxyrus californicus arroyo toad	Fed: **END** CA: SSC	Typically found in sandy and/or gravelly washes and creeks with moderate in-stream vegetation dominated by willows (*Salix* sp.) and mulefat (*Baccharis salicifolia*). Will forage along the bases of in-stream vegetation or at the bases of trees, including California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), or oaks (*Quercus* spp.). Typically breeds in waters that are still or slowly moving, generally around six to eight inches in depth. Burrows along sandy terraces but may in some cases burrow directly in streambeds.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Aspidoscelis tigris stejnegeri coastal whiptail	Fed: None CA: SSC	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage such as chaparral, woodland, and riparian areas.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Athene cunicularia burrowing owl	Fed: None CA: SSC	Prefers habitat with short, sparse vegetation with few shrubs and well-drained soils in grassland, shrub steppe, and desert habitats. Primarily a grassland species, but it persists and even thrives in some landscapes highly altered by human activity. Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. The overriding characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation.	No	**Presumed Absent** The project site provides line-of-sight opportunities favored by burrowing owls. However, the site lacks suitable burrows (>4 inches in diameter) for roosting. No burrowing owls and/or sign were observed during the field investigation.
Bombus crotchii Crotch bumble bee	Fed: None CA: **CE**	Colonial species that lives almost exclusively from coastal California east towards the Sierra-Cascade Crest and can be found uncommonly in western Nevada and south through Baja California. Inhabits grassland and scrub habitats in hotter and drier climates than most other bumblebee species and is only capable of tolerating a narrow range of climatic conditions. Feeds on a variety of annual and perennial plant species, classifying it as a dietary generalist. This species usually nests underground, often in abandoned rodent dens.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	**Status**	**Habitat Description**	**Observed On-site**	**Potential to Occur**
Calypte costae Costa's hummingbird	Fed: None CA: None	Desert and semi-desert, arid brushy foothills and chaparral. A desert hummingbird that breeds in the Sonoran and Mojave Deserts. Departs desert heat moving into chaparral, scrub, and woodland habitats.	No	**Moderate** Suitable foraging and nesting habitat are present within the project site.
Chaetodipus fallax pallidus pallid San Diego pocket mouse	Fed: None CA: SSC	Commonly occurs in sandy herbaceous areas with a substrate consisting of rocks or course gravel. Prefers chaparral but also occurs in desert wash, desert scrub, succulent scrub, annual grassland, and pinyon juniper woodland.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Chaetura vauxi Vaux's swift	Fed: None CA: SSC	Prefers redwood and Douglas-fir habitats with nest-sites in large hollow trees and snags, especially tall, burned-out snags. Fairly common migrant throughout most of the state in April and May, and August and September.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Eremophila alpestris actia California horned lark	Fed: None CA: WL	Generally found in shortgrass prairies, grasslands, disturbed fields, or similar habitat types along the coast or in deserts. Trees are shrubs are usually scarce or absent. Generally rare in montane, coniferous, or chaparral habitats. Forms large flocks outside of the breeding season.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Eumops perotis californicus western mastiff bat	Fed: None CA: SSC	Primarily a cliff-dwelling species, roost generally under exfoliating rock slabs. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least 3 meters below the entrance for flight. In California, it is most frequently encountered in broad open areas. Its foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Euphydryas editha quino quino checkerspot butterfly	Fed: **END** CA: None	Range is now limited to a few populations in Riverside and San Diego counties. Common in meadows and upland sage scrub/chapparal habitat.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Gopherus agassizii Mojave desert tortoise	Fed: **THR** CA: **THR**	Occurs in desert scrub, desert wash, and Joshua tree habitats with friable, sandy, well-drained soils for nest and burrow construction. Highest densities occur in creosote bush scrub with extensive annual wildflower blooms and succulents with little to no non-native plant species.	No	**Presumed Absent** Suitable foraging and burrowing habitat are present within and adjacent to the project site. No desert tortoise, burrows, or sign were observed during the field investigation, which included a desert tortoise Presence/Absence Survey.
Juniperella mirabilis juniper metallic wood-boring beetle	Fed: None CA: None	Found among belts of juniper woodland flanking the inland slopes of the Transverse and Peninsular ranges of southern California. Larvae mine the roots and trunks of juniper trees (*Juniperus californica*), boring under the bark and outer sapwood, where pupation occurs. Adults emerge in summer from large, elliptical holes that are low to the ground and well-hidden by exfoliating bark. Adults rest among dense foliage.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	Status	Habitat Description	Observed On-site	Potential to Occur
Lanius ludovicianus loggerhead shrike	Fed: None CA: SSC	Prefers open habitats with bare ground, scattered shrubs, and areas with low or sparse herbaceous cover including open-canopied valley foothill hardwood, riparian, pinyon-juniper, desert riparian, creosote bush scrub, and Joshua tree woodland. Requires suitable perches including trees, posts, fences, utility lines, or other perches.	No	**Moderate** Suitable foraging and nesting habitat are present within the project site.
Microtus californicus stephensi south coast marsh vole	Fed: None CA: SSC	Utilizes marshy ground, saltwater and freshwater locations, wet meadows, coastal wetlands, and dry, grassy hillsides.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Myotis ciliolabrum western small-footed myotis	Fed: None CA: None	Rock outcrops on open grasslands to canyons in the foothills to lower mountains with yellow pine woodlands. Day roosts are variable, but include cracks and crevices in cliffs, beneath tree bark, in mines and caves, and occasionally in tunnels and dwellings of humans. Night roosts are under a variety of natural and human-induced structures.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Phrynosoma blainvillii coast horned lizard	Fed: None CA: SSC	Occurs in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest. In inland areas, this species is restricted to areas with pockets of open microhabitat, created by disturbance (i.e. fire, floods, roads, grazing, fire breaks). The key elements of such habitats are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Plebejus saepiolus aureolus San Gabriel Mountains blue butterfly	Fed: None CA: None	Occurs in bogs, roadsides, stream edges, open fields, meadows, and open forests. Larvae host plants include various clovers.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Selasphorus rufus rufous hummingbird	Fed: None CA: None	Breed in open or shrubby areas, forest openings, yards, and parks. During migration they are commonly found in disturbed areas where its food flowers are in bloom. Breeds in the northeastern United States and Canada.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Spinus lawrencei Lawrence's goldfinch	Fed: None CA: None	Open woodlands, chaparral, and weedy fields. Closely associated with oaks. Nests in open oak or other arid woodland and chaparral near water.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Spizella breweri Brewer's sparrow	Fed: None CA: None	Habitats include sagebrush and brushy plains.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Strix occidentalis occidentalis California spotted owl	Fed: None CA: SSC	Breeds and roosts in forests and woodland with large old trees and snags, high basal areas of trees and snags, dense canopies, multiple canopy layers, and downed woody debris. Large old trees are key as they provide nest sites and cover from weather.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	**Status**	**Habitat Description**	**Observed On-site**	**Potential to Occur**
Taxidea taxus American badger	Fed: None CA: SSC	Primarily occupy grasslands, parklands, farms, tallgrass and shortgrass prairies, meadows, shrub-steppe communities and other treeless areas with sandy loam soils where it can dig more easily for its prey. Occasionally found in open chaparral (with less than 50% plant cover) and riparian zones.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Toxostoma lecontei Le Conte's thrasher	Fed: None CA: SSC	An uncommon to rare, local resident in southern California deserts from southern Mono Co. south to the Mexican border, and in western and southern San Joaquin Valley. Occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat with scattered shrubs.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Vireo vicinior gray vireo	Fed: None CA: SSC	A common factor to the habitat type is shrub cover that forms a continuous zone of twig growth from one to five feet above the ground. Shrubbery may either be closed as in chaparral, or partly open, as in the understory of pinyon-juniper woodland.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Xerospermophilus mohavensis Mohave ground squirrel	Fed: None CA: **THR**	Restricted to the Mojave Desert in open desert scrub, alkali desert scrub, annual grassland, and Joshua tree woodland. Prefers sandy to gravelly soils and tends to avoid rocky areas. Occurs sympatrically with the white-tailed antelope squirrel.	No	**Presumed Absent** Suitable foraging and burrowing habitat are present within the project site. Based on surrounding development and known distributions and occurrences, this species is likely precluded from the site.
SPECIAL-STATUS PLANT SPECIES				
Acanthoscyphus parishii var. abramsii Abrams' oxytheca	Fed: None CA: None CNPS: 1B.2	Grows within chaparral (sandy or shale) habitat. Found at elevations ranging from 3,750 to 6,748 feet. Blooming period is from June to August.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Acanthoscyphus parishii var. parishii Parish's oxytheca	Fed: None CA: None CNPS: 4.2	Habitats include sandy or shale chaparral. Found at elevations ranging from 3,750 to 6,748 feet above mean sea level (msl). Blooming period is from June to August.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Astragalus bicristatus crested milk-vetch	Fed: None CA: None CNPS: 4.3	Grows in sandy or rocky, mostly carbonate soils within lower montane coniferous forest and upper montane coniferous forest habitats. Found at elevations ranging from 5,577 to 9,006 feet. Blooming period is from May to August.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.

Scientific Name Common Name	**Status**	**Habitat Description**	**Observed On-site**	**Potential to Occur**
Astragalus lentiginosus var. Antonius San Antonio milk-vetch	Fed: None CA: None CNPS: 1B.3	Grows within lower montane coniferous forest and upper montane coniferous forest habitats. Found at elevations ranging from 4,921 to 8,530 feet. Blooming period is from April to July.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Astragalus leucolobus Big Bear Valley woollypod	Fed: None CA: None CNPS: 1B.2	Grows in rocky soils withn lower montane coniferous forest, pebble (pavement) plain, pinyon and juniper woodland, and upper montane coniferous forest habitats. Found at elevations ranging from 3,609 to 9,465 feet. Blooming period is from May to July.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Calochortus palmeri* var. *palmeri Palmer's mariposa-lily	Fed: None CA: None CNPS: 1B.2	Occurs in meadows and seeps, chaparral, and lower montane coniferous forest in vernally moist places. From 3,281 to 7,841 feet in elevation. Blooming period is from April to July.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Calystegia peirsonii Peirson's morning-glory	Fed: None CA: None CNPS: 4.2	Grows within chaparral, chenopod scrub, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland habitats. Found at elevations ranging from 98 to 4,921 feet. Blooming period is from April to June.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Canbya candida white pygmy-poppy	Fed: None CA: None CNPS: 4.2	Occurs on gravelly, sandy, granitic soils in Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland. Found at elevations ranging from 2,297 to 5,249 feet above mean sea level (msl). Blooming period is from March to June.	No	**Low** Suitable habitat is present on-site. This species was not observed on-site during the field investigation, which was conducted during the blooming season for this species.
Castilleja plagiotoma Mojave paintbrush	Fed: None CA: None CNPS: 4.3	Grows within Great Basin scrub (alluvial), Joshua tree woodland, lower montane coniferous forest, and pinyon and juniper woodland habitats. Found at elevations ranging from 984 to 8,202 feet. Blooming period is from April to June.	No	**Low** Suitable habitat is present on-site. This species was not observed on-site during the field investigation, which was conducted during the blooming season for this species.
Cryptantha clokeyi Clokey's cryptantha	Fed: None CA: None CNPS: 1B.2	Grows within Mojavean desert scrub habitat. Found at elevations ranging from 2,379 to 4,478 feet. Blooming period is April.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Delphinium parishii ssp. subglobosum Colorado Desert larkspur	Fed: None CA: None CNPS: 4.3	Grows within chaparral, cismontane woodland, pinyon and juniper woodland, and Sonoran desert scrub habitats. Found at elevations ranging from 1,969 to 5,906 feet. Blooming period is from March to June.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Diplacus johnstonii Johnston's monkeyflower	Fed: None CA: None CNPS: 4.3	Grows within lower montane coniferous forest (scree, disturbed areas, rocky or gravelly, roadside) habitat. Found at elevations ranging from 3,199 to 9,580 feet. Blooming period is typically from May to August and can begin as early as April.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.

Scientific Name Common Name	Status	Habitat Description	Observed On-site	Potential to Occur
Eremothera boothii* ssp. *boothii Booth's evening-primrose	Fed: None CA: None CNPS: 2B.3	Occurs in desert washes, open plains, and scrubland. Found at elevations ranging from 814 to 2,402 feet above msl. Blooming period is from June to August.	No	**Presumed Absent.** Suitable habitat is present within the project site; however, the project site occurs outside the known elevation range for this species.
Eriogonum microthecum var. johnstonii Johnston's buckwheat	Fed: None CA: None CNPS: 1B.3	Grows in rocky soils within subalpine coniferous forest and upper montane coniferous forest habitats. Found at elevations ranging from 6,000 to 9,600 feet. Blooming period is from July to September.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Frasera neglecta pine green-gentian	Fed: None CA: None CNPS: 4.3	Grows within lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest habitats. Found at elevations ranging from 4,593 to 8,202 feet. Blooming period is from May to July.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Fritillaria pinetorum pine fritillary	Fed: None CA: None CNPS: 4.3	Associated with granitic and metamorphic soils within chaparral, lower montane coniferous forest, upper montane coniferous forest, subalpine coniferous forest, pinyon and juniper woodland. Found at elevations ranging from 5,692 to 10,826 feet above msl. Blooming period is from May to September.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Galium jepsonii Jepson's bedstraw	Fed: None CA: None CNPS: 4.3	Found in granitic, rocky or gravelly soils within lower montane coniferous forest and upper montane coniferous forest habitats. Found at elevations ranging from 5,052 to 8,202 feet above msl. Blooming period is from July to August.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Galium johnstonii Johnston's bedstraw	Fed: None CA: None CNPS: 4.3	Preferred habitats include chaparral, riparian woodland, lower montane coniferous forest, pinyon and juniper woodland. Found at elevations ranging from 4,003 to 7,546 feet above msl. Blooming period is from June to July.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Linanthus concinnus San Gabriel linanthus	Fed: None CA: None CNPS: 1B.2	Occurs in rocky, openings within chaparral, lower montane and upper montane coniferous forests. Found at elevations ranging from 4,987 to 9,186 feet above msl. Blooming period is from April to July.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Lupinus albifrons var. johnstonii interior bush lupine	Fed: None CA: None CNPS: 4.3	Grows in decomposed granitic soils within chaparral and lower montane coniferous forest habitats. Found at elevations ranging from 4,921 to 8,202 feet. Blooming period is from May to July.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.

Scientific Name Common Name	Status	Habitat Description	Observed On-site	Potential to Occur
Lycium torreyi Torrey's box-thorn	Fed: None CA: None CNPS: 4.2	Grows within sandy, rocky, washes, streambanks, desert valley habitats. Found at elevations ranging from 164 to 4,003 feet above msl. Blooming period is from January to November.	No	**Low** Suitable habitat is present on-site. This species was not observed on-site during the field investigation, which was conducted during the blooming season for this species.
Muhlenbergia californica California muhly	Fed: None CA: None CNPS: 4.3	Found in mesic, seeps, and streambanks within chaparral, coastal scrub, lower montane coniferous forest, and meadows and seeps. Found at elevations ranging from 328 to 6,562 feet. Blooming period is from June to September.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Muilla coronata crowned muilla	Fed: None CA: None CNPS: 4.2	Found in chenopod scrub, Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland habitats. Blooming period is from May to April. Grows in elevation from 2,198 to 6,430 feet.	No	**Low** Suitable habitat is present on-site. This species was not observed on-site during the field investigation, which was conducted during the blooming season for this species.
Nemacladus secundiflorus var. robbinsii Robbin's nemacladus	Fed: None CA: None CNPS: 1B.2	Grows in openings within chaparral and valley and foothill grassland habitats. Found at elevations ranging from 1,148 to 5,577 feet. Blooming period is from April to June.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site.
Opuntia basilaris var. brachyclada short-joint beavertail	Fed: None CA: None CNPS: 1B.2	Habitats include chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodlands. Found at elevations ranging from 1,394 to 5,906 feet. Blooming period is from April to August.	No	**Low** Suitable habitat is present on-site. This species was not observed on-site during the field investigation, which was conducted during the blooming season for this species.
Phacelia mohavensis Mojave phacelia	Fed: None CA: None CNPS: 4.3	Occurs in sandy or gravelly soils within cismontane woodland, lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland. Found at elevations ranging from 4,593 to 8,202 feet above msl. Blooming period is from April to August.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Quercus turbinella shrub live oak	Fed: None CA: None CNPS: 4.3	Grows within chaparral, cismontane woodland, lower montane coniferous forest, and pinyon and juniper woodland habitats. Found at elevations ranging from 3,937 to 6,562 feet. Blooming period is from April to June.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Viola pinetorum* ssp. *grisea grey-leaved violet	Fed: None CA: None CNPS: 1B.3	Associated with upper montane coniferous forest, subalpine coniferous forest, meadows and seeps. Found at elevations ranging from 4,921 to 11,155 feet above msl. Blooming period is from April to July.	No	**Presumed Absent.** No suitable habitat is present within or adjacent to the project site. The project site occurs outside the known elevation range for this species.
Yucca brevifolia western Joshua tree	Fed: None CA: **CE** CNPS: N/A	Occurs in a variety of arid habitats within the Mojave Desert. Found at elevations ranging from 1,600 to 6,600 feet. Blooming period is from March to June.	Yes	**Present** Suitable habitat is present on-site. This species occurs on-site and was observed in adjacent habitats.

U.S. Fish and Wildlife Service (Fed) - Federal
END – Federal Endangered
THR – Federal Threatened
DL - Delisted

California Department of Fish and Wildlife (CA) - California
END – California Endangered
THR – California Threatened
CTHR – California Candidate Threatened
DL - Delisted
FP – California Fully Protected
SSC – California Species of Special Concern
WL – California Watch List
CE – Candidate Endangered

California Native Plant Society (CNPS) - *California Rare Plant Rank*
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
4 Plants of Limited Distribution – A Watch List

Threat Ranks
0.2- Moderately threatened in California
0.3- Not very threatened in California

Appendix C Regulations

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

<u>Federal Regulations</u>

Endangered Species Act of 1973

Federally listed threatened and endangered species and their habitats are protected under provisions of the Federal Endangered Species Act (ESA). Section 9 of the ESA prohibits “take” of threatened or endangered species. “Take” under the ESA is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct.” The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if development would result in “take” of the species or its habitat. Under the regulations of the ESA, the United States Fish and Wildlife Service (USFWS) may authorize “take” when it is incidental to, but not the purpose of, an otherwise lawful act.

Critical Habitat is designated for the survival and recovery of species listed as threatened or endangered under the ESA. Critical Habitat includes those areas occupied by the species, in which are found physical and biological features that are essential to the conservation of an ESA listed species and which may require special management considerations or protection. Critical Habitat may also include unoccupied habitat if it is determined that the unoccupied habitat is essential for the conservation of the species.

Whenever federal agencies authorize, fund, or carry out actions that may adversely modify or destroy Critical Habitat, they must consult with USFWS under Section 7 of the ESA. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highway Administration or a permit from the U.S. Army Corps of Engineers (Corps)).

If USFWS determines that Critical Habitat will be adversely modified or destroyed from a proposed action, the USFWS will develop reasonable and prudent alternatives in cooperation with the federal institution to ensure the purpose of the proposed action can be achieved without loss of Critical Habitat. If the action is not likely to adversely modify or destroy Critical Habitat, USFWS will include a statement in its biological opinion concerning any incidental take that may be authorized and specify terms and conditions to ensure the agency is in compliance with the opinion.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S. Government Code [USC] 703) makes it unlawful to pursue, capture, kill, possess, or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 10, 21).

The MBTA covers the taking of any nests or eggs of migratory birds, except as allowed by permit pursuant to 50 CFR, Part 21. Disturbances causing nest abandonment and/or loss of reproductive effort (i.e., killing or abandonment of eggs or young) may also be considered "take." This regulation seeks to protect migratory birds and active nests.

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles); Cathartidae (New World vultures); Falconidae (falcons and caracaras); Pandionidae (ospreys); Strigidae (typical owls); and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protects all species and subspecies of the families listed above. The MBTA protects over 800 species including geese, ducks, shorebirds, raptors, songbirds and many relatively common species.

State Regulations

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) provides for the protection of the environment within the State of California by establishing State policy to prevent significant, avoidable damage to the environment through the use of alternatives or mitigation measures for projects. It applies to actions directly undertaken, financed, or permitted by State lead agencies. If a project is determined to be subject to CEQA, the lead agency will be required to conduct an Initial Study (IS); if the IS determines that the project may have significant impacts on the environment, the lead agency will subsequently be required to write an Environmental Impact Report (EIR). A finding of non-significant effects will require either a Negative Declaration or a Mitigated Negative Declaration instead of an EIR. Section 15380 of the CEQA Guidelines independently defines "endangered" and "rare" species separately from the definitions of the California Endangered Species Act (CESA). Under CEQA, "endangered" species of plants or animals are defined as those whose survival and reproduction in the wild are in immediate jeopardy, while "rare" species are defined as those who are in such low numbers that they could become endangered if their environment worsens.

California Endangered Species Act (CESA)

In addition to federal laws, the state of California implements the CESA which is enforced by CDFW. The CESA program maintains a separate listing of species beyond the FESA, although the provisions of each act are similar.

State-listed threatened and endangered species are protected under provisions of the CESA. Activities that may result in "take" of individuals (defined in CESA as; "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") are regulated by CDFW. Habitat degradation or modification is not included in the definition of "take" under CESA. Nonetheless, CDFW has interpreted "take" to include the destruction of nesting, denning, or foraging habitat necessary to maintain a viable breeding population of protected species.

The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. State threatened and endangered species are fully protected against take, as defined above.

The CDFW has also produced a species of special concern list to serve as a species watch list. Species on this list are either of limited distribution or their habitats have been reduced substantially, such that a threat to their populations may be imminent. Species of special concern may receive special attention during environmental review, but they do not have formal statutory protection. At the federal level, USFWS also uses the label species of concern, as an informal term that refers to species which might be in need of concentrated conservation actions. As the Species of Concern designated by USFWS do not receive formal legal protection, the use of the term does not necessarily ensure that the species will be proposed for listing as a threatened or endangered species.

Fish and Game Code

Fish and Game Code Sections 3503, 3503.5, 3511, and 3513 are applicable to natural resource management. For example, Section 3503 of the Code makes it unlawful to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Further, any birds in the orders Falconiformes or Strigiformes (Birds of Prey, such as hawks, eagles, and owls) are protected under Section 3503.5 of the Fish and Game Code which makes it unlawful to take, possess, or destroy their nest or eggs. A consultation with CDFW may be required prior to the removal of any bird of prey nest that may occur on a project site. Section 3511 of the Fish and Game Code lists fully protected bird species, where the CDFW is unable to authorize the issuance of permits or licenses to take these species. Pertinent species that are State fully protected by the State include golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*). Section 3513 of the Fish and Game Code makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Native Plant Protection Act

Sections 1900–1913 of the Fish and Game Code were developed to preserve, protect, and enhance Rare and Endangered plants in the state of California. The act requires all state agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification of the CDFW at least ten days in advance of any change in land use which would adversely impact listed plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed.

California Native Plant Society Rare and Endangered Plant Species

Vascular plants listed as rare or endangered by the CNPS, but which have no designated status under FESA or CESA are defined as follows:

California Rare Plant Rank

- 1A- Plants Presumed Extirpated in California and either Rare or Extinct Elsewhere
- 1B- Plants Rare, Threatened, or Endangered in California and Elsewhere

2A- Plants Presumed Extirpated in California, But More Common Elsewhere

2B- Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

3- Plants about Which More Information is Needed - A Review List

4- Plants of Limited Distribution - A Watch List

Threat Ranks

.1- Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2- Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3- Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

<u>Local Regulations</u>

San Bernardino County Development Code

Section 88.01.060 of the County of San Bernardino Development Code provides regulations for the removal or harvesting of specified desert native plants in order to preserve and protect the plants and to provide for the conservation and wise use of desert resources. The provisions are intended to coincide with the Desert Native Plants Act (Food and Agricultural Code Section 8001 et seq.) and the State Department of Food and Agriculture to implement and enforce the Act.

Pursuant to Section 88.01.060 of the Development Code, the following desert native plants or any part of them, except the fruit, shall not be removed except under a Tree or Plant Removal Permit:

1) The following desert native plants with stems two inches or greater in diameter or six feet or greater in height:

    (A) *Dalea spinosa* (smoke tree)
    (B) All species of the genus *Prosopis* (mesquites)

2) All species of the family *Agavaceae* (century plants, nolinas, yuccas)

3) Creosote Rings, 10 feet or greater in diameter

4) All Joshua trees

5) Any part of any of the following species, whether living or dead:

    (A) *Olneya tesota* (desert ironwood)
    (B) All species of the genus *Prosopis* (mesquites)
    (C) All species of the genus *Cercidium* (palos verdes)

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFG regulates activities under the Fish and Game Code Section 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Federal Regulations

Section 404 of the Clean Water Act

Since 1972, the Corps and EPA have jointly regulated the filling of waters of the United States, including wetlands, pursuant to Section 404 of the CWA. The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, the placement of sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States."

In April of 2020, the Corps and the EPA provided a new definition for *waters of the United States* [Federal Register, Vol. 85, No. 77 (April 21, 2020)] which encompass:

- The territorial seas and traditional navigable waters;
- Perennial and intermittent tributaries that contribute surface water flow to such waters;
- Certain lakes, ponds, and impoundments of jurisdictional waters; and
- Wetlands adjacent to other jurisdictional waters.

Additionally, the new definition identifies 12 categories of those waters and features that are excluded from the definition of ''waters of the United State, such as features that only contain water in direct response to rainfall (e.g., ephemeral features), groundwater, many ditches, prior converted cropland, and waste treatment systems. The final rule excludes from the definition of ''waters of the United States'' all waters or features not mentioned above. In addition to this general exclusion, the final rule specifically clarifies that waters of the United States do not include the following:

- Groundwater, including groundwater drained through subsurface drainage systems;
- Ephemeral features that flow only indirect response to precipitation, including ephemeral streams, swales, gullies, rills, and pools;
- Diffuse stormwater runoff and directional sheet flow over upland;
- Ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent wetlands, subject to certain limitations;
- Prior converted cropland;
- Artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- Artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;

- Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
- Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater runoff;
- Groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters; and
- Waste treatment systems.

Section 401 of the Clean Water Act

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits, and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Water Quality Control Boards (Regional Board) that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board assumed this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

State Regulations

Fish and Game Code

Fish and Game Code Sections 1600 et. seq. establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

(1) substantially obstruct or divert the natural flow of a river, stream, or lake;
(2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or
(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, the CDFW takes jurisdiction to the top of bank of the stream or to the outer limit of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. A Section 1602 Streambed Alteration Agreement would be required if impacts to identified CDFW jurisdictional areas occur.

Porter Cologne Act

The California *Porter-Cologne Water Quality Control Act* gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool in the post SWANCC and Rapanos regulatory environment, with respect to the state's authority over isolated and insignificant waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

Appendix B-1

California Department of Fish and Game Mohave Ground Squirrel Guideline Report, Proposed Oeste Recharge Basin Project

Randel Wildlife Consulting, Inc

June 2023

CALIFORNIA DEPARTMENT OF FISH AND GAME
MOHAVE GROUND SQUIRREL
(*XEROSPERMOPHILUS MOHAVENSIS*)
GUIDELINE
SURVEY REPORT

PROPOSED OESTE RECHARGE BASIN PROJECT
SAN BERNARDINO COUNTY, CALIFORNIA

Prepared By:
RANDEL WILDLIFE CONSULTING, INC.
South Pasadena, California

June 2023
(RWC File No. 156–0001)

Prepared For:
Mojave Water Agency
13846 Conference Center Dr
Apple Valley, CA 92307

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INTRODUCTION

This report presents the results of focused Mohave ground squirrel (MGS; *Xerospermophilus mohavensis*) surveys on the proposed Oeste Recharge Basin Project, census designated Pinon Hills area, unincorporated San Bernardino County, California (Figure 1). Mohave ground squirrel focused surveys were conducted in accordance with California Department of Fish and Wildlife (CDFW) guidelines (CDFW 2003) and authorized by CDFW under Memorandum of Understandings between CDFW and Randel Wildlife Consulting, Inc. The purpose of this study was to determine the presence or absence of the California threatened Mohave ground squirrel within the proposed 10-acre Oeste Recharge Basin Project, located in the census designated Pinon Hills area, unincorporated San Bernardino County, California (Figure 2) pursuant to requirements outlined by the California Environmental Quality Act and California Endangered Species Act.

Project Location

The proposed Oeste Recharge Basin Project is located on single parcel (APN: 3099-08-101-0000) with an approximate area of 10-acres of undeveloped land at the terminus of Cayucos Rd, Pinon Hills, California. The project is located in the southwestern portion of San Bernardino County, in the geographic sub-region of the southwestern Mojave Desert. The project site is located at the terminus of Cayucos Rd and is accessible via Oasis Rd from either State Route 18 (SR-18) in the north or State Route (SR-138) in the south. The subject property is further described by the Public Land Survey System as being within the northeast ¼ of the southwest ¼ of the southeast ¼ of Section 30, Township 5 North, and Range 7 West.

Mojave Ground Squirrel

Mohave ground squirrel are small, diurnal ground squirrels endemic to the western Mojave Desert, occupying portions of Los Angeles, Kern, Inyo, and San Bernardino counties (Best 1995); with a historic distribution estimated at approximately 7,812 square miles from the eastern slopes of the Transverse and Sierra Nevada mountain ranges in the west to the Mojave River in the east, and from Owens Lake in the north to Palmdale in the south (Figure 3; Best 1995, Leitner 2008).

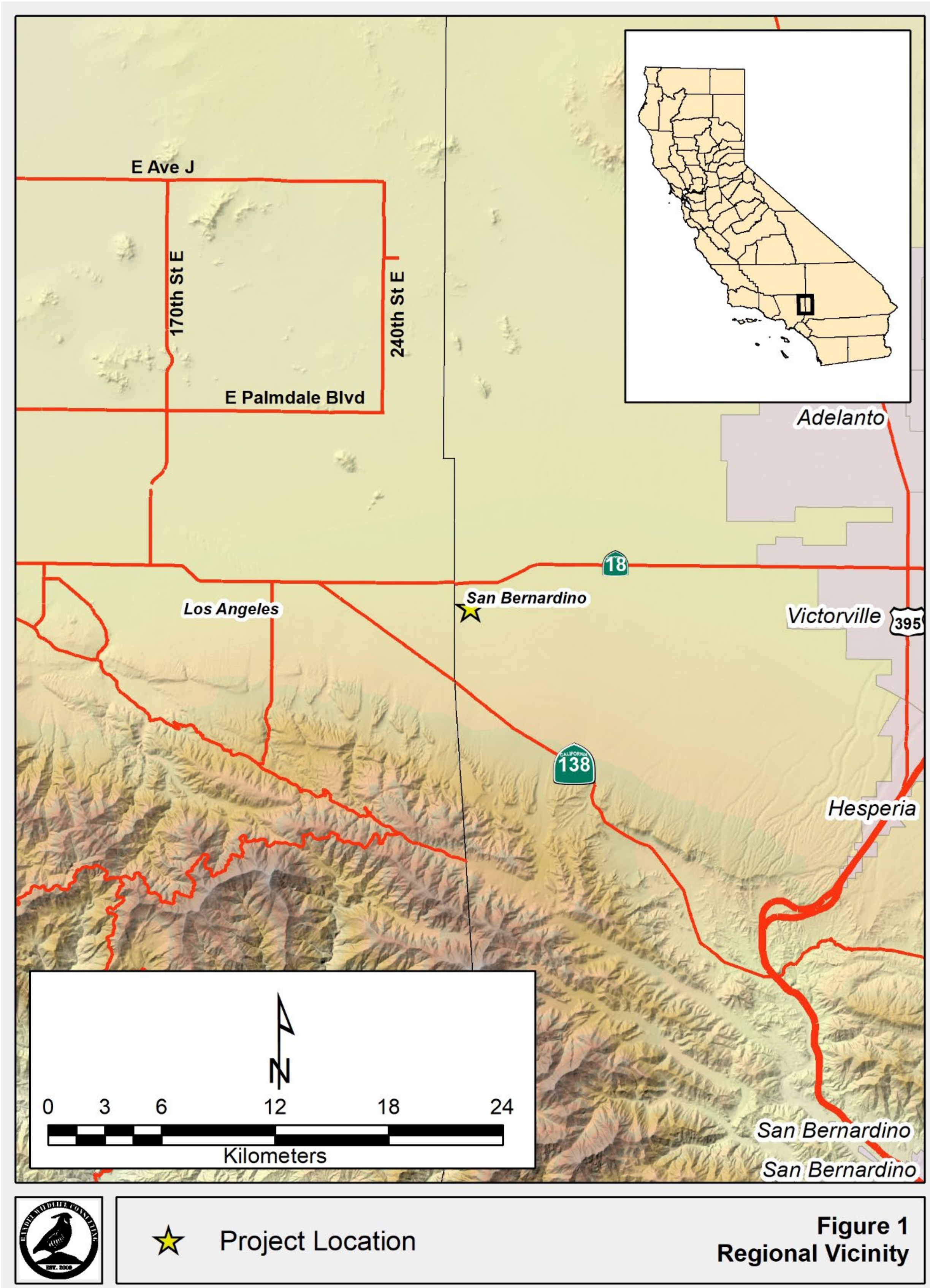
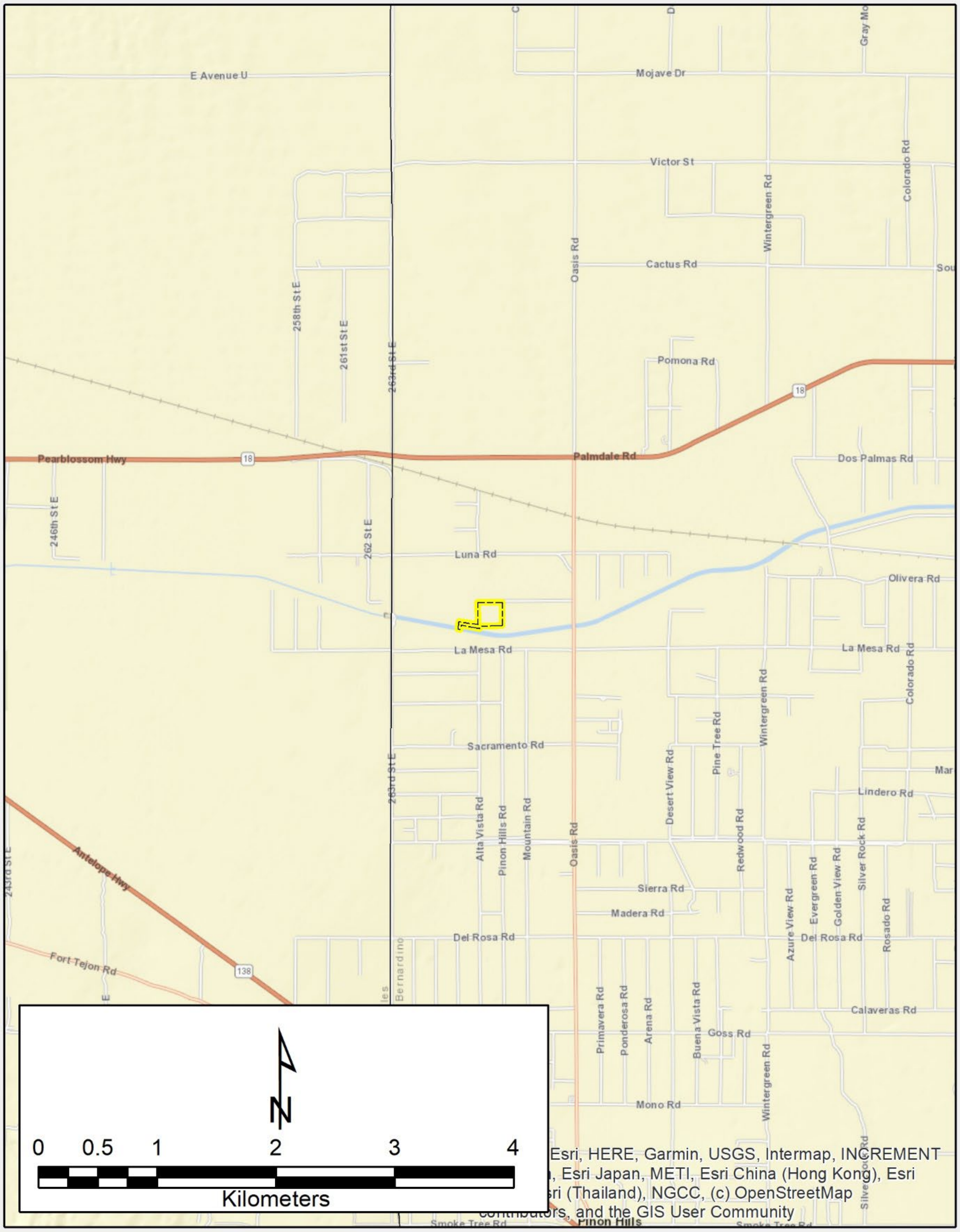


Figure 1
Regional Vicinity



MWA Project Area

Figure 2
Local Vicinity

Mohave ground squirrel occupy desert scrub habitat associations with creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), and saltbush (*Atriplex* sp.) dominant or co-dominant at lower elevations and Joshua tree (*Yucca brevifolia*) and blackbrush (*Coleogyne ramosissima*) communities at elevations >1,500 m above mean sea level (Grinnell 1933, Ingles 1965, Best 1995). Mohave ground squirrel are non-communal and occur at relatively low abundance where present (Leitner and Leitner 2017). Mohave ground squirrel exhibit a seasonal activity pattern (late February to July) followed by an extended period of below ground dormancy annually (Bartholomew and Hudson 1960, Best 1995). During the active period MGS forage heavily to accumulate sufficient fat stores to both reproduce and survival aestivation and hibernation (Best 1995). Despite the need to approximately double their body mass, MGS are a trap shy species with a low detection probability.

Survey Location

MGS Survey Grid: Legal Description

A single of land located in the State of California, County of San Bernardino, and census designated Pinon Hills area with tax assessor number of 3099-08-101-0000. The same properties are more fully described by the Public Land Survey System as having an aggregate area of 10 acres located in the northeast ¼ of the southwest ¼ of the southeast ¼ of Section 30, Township 5 North, and Range 7 West; and entirely within the U.S. Geological Survey (USGS) 7.5-Minute Series Mescal Creek[1] topographic quadrangle (Figure 4). The small project area (<10 acres) prevented the installation of a 10 x 10 or 4 x 25 trapping array, Randel Wildlife Consulting, Inc. installed 36 live traps in a 6 x 6 array with traps spaced 35-m on-center.

MGS Survey Grid: Soil Description

Cajon Sand, 0-2% slopes (Figure 5)

The Cajon series consists of very deep, somewhat excessively drained soils formed in sandy alluvium from dominantly granitic rocks at elevations ranging from 200 to 4,300 feet. Cajon soils are associated with alluvial fans, fan skirts, fan aprons, inset fans, and river terraces with slopes raning form 0 to 15 percent. Vegetation associated with Cajon sand is mostly desert shrubs

1 United States Geological Survey. 2020. 7.5-Minute Mescal Creek Topographic Quadrangle. Reston, VA 22092.

including creosote bush, saltbush, ephedra, Joshua tree, and some perennial and native grasses (NRCS 1986).

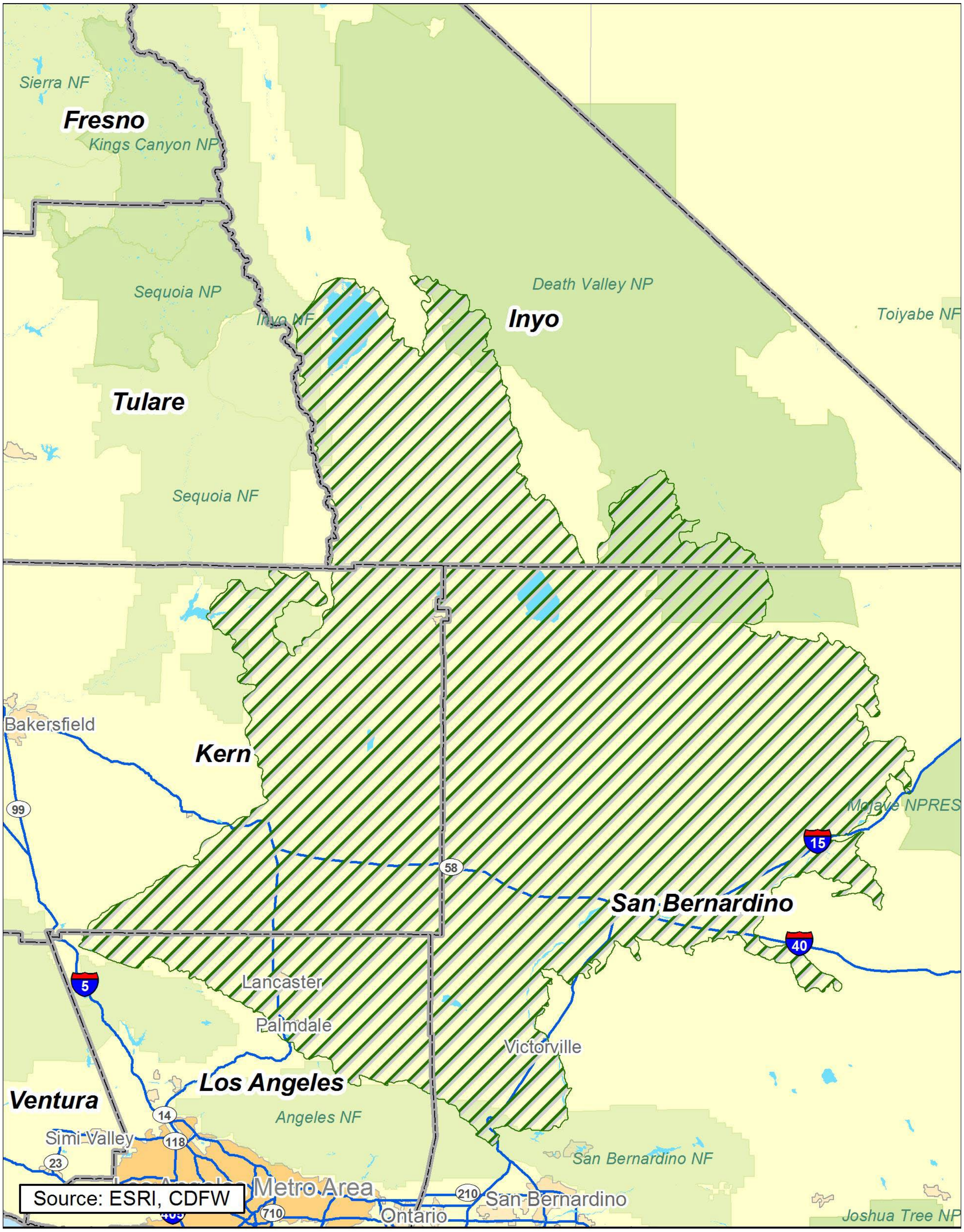
METHODS

Site Reconnaissance / Habitat Assessment

A habitat assessment of the subject property was conducted by Dr. Charles J. Randel in 19 April 2023. Surveys were conducted to allow for 100% visual coverage of the subject site with biological resources and potential constraints to focused surveys identified. As a result of the reconnaissance level surveys, it was determined that suitable habitat for the Mojave ground squirrel was present and focused trapping surveys should be conducted to determine presence/absence of the species within the subject properties.

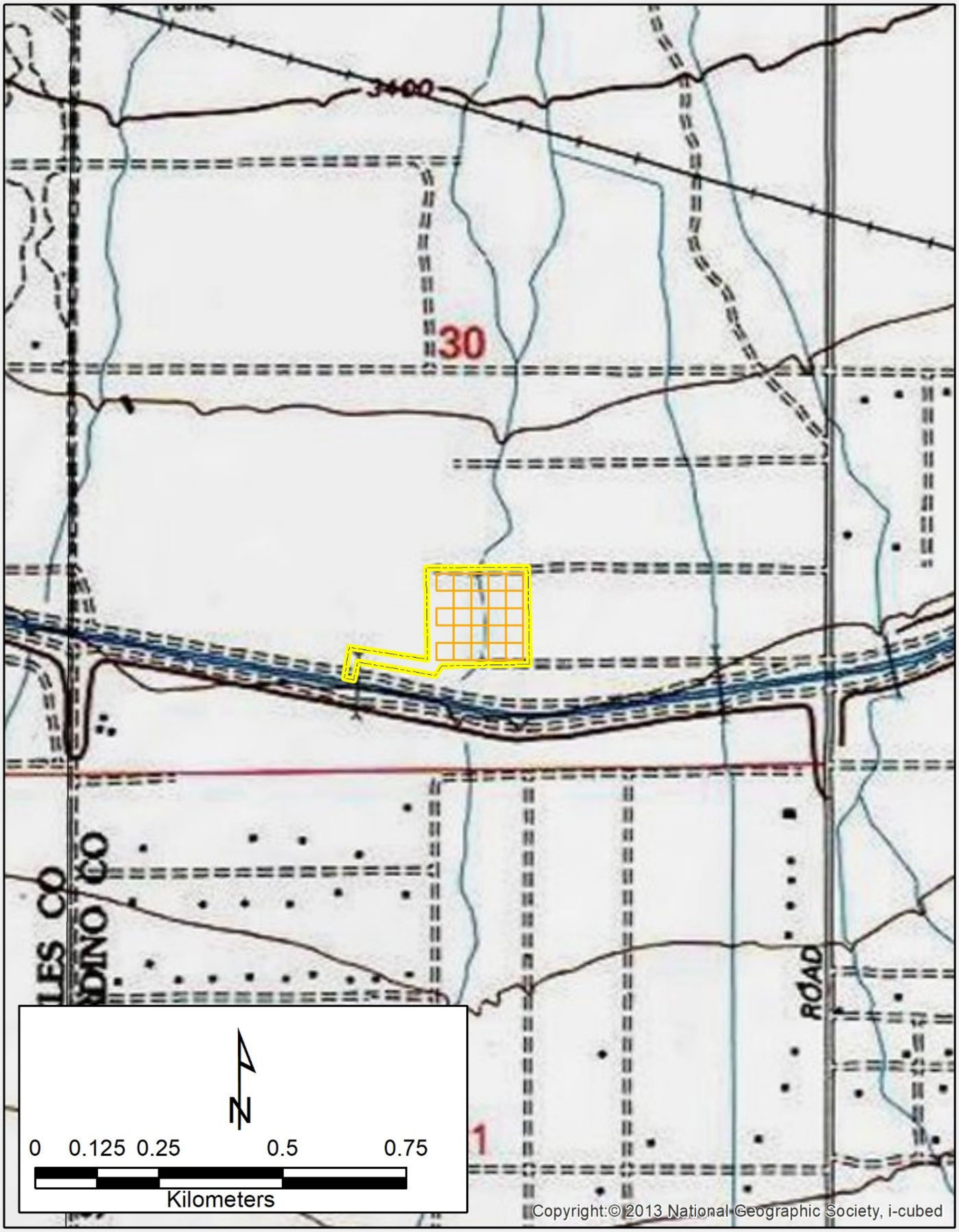
Focused Surveys: Mohave ground squirrel

Randel Wildlife Consulting, Inc. conducted focused Mohave ground squirrel surveys in accordance with CDFW guidelines (CDFG 2003). Surveys consisted of five consecutive days of live-trapping during three predefined sessions (Session 1: 15 March–30 April; Session 2: 1–31 May; Session 3: 15 June – 15 July). Each survey session consisted of 36 live-traps spaced 35-m on center in a 6 x 6 array, baited with 4-way horse feed, and shaded to prevent heat stress. Traps were checked no less frequently than every four hours, when temperatures were between 40°–90° F.



Mohave Ground Squirrel

Figure 3. Mohave Ground Squirrel Distribution



MWA Project Area
MGS Grid

Figure 4
Mohave Ground Squirrel
Survey Location

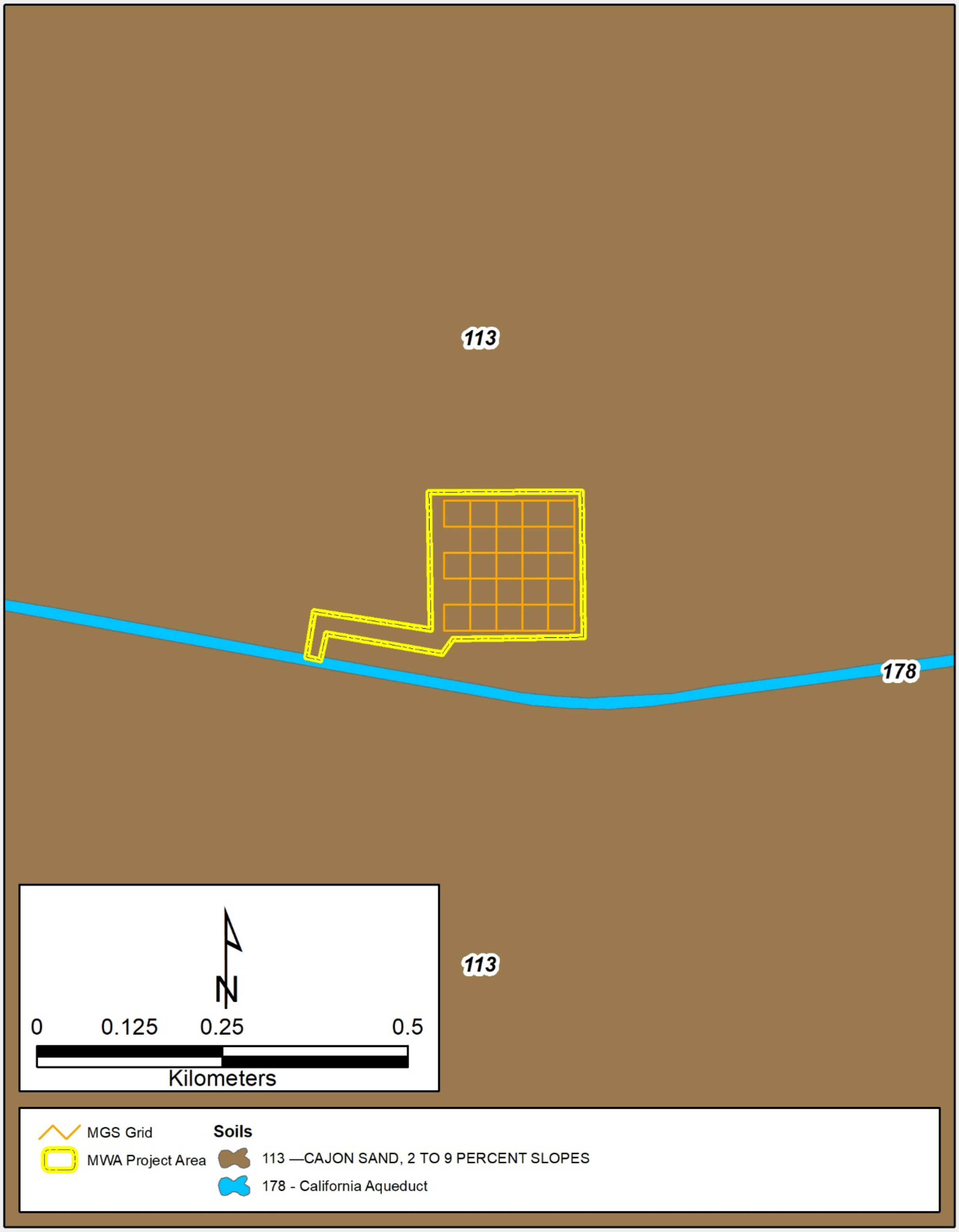


Figure 5
Soil Types

RESULTS

Site Context

Ecoregion

The MGS focused survey site is located in the EPA's Western Mojave Basins Level IV Ecoregion. This ecoregion includes the alluvial plains, fans, and bajadas of major valleys located between the dispersed mountain ranges of the Mojave Basin and Range Level III Ecoregion. North to south climate and vegetation variation is minimal with creosotebush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) dominate on the landscape (Griffith et al. 2016).

Vegetation Alliance

Vegetation was consistent with *Larrea tridentata* Shrubland Alliance (Sawyer et al. 2009). This vegetation alliance is found on minor washed and rills, alluvial fans, bajadas, and upland slopes of well-drained, alluvial, colluvial, and/or sandy soils. *Larrea tridentata* is the dominant species both in terms of relative canopy cover and shrub density, subdominant shrub species included *Atriplex canescens, Lycium cooperii*, *Salazaria mexicana*, *Grayia spinosa*, and *Tetradymia canescens.* Understory was primarily herbaceous with both native and non-native grasses and forbs. Isolated and small stands of *Yucca brevifolia* was present throughout the study area (Appendix A – Site Photographs).

Focused Surveys

CDFW Mohave ground squirrel guideline surveys were conducted by Randel Wildlife Consulting, Inc. on the following dates (Appendix C – Mojave Ground Squirrel Grid Survey Data):

Grid 1

- Session 1: 25–29 April 2023
- Session 2: 26–30 May 2023
- Session 3: 25–29 June 2023

No Mohave ground squirrels were identified as a result of focused surveys of the subject parcels. White-tailed antelope squirrel (*Ammospermophilus leucurus*) were the only mammalian species captured.

Table 1. Summary of diurnal captures by species and trapping session.

Session	Species	New Captures	Recaptures	Total Captures
1	White-tailed Antelope Squirrel	0	0	0
2	White-tailed Antelope Squirrel	3	0	3
3	White-tailed Antelope Squirrel	5	1	11

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APPENDIX A –REPRESENTATIVE SITE PHOTOGRAPHS

Photos

Description
MWA MGS Grid
26 May 2023
Photo from NW to SE

Northwest corner of Mohave ground squirrel survey grid. Image is taken toward interior of grid showing Mixed Mojave Woodland habitat.

Description
MWA MGS Grid
26 May 2023
Photo from SW to NE

Southwest corner of Mohave ground squirrel survey grid. Image is taken toward interior of grid showing Mixed Mojave Woodland habitat and dry wash.

Photos	
Description **MWA MGS Grid** **26 May 2023** Photo from SE to NW Southeast corner of Mohave ground squirrel survey grid. Image is taken toward interior of grid	
Description **MWA MGS Grid** **26 May 2023** Photo from NE to SW Northeast corner of Mohave ground squirrel survey grid. Image is taken toward interior of grid	

APPENDIX B –WEATHER SUMMARY

Date	Temperature (F)				Cloud Cover (%)				Wind (MPH)			
	Min	**Time**	**Max**	**Time**	**Min**	**Time**	**Max**	**Time**	**Min**	**Time**	**Max**	**Time**
4/25/23	57	0615	85	1515	0	0530	0	1730	0	0530	15	1330
4/26/23	48	0600	88	1730	0	0530	0	1800	0	0530	20	1400
4/27/23	54	0600	90	1400	0	0530	0	1400	0	0530	15	1330
4/28/23	56	0600	92	1400	0	0530	0	1300	0	0530	10	1300
4/29/23	56	0600	93	1300	0	0530	0	1300	0	0530	10	1000
5/26/23	50	0645	77	1400	0	1400	15	0645	0-3	0645	5-10	1730
5/27/23	54	0615	91	1600	0	1600	30	0615	0-5	0615	0-5	1600
5/28/23	55	0615	81	1700	0	0615	0	1730	0-5	0615	5-10	1730
5/29/23	51	0630	80	1500	0	0630	0	1500	0-3	0630	0-5	1500
5/30/23	51	0630	76	1500	25	1745	30	0630	0-3	0630	10-15	1630
625/23	50	0600	92	1400	0	0530	0	1400	0-5	0530	5-10	1400
6/26/23	59	0530	93	1245	0	0530	0	1245	0-5	0530	5-10	1245
6/27/23	60	0600	91	1128	0	0530	0	1128	0-5	0930	5-10	1128
6/28/23	57	0530	93	1300	0	0530	0	1330	0-5	0530	5-10	0930
6/29/23	65	0530	91	1000	0	0530	0	1000	0-5	0530	0-5	1000

APPENDIX C – WILDLIFE SPECIES OBSERVED

Common Name	Scientific Name
Cabbage white	*Pieris rapae*
Desert blister beetle	*Lytta magister*
Soft-winged flower beetle	*Collops sp.*
Inflated beetle	*Cysteodermus armatus*
Yellow-backed spiny lizard	*Sceloperus uniformis*
Western side-blotched lizard	*Uta stansburiana elegans*
Great Basin whiptail	*Aspidoscelis tigris tigris*
Common raven	*Corvus corax*
Rock dove	*Columbia livia*
Black phoebe	*Sayornis nigricans*
House finch	*Haemorhous meicanus*
Cactus wren	*Campylorhynchus brunneicapillus*
Northern mockingbird	*Mimus polyglottos*
Mourning dove	*Zenaida macroura*
Black-throated sparrow	*Amphispiza bilineata*
White-crowned sparrow	*Zonotrichia leucophrys*
Loggerhead shrike	*Lanius ludovicianus*
Ash-throated flycatcher	*Myiarchus cinerascens*
California quail	*Callipepla californica*
Common nighthawk	*Chordeiles minor*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Cliff swallow	*Petrohelidon pyrrhonota*
Red-tailed hawk	*Buteo jamaicensis*
Western kingbird	*Tyrannus verticalis*
White-tailed antelope squirrel	*Ammospermophilus leucurus*
California ground squirrel	*Otospermophilus beechyii*
Black-tailed jackrabbit	*Lepus californicus*
Desert cottontail	*Sylvilagus audubonii*
Desert kit fox (tracks)	*Vulpes macrotis*
Coyote	*Canis latrans*
Domestic dog	*Canis familiaris*

Appendix C

Historical/Archaeological Resources Survey Report, Oeste Recharge Project

CRM Tech

May 25, 2021

HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT

OESTE RECHARGE PROJECT

Phelan Area
San Bernardino County, California

Prepared for:

Mojave Water Agency
13846 Conference Center Drive
Apple Valley, CA 92037-4377

Prepared by:

CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

May 25, 2021
CRM TECH Contract No. 3706A

Title: Historical/Archaeological Resources Survey Report: Oeste Recharge Project, Phelan Area, San Bernardino County, California

Author(s): Bai "Tom" Tang, Principal Investigator/Historian
Deirdre Encarnación, Archaeologist/Report Writer
Daniel Ballester, Archaeologist/Field Director

Consulting Firm: CRM TECH
1016 East Cooley Drive, Suite A/B
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(909) 824-6400

Date: May 25, 2021

Prepared for: Robert Hampson, Water Resources Hydrogeologist
Mojave Water Agency
13846 Conference Center Drive
Apple Valley, CA 92037-4377
(760) 946-7061

USGS Quadrangle: Mescal Creek, Calif., 7.5' quadrangle (Section 30, T5N R7W, San Bernardino Baseline and Meridian)

Project Size: Approximately 10 acres

Keywords: Southern Mojave Desert region; Assessor's Parcel Number 3099-081-01; Phase I historical/archaeological resources survey; Site 36-021351 (California Aqueduct, East Branch); no impact on "historical resources" under CEQA

MANAGEMENT SUMMARY

Between February and May 2021, CRM TECH performed a cultural resources study on approximately ten acres of undeveloped land near the unincorporated community of Phelan, San Bernardino County, California. The subject property of the study consists mainly of Assessor's Parcel Number 3099-081-01, along with a linear pipeline right-of-way across the adjacent property to the west, and is located at the western terminus of Cayucos Drive, between 263rd Street East and Oasis Road. The project location lies in the south half of Section 30, T5N R7W, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey (USGS) Mescal Creek, California, 7.5' quadrangle.

The study is part of the environmental review process for the proposed Oeste Recharge Project, which entails mainly the excavation of a basin for the purpose of recharging local groundwater and the installation of a pipeline leading generally southwest from the basin to the nearby California Aqueduct (East Branch). The Mojave Water Agency (MWA), as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of this study is to provide the MWA with the necessary information and analysis to determine whether the project would cause a substantial adverse change to any "historical resources," as defined by CEQA, that may exist in or near the project area.

In order to identify such resources, CRM TECH initiated a historical/archaeological resources records search and a Native American Sacred Lands File search, pursued historical background research, and carried out an intensive-level field survey. Throughout the course of these research procedures, the California Aqueduct (East Branch), which was previously recorded into the California Historical Resources Inventory as Site 36-021351, was the only potential "historical resource" encountered within or adjacent to the project area. Constructed in 1966-1973 as a part of the backbone of the massive California State Water Project, the aqueduct traverses roughly 200 feet south of the main project site and across the southwestern end of the pipeline alignment.

In light of the crucial role that the California State Water Project played in the phenomenal growth of the State of California since the mid-20th century as well as the distinguished engineering accomplishment of the project, the California Aqueduct (East Branch) as a whole has been determined eligible for listing in the California Register of Historical Resources and thus meets the definition of a "historical resource" under CEQA provisions. The proposed construction of the recharge basin, pipeline, and other associated facilities during this project, however, will not cause a substantial adverse change in the significance, integrity, and overall character of the 98-mile-long canal. Therefore, pursuant to PRC §21084.1, CRM TECH recommends to the MWA a finding of *No Impact* regarding "historical resources."

No further cultural resources investigation is recommended for the project unless construction plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are encountered during any earth-moving operations associated with the project, all work within 50 feet of the discovery should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds. Under this condition, CRM TECH further recommends that the Oeste Recharge Project may be cleared to proceed under CEQA provisions on cultural resources.

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INTRODUCTION

Between February and May 2021, CRM TECH performed a cultural resources study on approximately ten acres of undeveloped land near the unincorporated community of Phelan, San Bernardino County, California (Fig. 1). The subject property of the study consists mainly of Assessor's Parcel Number 3099-081-01, along with a linear pipeline right-of-way across the adjacent property to the west, and is located at the western terminus of Cayucos Drive, between 263rd Street East and Oasis Road (Figs. 2, 3). The project location lies in the south half of Section 30, T5N R7W, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey (USGS) Mescal Creek, California, 7.5' quadrangle (Fig. 2).

The study is part of the environmental review process for the proposed Oeste Recharge Project, which entails mainly the excavation of a basin for the purpose of recharging local groundwater and the installation of a pipeline leading generally southwest from the basin to the nearby California Aqueduct (East Branch). The Mojave Water Agency (MWA), as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.). The purpose of this study is to provide the MWA with the necessary information and analysis to determine whether the project would cause a substantial adverse change to any "historical resources," as defined by CEQA, that may exist in or near the project area.

In order to identify such resources, CRM TECH initiated a historical/archaeological resources records search and a Native American Sacred Lands File search, pursued historical background research, and carried out an intensive-level field survey. The following report is a complete account of the methods, results, and final conclusion of the study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

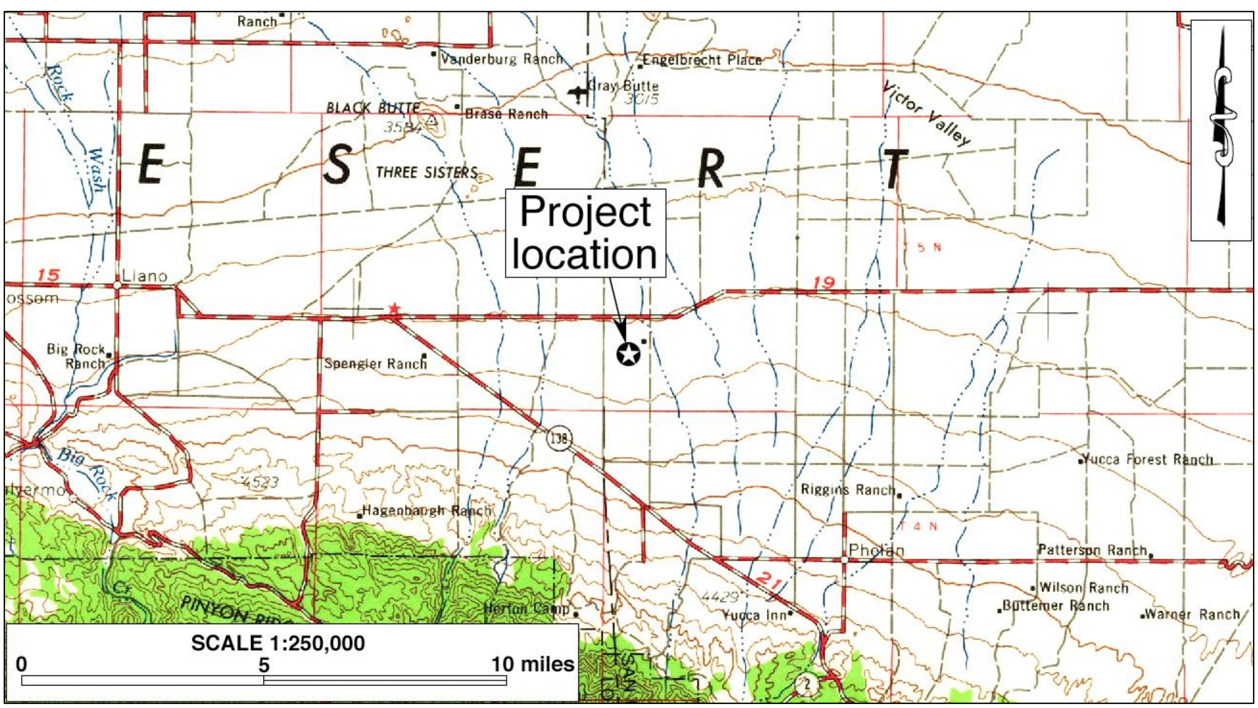

Figure 1. Project vicinity. (Based on USGS San Bernardino, Calif., 120'x60' quadrangle [USGS 1969])

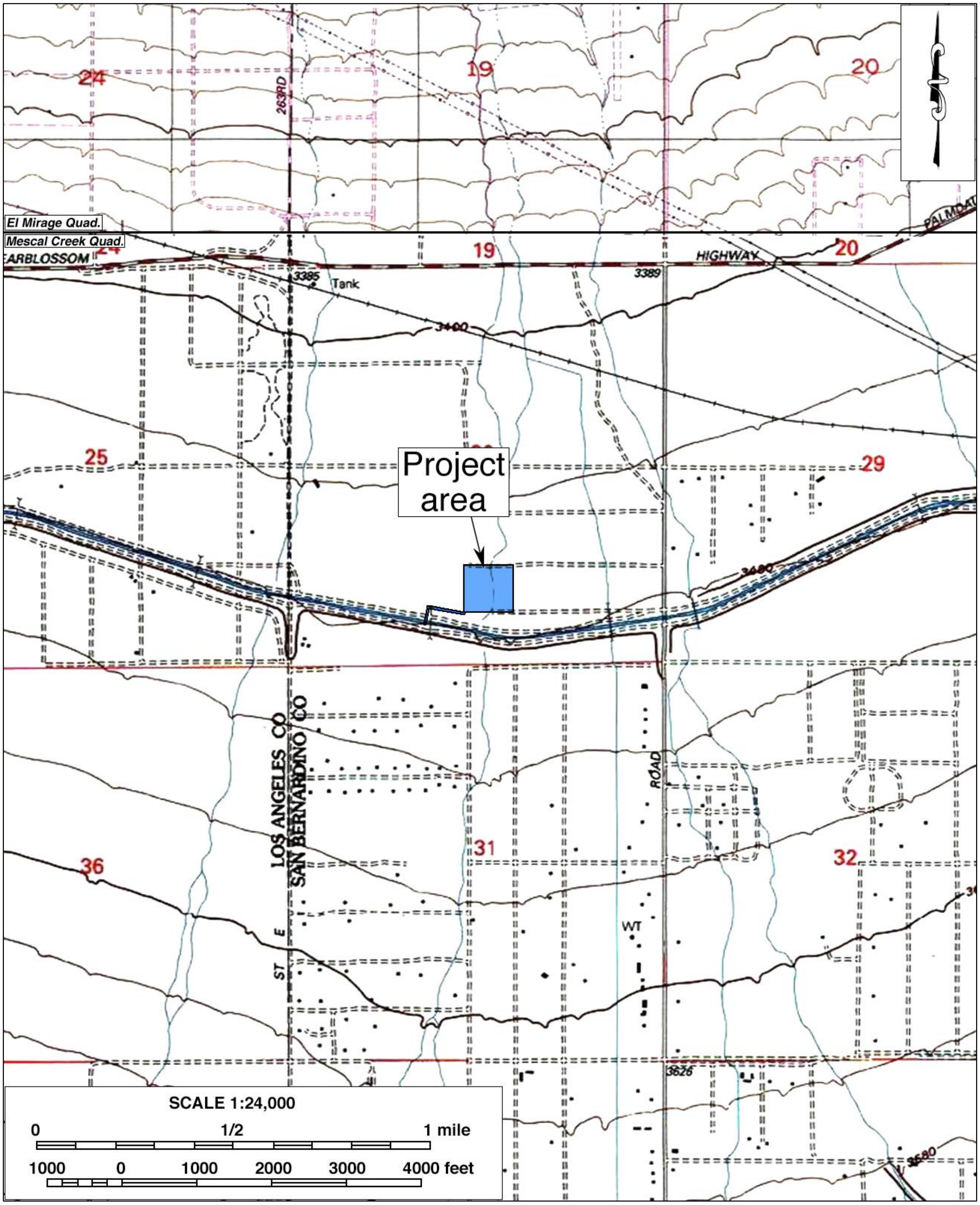

Figure 2. Project area. (Based on USGS El Mirage and Mescal Creek, Calif., 7.5' quadrangles [USGS 1968; 1995])

Figure 3. Aerial view of the project area.

SETTING

CURRENT NATURAL SETTING

The small, rural community of Phelan is located in the northern foothills of the San Gabriel Mountains and on the western edge of the Victor Valley. The San Gabriel Mountains comprise the portion of the Transverse Range that extends from Newhall Pass on the west to the Cajon Pass on the east, separating the Los Angeles Basin and the San Bernardino Valley from the western Mojave Desert. The climate and environment of the area are typical of southern California "high desert" country, so-called because of its higher elevation than the Colorado Desert to the southeast, and are marked by extremes in temperature and aridity. Summer highs reach well over 110ºF and winter lows dip below freezing. Average annual precipitation is less than five inches.

Situated within a sparsely populated rural residential area, the project location is surrounded by undeveloped desert land crisscrossed by unpaved roads (Fig. 3). The concrete-lined channel of the California Aqueduct (East Branch) lies approximately 200 feet to the south of the main project site, where the recharge basin will be constructed, while the southwestern end of the pipeline alignment includes an existing concrete overchute across the aqueduct (Fig. 3). Elevations in the project area range around 3,470 to 3,485 feet above mean sea level, and the terrain is relatively level with a slight incline towards the south.

Several small drainages traverse the project area, generally oriented north-south. The ground surface in the project area appears to have been disturbed by off-road vehicle use and recent dumping of landscaping, automotive, and construction waste. Modern domestic refuse was also observed. The surface soils are of grayish-brown, fine to coarse alluvial sands mixed with small rocks and gravel. Vegetation observed includes Joshua trees, creosote bush, brittlebush, cholla, and other small native and naturalized grasses and shrubs (Fig. 4).

Figure 4. Typical landscape in the project area. (Photograph taken on March 25, 2021; view to the east)

CULTURAL SETTING

Prehistoric Context

In order to understand the progress of Native American cultures prior to European contact, archaeologists have devised chronological frameworks on the basis of artifacts and site types that date back some 12,000 years. Currently, the chronology most frequently applied in the Mojave Desert divides the region's prehistory into five periods marked by changes in archaeological remains, reflecting different ways in which Native peoples adapted to their surroundings. According to Warren (1984) and Warren and Crabtree (1986), the five periods are as follows: the Lake Mojave Period, 12,000 years to 7,000 years ago; the Pinto Period, 7,000 years to 4,000 years ago; the Gypsum Period, 4,000 years to 1,500 years ago; the Saratoga Springs Period, 1,500 years to 800 years ago; and the Protohistoric Period, 800 years ago to European contact.

More recently, Hall (2000) presented a slightly different chronology for the region, also with five periods: Lake Mojave (ca. 8000-5500 B.C.), Pinto (ca. 5500-2500 B.C.), Newberry (ca. 1500 B.C.-500 A.D.), Saratoga (ca. 500-1200 A.D.), and Tecopa (ca. 1200-1770s A.D.). According to Hall (*ibid*.:14), small mobile groups of hunters and gatherers inhabited the Mojave Desert during the Lake Mojave sequence. Their material culture is represented by the Great Basin Stemmed points and flaked stone crescents. These small, highly mobile groups continued to inhabit the region during the Pinto Period, which saw an increased reliance on ground foods, small and large game animals, and the collection of vegetal resources, suggesting that "subsistence patterns were those of broad-based foragers" (*ibid*.:15). Artifact types found in association with this period include the Pinto points and *Olivella* sp. spire-lopped beads.

Distinct cultural changes occurred during the Newberry Period, in comparison to the earlier periods, including "geographically expansive land-use pattern…involving small residential groups moving between select localities," long-distance trade, and diffusion of trait characteristics (Hall 2000:16). Typical artifacts from this period are the Elko and Gypsum Contracting Stem points and Split Oval beads. The two ensuing periods, Saratoga and Tecopa, are characterized by seasonal group settlements near accessible food resources and the intensification of the exploitation of plant foods, as evidenced by groundstone artifacts (*ibid*.:16).

Hall (2000:16) states that "late prehistoric foraging patterns were more restricted in geographic routine and range, a consequence of increasing population density" and other variables. Saratoga Period artifact types include Rose Spring and Eastgate points as well as Anasazi grayware pottery. Artifacts from the Tecopa Period include Desert Side-notched and Cottonwood Triangular points, buffware and brownware pottery, and beads of the Thin Lipped, Tiny Saucer, Cupped, Cylinder, steatite, and glass types (*ibid*.).

Ethnohistoric Context

The Victor Valley area is situated near the presumed boundary between the traditional territories of the Serrano and the Vanyume peoples. The basic written sources on Serrano and Vanyume cultures are Kroeber (1925), Strong (1929), and Bean and Smith (1978), and the following ethnographic discussion of the Serrano and Vanyume peoples is based on these sources. Linguistically the Vanyume were probably related to the Serrano, their southern neighbor, although politically they seem to have differed from the Serrano proper. The number of Vanyumes, never large, dwindled rapidly between 1820 and 1834, when southern California Indians were removed to the various missions and their *asistencias*, and the group virtually disappeared well before 1900. As a result, very little is known about the Vanyume today.

The Serrano's territory is centered at the San Bernardino Mountains, but also includes part of the San Gabriel Mountains, much of the San Bernardino Valley, and the Mojave River valley in the southern portion of the Mojave Desert, reaching as far east as the Cady, Bullion, Sheep Hole, and Coxcomb Mountains. Prior to European contact, Serrano subsistence was defined by the surrounding landscape and primarily based on the gathering of wild and cultivated foods and hunting, exploiting nearly all of the resources available. They settled mostly on elevated terraces, hills, and finger ridges near where flowing water emerged from the mountains.

Loosely organized into exogamous clans led by hereditary heads, the clans were in turn affiliated with one of two exogamous moieties, the Wildcat (*Tukutam*) or the Coyote (*Wahiiam*). The exact nature of the clans, their structure, function, and number are not known, except that each clan was the largest autonomous political and landholding unit. The core of the unit was the patrilineage, although women retained their own lineage names after marriage. There was no pan-tribal political union among the clans.

The Serrano had a variety of technological skills that they used to acquire food, shelter, and clothing as well as to create ornaments and decorations. Common tools included manos and metates, mortars and pestles, hammerstones, fire drills, awls, arrow straighteners, and stone knives and scrapers. These lithic tools were made from locally sourced material as well as materials procured through trade or travel. They also used wood, horn, and bone spoons and stirrers; baskets for winnowing, leaching, grinding, transporting, parching, storing, and cooking; and pottery vessels for carrying water, storage, cooking, and serving food and drink. Much of this material cultural, elaborately decorated, does not survive in the archaeological record. As usual, the main items found archaeologically relate to subsistence activities.

Although contact with Europeans may have occurred as early as 1771 or 1772, Spanish influence on Serrano lifeways was minimal until the 1810s, when a mission *asistencia* was established on the southern edge of Serrano territory. Between then and the end of the mission era in 1834, most of the Serrano in the western portion of their traditional territory were removed to the nearby missions. In the eastern portion, a series of punitive expeditions in 1866-1870 resulted in the death or displacement of almost all remaining Serrano population in the San Bernardino Mountains. Today, most Serrano descendants are affiliated with the San Manuel Band of Mission Indians, the Morongo Band of Mission Indians, or the Serrano Nation of Indians.

Historic Context

The Victor Valley region received its first European visitor, the famed Spanish missionary and explorer Francisco Garcés, in 1776, and the first Euroamerican settlements appeared in the valley as early as 1860 (Peirson 1970:128). Despite these "early starts," due to its harsh environment, development in the arid high desert country of southern California was slow and limited for much of the historic period, and the Victor Valley remained only sparsely populated until the second half of the 20th century.

Garcés traveled through the Victor Valley along an ancient Indian trading route known today as the Mojave Trail (Beck and Haase 1974:15). In 1829, most of this trail was incorporated into an important pack-train road known as the Old Spanish Trail, which extended between southern California and Santa Fe, New Mexico (Warren 2004). Some 20 years later, when the historic wagon road known as the Mormon Trail or Salt Lake Trail was established between Utah and southern California, it followed essentially the same route across the Mojave Desert (NPS 2001:5). Since then, the Victor Valley has always served as a crucial link on a succession of major transportation arteries, where the heritage of the ancient Mojave Trail was carried on by the Santa Fe Railway, by the legendary U.S. Route 66, and finally by today's Interstate Highway 15.

Thanks to the availability of fertile lands and the abundance of ground water, agriculture played a dominant role in the early development of the Victor Valley area (McGinnis 1988). During the late 19th and early 20th centuries, settlers in the valley attempted a number of money-making staples, such as alfalfa, deciduous fruits, and poultry, with only limited success. In the vicinity of present-day Phelan, settlement activities began in the early 20th century, when a number of ranches came into being along the foothills on the San Gabriel Mountains. The Phelan post office was established in 1916 and named after Senator James D. Phelan, whose political influence brought about its establishment (Gudde 1998:288).

Around the turn of the century, large deposits of limestone and granite were discovered, prompting cement manufacturing to become the leading industry in the valley (City of Victorville n.d.). During and after WWII, George Air Force Base, established in 1941, added a new driving force in the local economy with its 6,000 military and civilian employees. After being deactivated in 1992, the former base was converted for civilian use as the Southern California Logistics Airport.

Since the 1980s, development the Victor Valley has been characterized by the emergence of its leading urban enclaves as "bedroom communities" in support of the industrial and commercial centers in the Greater Los Angeles area. Spearheaded by the City of Victorville, the Town of Apple Valley, and the City of Hesperia on Interstate Highway 15, the desert valley has been one of the fastest growing regions in California over the last few decades. The Phelan area in the western Victor Valley, in contrast, has largely remained outside the influence of the recent suburban expansion, and to this day retains much of its rural character.

RESEARCH METHODS

RECORDS SEARCH

The historical/archaeological resources records search service for this study was provided by the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS) on March 15, 2021. Located on the campus of California State University, Fullerton, SCCIC is the State of California's official cultural resource records repository for the County of San Bernardino. During the records search, SCCIC staff examined the center's digital maps, records, and databases for previously identified cultural resources and existing cultural resources reports within a half-mile radius of the project area. Due to facility closure during the COVID-19 pandemic, records that had not been digitized were unavailable to SCCIC staff, and the results of recent studies have not been processed. Therefore, SCCIC cautions that the records search results "may or may not be complete" (see App. 2).

SACRED LANDS FILE SEARCH

On February 16, 2021, CRM TECH submitted a written request to the State of California Native American Heritage Commission (NAHC) for a records search in the commission's Sacred Lands File. The NAHC is the State of California's trustee agency for the protection of "tribal cultural resources," as defined by California Public Resources Code §21074, and is tasked with identifying and cataloging properties of Native American cultural value, including places of special religious, spiritual, or social significance and known graves and cemeteries throughout the state. The response from the NAHC is summarized below and attached to this report in Appendix 3.

HISTORICAL RESEARCH

Historical background research for this study was conducted by CRM TECH principal investigator/historian Bai "Tom" Tang. Sources consulted during the research included published literature in local history, historic maps of the Phelan area, and aerial photographs of the project vicinity. Among the maps consulted for this study were the U.S. General Land Office's (GLO) land survey plat maps dated 1856 and USGS topographic maps dated 1903-1995, which are accessible at the websites of the U.S. Bureau of Land Management and the USGS. The aerial photographs, taken in 1952-2020, are available at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software.

FIELD SURVEY

On March 25, 2021, CRM TECH field director Daniel Ballester and project archaeologist Arturo Aldaco carried out the intensive-level, on-foot field survey. The recharge basin site was surveyed by walking a series of parallel north-south transects spaced 15 meters (approximately 45 feet) apart, while the pipeline right-of-way was surveyed along two parallel 10-meter (approximately 33-foot) transects placed on either side of the project centerline. In this way, the ground surface in the entire project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years ago or older). Ground visibility was poor (approximately 50%) where pockets of thick vegetation growth are present but was excellent (90%) over most of the property (Fig. 4).

RESULTS AND FINDINGS

RECORDS SEARCH

According to SCCIC records, a 2010 study along the East Branch of the California Aqueduct crossed the southwestern tip of the project area (ESA 2010; Fig. 5), but the rest of the project area has not been involved in any previous cultural resources studies. No other studies have been reported to the SCCIC within the half-mile scope of the records search (see App. 2). In addition to being the subject of the only previous study in the vicinity, the aqueduct also represents the only cultural resource that has been recorded within the project area or the half-mile scope (see App. 2).

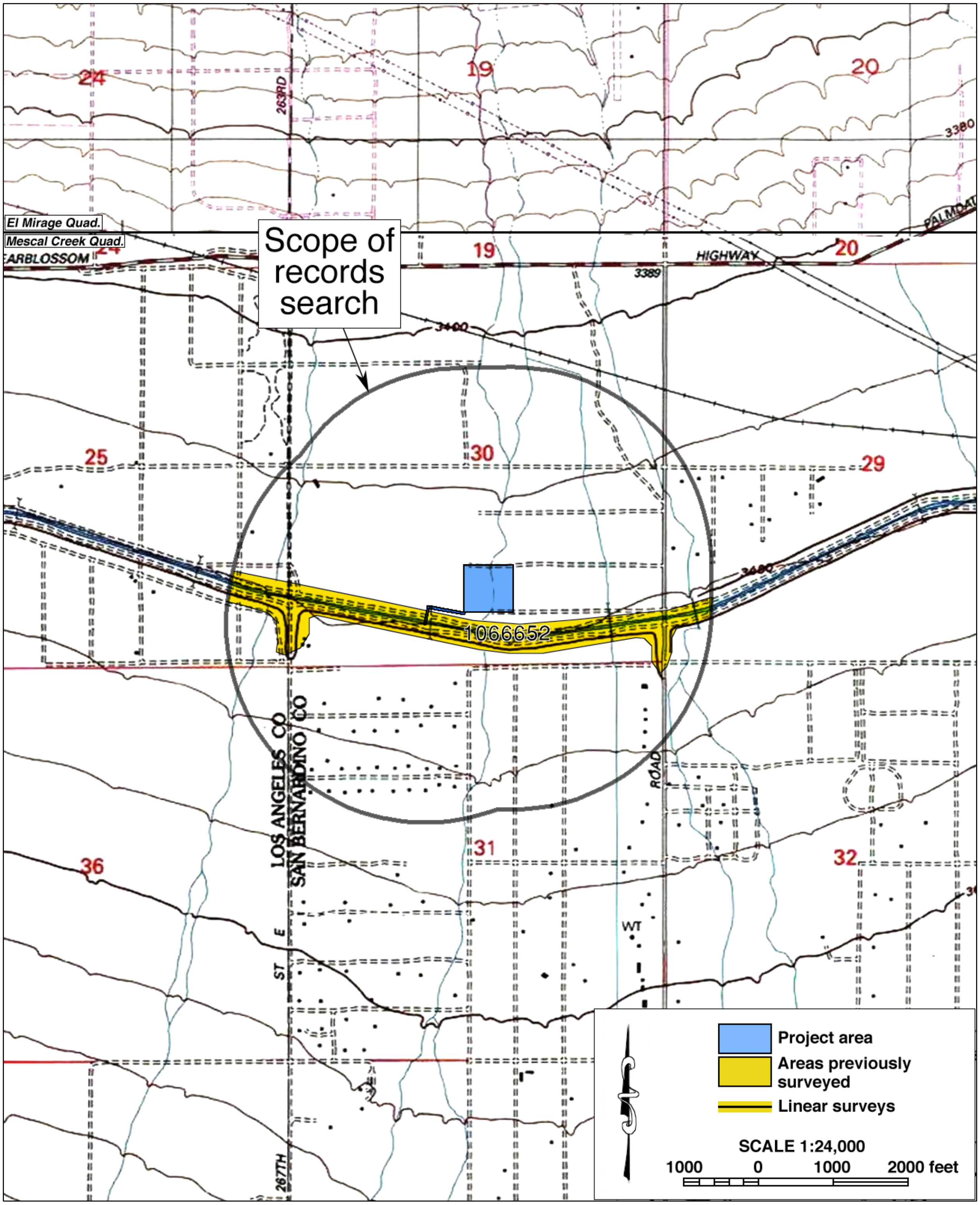

Figure 5. Previous cultural resources study within the scope of the records search. Location of historical/ archaeological resources are not shown as a protective measure.

Constructed in 1966-1973 as a part of the backbone of the massive California State Water Project, the 98-mile-long East Branch of the California Aqueduct has been recorded into the CHRIS at many locations in San Bernardino County since 2008, along with such associated features as bridges, overchutes, siphons, tunnels, culverts, and penstocks, and has been designated as Site 36-021351 in the inventory (see App. 4). Various segments of the canal have been evaluated individually for historic significance in the past, with differing results depending on the historic integrity assessment (see App. 4).

While some segments were found not to retain sufficient historic integrity to relate to the aqueduct's period of origin, overall the East Branch has been found eligible for listing in the National Register of Historic Places and the California Register of Historical Resources as a critical element of the California State Water Project, an important public works project that provided water to more than two-thirds of the state's population, and as a highly distinguished engineering enterprise (Anderson 2009:12; Ambacher 2011:5-6). As a whole, the East Branch has also been found to have a high level of historic integrity in relation to the 1966-1973 era (Anderson 2009:13; Ambacher 2011:6).

SACRED LANDS FILE SEARCH

In response to CRM TECH's inquiry, the NAHC reports in a letter dated March 2, 2021, that the Sacred Lands File identified no Native American cultural resources in the project vicinity. Noting that the absence of specific information would not necessarily indicate the absence of cultural resources, however, the NAHC recommended that local Native American groups be consulted for further information and provided a referral list of eight individuals associated with five local Native American groups who may have knowledge of such resources. The NAHC's reply is attached in Appendix 3 for reference by the MWA in future government-to-government consultations with the pertinent tribal groups.

HISTORICAL RESEARCH

Historical sources consulted for this study indicate no notable human-made features in the immediate vicinity of the project area until the construction of the East Branch of the California Aqueduct, although a few winding dirt roads and a "Smith Ranch" were reported nearby at least by the 1930s-1940s (Figs. 6-9; NETR Online 1952-1974). The desert landscape in and around the project area remained largely unaltered as late as 1968 (NETR Online 1968). In contrast, the portion of the California Aqueduct across this area, including the service roads along its banks and the overchute across the canal at the southwestern end of the project area, had been completed by 1974 (NETR Online 1974). Cayucos Drive, an unpaved road, was present by 1994, but no further changes in land use have been observed within or adjacent to the project boundaries since then (NETR Online 1974-2016; Google Earth 1994-2020).

FIELD SURVEY

The field survey confirmed the East Branch of the California Aqueduct (Site 36-021351) to be the only potential cultural resource present within or adjacent to the project boundaries, and no other features, sites, or artifact deposits of prehistoric or historical origin were encountered. As mentioned above, the ground surface in the project area has been partially disturbed, and scattered domestic

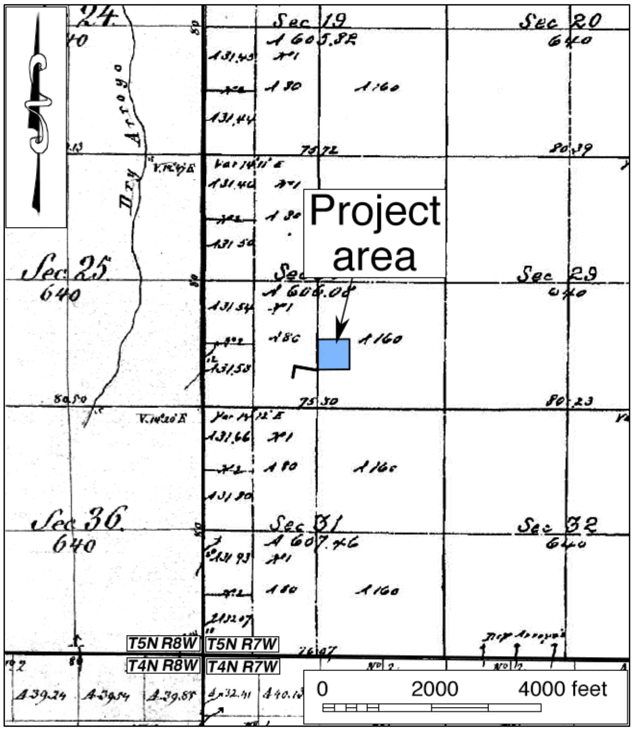

Figure 6. The project area and vicinity in 1853-1856.
(Source: GLO 1856a-d)

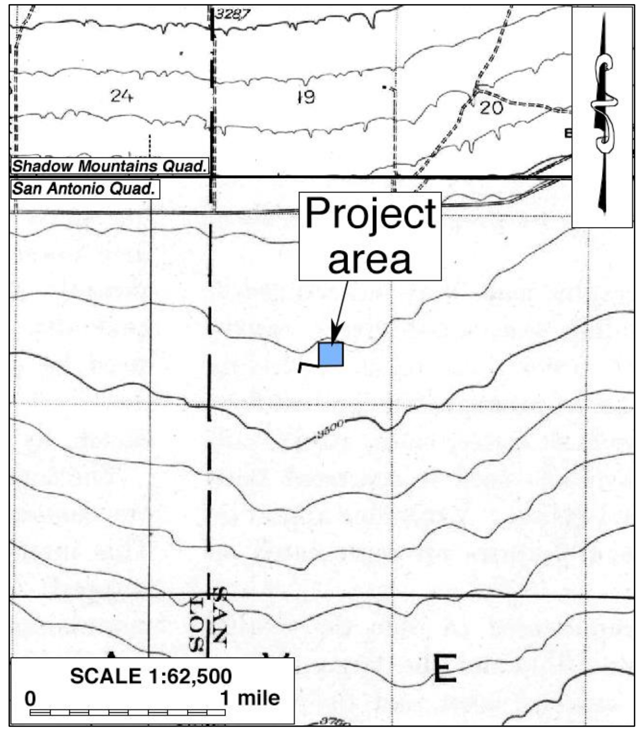

Figure 7. The project area and vicinity in 1899-1937.
(Source: USGS 1903; 1937)

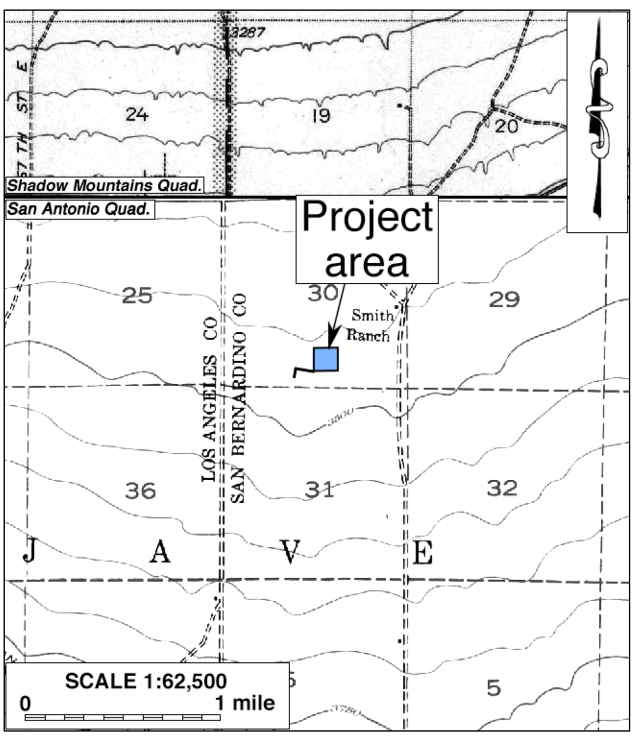

Figure 8. The project area and vicinity in 1941-1942.
(Source: USGS 1942a; 1942b)

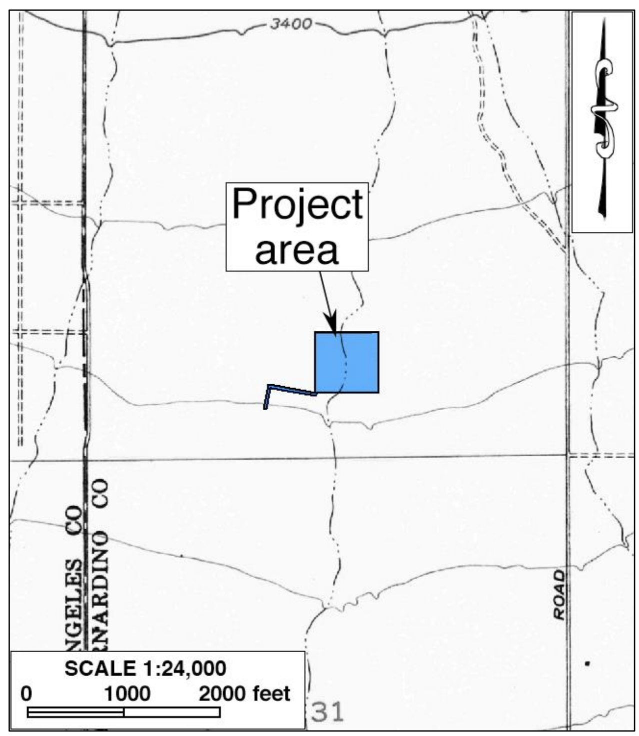

Figure 9. The project area and vicinity in 1952-1956.
(Source: USGS 1956)

refuse and other waste were observed over much of the property. All of these items are clearly modern in age, and none of them demonstrate any historical or archaeological interest.

The portion of the California Aqueduct (East Branch) within the project boundaries includes a small segment of the concrete-lined main canal, the accompanying service roads, and the concrete overchute across the canal and at the southwestern end of the proposed pipeline alignment. All of these features evidently date to the original completion of the project in 1966-1973 (NETR Online 1974), and all of them retain relatively good integrity to relate to that era (Fig. 10).

Figure 10. Portion of the California Aqueduct in the project area. (Photograph taken on March 25, 2021; view to the south)

DISCUSSION

CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired." According to PRC §5020.1(j), "'historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California."

More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the lead agency (Title 14 CCR §15064.5(a)(1)-(3)). Regarding the proper criteria for the evaluation of historical significance, CEQA guidelines mandate that "generally a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

As stated above, the only potential "historical resource" identified within or adjacent to the project area during this study is a small portion of the California Aqueduct (East Branch) across the southwestern tip of the proposed pipeline alignment. Designated Site 36-021351 in the California Historical Resources Inventory, the site as a whole was determined eligible for listing in the California Register of Historical Resources during previous studies for its close association with the California State Water Project, a significant event in itself in the history of the state (Criterion 1), and as a distinguished engineering enterprise (Criterion 3; Anderson 2009:12; Ambacher 2011:5-6).

In light of the important role that the California State Water Project played in the growth of the state during the post-WWII era and the multitude of recognitions that the project has received for its engineering feat since the 1960s (see Anderson 2009:12 in App. 4), the present study is in agreement with the previous evaluation cited above. Furthermore, this study finds the portion of the aqueduct in the project area to retain sufficient historic integrity to reflect the identified aspects of significance. This portion of the California Aqueduct (East Branch), therefore, meets the definition of a "historical resource" for CEQA-compliance purposes in relation to the proposed project.

At the location where the project area extends across the aqueduct, preliminary construction plans call for the installation of a pump on or near the overchute to divert water from the open canal below into the proposed pipeline for conveyance to the recharge basin. Given the scale of these activities, the impact on the historic integrity of the 98-mile-long East Branch of the California Aqueduct in terms of setting, design, materials, workmanship, feeling, and association will be miniscule. In addition, the proposed pumping equipment and pipeline will not materially detract from the functional and atmospheric character of the aqueduct, itself a utilitarian water-conveyance facility, or from its associated features such as the overchute. Based on these considerations, the present study further concludes that the proposed project will not cause a substantial adverse change in the significance, integrity, and overall character of the aqueduct.

CONCLUSION AND RECOMMENDATIONS

In conclusion, the present study has identified one "historical resource" from the late historic period, the 1966-1973 California Aqueduct (Eastern Branch), as lying partially within the project area but has determined that the proposed project will not cause a substantial adverse change in the significance of this property. Therefore, CRM TECH presents the following recommendations to the MWA pursuant to CEQA provisions on cultural resources:

- The proposed project will have *no impact* on any known "historical resources."
- No further cultural resources investigation will be necessary for the project unless construction plans undergo such changes as to include areas not covered by this study.
- If any buried cultural materials are encountered during earth-moving operations associated with the project, all work within 50 feet of the discovery should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

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GLO (General Land Office, U.S. Department of the Interior)

1856a Plat Map: Township No. 4 North Range No. 7 West, SBBM; surveyed in 1855-1856.

1856b Plat Map: Township No. 4 North Range No. 8 West, SBBM; surveyed in 1855.

1856c Plat Map: Township No. 5 North Range No. 7 West, SBBM; surveyed in 1853-1855.

1856d Plat Map: Township No. 5 North Range No. 8 West, SBBM; surveyed in 1853-1855.

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1994-2020 Aerial photographs of the project vicinity; taken in 1994, 2002, 2005-2009, 2011, 2013, and 2015-2020. Available through the Google Earth software.

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1988 *The Hesperia Story: Indian Territory to Cityhood*. Myra McGinnis, Hesperia, California.

NETR (Nationwide Environmental Title Research) Online
1952-2016 Aerial photographs of the project vicinity; taken in 1952, 1953, 1954, 1968, 1974, 1978, 1994, 2002, 2005, 2009, 2010, 2012, 2014, and 2016. http://www.historicaerials.com.

NPS (National Park Service, U.S. Department of the Interior)
2001 *National Historic Trail Feasibility Study and Environmental Assessment: Old Spanish Trail, New Mexico, Colorado, Utah, Arizona, Nevada, California*. National Park Service, U.S. Department of the Interior, Washington, D.C.

Peirson, Erma
1970 *The Mojave River and Its Valley*. The Arthur H. Clarke Company, Glendale.

Strong, William Duncan
1929 *Aboriginal Society in Southern California*. University of California Publications in American Archaeology and Ethnology 26. Reprinted by Malki Museum Press, Banning, California, 1972.

USGS (United States Geological Survey, U.S. Department of the Interior)
1903 Map: San Antonio, Calif. (15’, 1:62,500); surveyed in 1899-1900.
1937 Map: Shadow Mountains, Calif. (15’, 1:62,500); surveyed in 1930-1937.
1942a Map: San Antonio, Calif. (15’, 1:62,500); aerial photographs taken in 1941, field-checked in 1942.
1942b Map: Shadow Mountains, Calif. (15’, 1:62,500); surveyed in 1930-1937; revised version.
1956 Map: Mescal Creek, Calif. (7.5’, 1:24,000); aerial photographs taken in 1952, field-checked in 1956.
1968 Map: El Mirage, Calif. (7.5’, 1:24,000); 1956 edition photorevised in 1968.
1969 Map: San Bernardino, Calif. (1:250,000); 1958 edition revised.
1995 Map: Mescal Creek, Calif. (7.5’, 1:24,000); imagery taken in 1994.

Warren, Claude N.
1984 The Desert Region. In Michael J. Moratto (ed.): *California Archaeology*; pp. 339-430. Academic Press, Orlando, Florida.

Warren, Claude N., and Robert H. Crabtree
1986 Prehistory of the Southwestern Area. In Warren L. D’Azevedo (ed.): *Handbook of North American Indians,* Vol. 11: *Great Basin*; pp. 183-193. Smithsonian Institution, Washington, D.C.

Warren, Elizabeth von Till
2004 The Old Spanish National Historic Trail. http://oldspanishtrail.org/our-history.

APPENDIX 1:
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR/HISTORIAN
Bai "Tom" Tang, M.A.

Education

1988-1993	Graduate Program in Public History/Historic Preservation, University of California, Riverside.
1987	M.A., American History, Yale University, New Haven, Connecticut.
1982	B.A., History, Northwestern University, Xi'an, China.

2000	"Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994	"Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002	Project Historian/Architectural Historian, CRM TECH, Riverside, California.
1993-1997	Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993	Project Historian, Archaeological Research Unit, University of California, Riverside.
1990	Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992	Teaching Assistant, History of Modern World, University of California, Riverside.
1988-1993	Research Assistant, American Social History, University of California, Riverside.
1985-1988	Research Assistant, Modern Chinese History, Yale University.
1985-1986	Teaching Assistant, Modern Chinese History, Yale University.
1982-1985	Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (with Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

PRINCIPAL INVESTIGATOR/ARCHAEOLOGIST
Michael Hogan, Ph.D., RPA*

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.

2002	Section 106—National Historic Preservation Act: Federal Law at the Local Level. UCLA Extension Course #888.
2002	"Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002	"Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992	"Southern California Ceramics Workshop," presented by Jerry Schaefer.
1992	"Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist/Field Director, CRM TECH, Riverside.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands.
1992-1998	Assistant Research Anthropologist, University of California, Riverside
1992-1995	Project Director, Archaeological Research Unit, U. C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U. C. Riverside.
1984-1998	Archaeological Technician, Field Director, and Project Director for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1986.

Memberships

* Register of Professional Archaeologists; Society for American Archaeology; Society for California Archaeology; Pacific Coast Archaeological Society; Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/FIELD DIRECTOR
Daniel Ballester, M.S., RPA (Registered Professional Archaeologist)

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.
2007	Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.
2002	"Historic Archaeology Workshop," presented by Richard Norwood, Base Archaeologist, Edwards Air Force Base; presented at CRM TECH, Riverside, California.

Professional Experience

2002-	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
2011-2012	GIS Specialist for Caltrans District 8 Project, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew Chief, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew, ECorp, Redlands.
1999-2002	Project Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

Cultural Resources Management Reports

Field Director, co-author, and contributor to numerous cultural management reports since 2002.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Deirdre Encarnación, M.A.

Education

2003	M.A., Anthropology, San Diego State University, California.
2000	B.A., Anthropology, minor in Biology, with honors; San Diego State University, California.

Professional Experience

2004-	Project Archaeologist/Report Writer, CRM TECH, Riverside/Colton, California.
2001-2003	Part-time Lecturer, San Diego State University, California.
2001	Research Assistant for Dr. Lynn Gamble, San Diego State University.
2001	Archaeological Collection Catalog, SDSU Foundation.

Memberships

Society for California Archaeology; Society for Hawaiian Archaeology; California Native Plant Society; Journal of California and Great Basin Anthropology.

PROJECT ARCHAEOLOGIST
Arturo E. Aldaco, B.S.

Education

2020	B.S., Anthropology, University of California, Riverside.
2018	A.S., Anthropology, Chaffey College, Rancho Cucamonga, California.

Professional Experience

2021-	Project Archaeologist, CRM TECH, Riverside/Colton, California.
2020	Field Archaeologist, McKenna et al., Whittier, California.
2019-2020	Peer Educator, University of California, Riverside.
2019	Field Crew Member, Northern Arizona University: Belize Valley Archaeological Reconnaissance, San Ignacio, Belize.

APPENDIX 2

SUMMARY OF CULTURAL RESOURCES RECORDS SEARCH RESULTS

South Central Coastal Information Center
California State University, Fullerton
Department of Anthropology MH-426
800 North State College Boulevard
Fullerton, CA 92834-6846
657.278.5395 / FAX 657.278.5542
sccic@fullerton.edu
California Historical Resources Information System
Orange, Los Angeles, and Ventura Counties

3/15/2021 Records Search File No.: 22138.8285

Nina Gallardo
CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Re: Record Search Results for the 3706A Cayucos Aqueduct Arch

The South Central Coastal Information Center received your records search request for the project area referenced above, located on the Mescal Creek, CA USGS 7.5' quadrangle(s). Due to the COVID-19 emergency, we have implemented new records search protocols, which limits the deliverables available to you at this time. **WE ARE ONLY PROVIDING DATA THAT IS ALREADY DIGITAL AT THIS TIME.** Please see the attached document on COVID-19 Emergency Protocols for what data is available and for future instructions on how to submit a records search request during the course of this crisis. If your selections on your data request form are in conflict with this document, we reserve the right to default to emergency protocols and provide you with what we stated on this document. You may receive more than you asked for or less than you wanted. The following reflects the results of the records search for the project area and a ½-mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☒ custom GIS maps ☐ shape files ☐ hand-drawn maps

Resources within project area: 1	P-36-021351
Resources within ½-mile radius: 0	None
Reports within project area: 1	SB-06652
Reports within ½-mile radius: 0	None

Resource Database Printout (list):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database (spreadsheet):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (list):	☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database (spreadsheet):	☒ enclosed	☐ not requested	☐ nothing listed
Resource Record Copies:	☒ enclosed	☐ not requested	☐ nothing listed
Report Copies:	☒ enclosed	☐ not requested	☐ nothing listed

OHP Built Environment Resources Directory (BERD) 2019: ☒ available online; please go to https://ohp.parks.ca.gov/?page_id=30338
Archaeo Determinations of Eligibility 2012: ☐ enclosed ☐ not requested ☒ nothing listed
Historical Maps: ☒ not available at SCCIC; please go to https://ngmdb.usgs.gov/topoview/viewer/#4/39.98/-100.02
Ethnographic Information: ☒ not available at SCCIC
Historical Literature: ☒ not available at SCCIC
GLO and/or Rancho Plat Maps: ☒ not available at SCCIC
Caltrans Bridge Survey: ☒ not available at SCCIC; please go to http://www.dot.ca.gov/hq/structur/strmaint/historic.htm
Shipwreck Inventory: ☒ not available at SCCIC; please go to http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp
Soil Survey Maps: (see below) ☒ not available at SCCIC; please go to http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System,

Isabela Kott
GIS Technician/Staff Researcher

Enclosures:

(X) Covid-19 Emergency Protocols for San Bernardino County Records Searches – 2 pages

(X) Custom Maps – 1 page

(X) Resource Digital Database (spreadsheet) – 1 line

(X) Report Digital Database (spreadsheet) – 1 line

(X) Resource Record Copies – (all) 71 pages

(X) Report Copies – (project area) 166 pages

Emergency Protocols for San Bernardino County Records Searches

These instructions are for qualified consultants with a valid Access and Use Agreement.

WE ARE ONLY PROVIDING DATA THAT IS ALREADY DIGITAL AT THIS TIME. WE ARE NOT PROVIDING SHAPEFILE DATA FOR SAN BERNARDINO COUNTY; YOU WILL ONLY RECEIVE A CUSTOM DIGITAL MAP.

We can only provide you information that is already in digital format; therefore, your record search may or may not be complete. Some records are only available in paper formats and so may not be available at this time. This also means that there may be data missing from the database bibliographies; locations of resource and report boundaries may be missing or mis-mapped on our digital maps; and that no pdf of a resource or report is available or may be incomplete.

As for the GIS mapped data, bibliographic databases, and pdfs of records and reports; not all the data in our digital archive for San Bernardino County was processed by SCCIC, therefore, we cannot vouch for its accuracy. Accuracy checking and back-filling of missing information is an on-going process under normal working conditions and cannot be conducted under the emergency protocols.

This is an extraordinary and unprecedented situation. Your options will be limited so that we can help as many of you as possible in the shortest amount of time. You may not get everything you want and/or you may get more than you want. We appreciate your patience and resilience.

Please send in your request via email using the data request form along with the associated shape files and pdf map of the project area. If you have multiple SBCO jobs for processing, you may not get them all back at the same time. Use this data request form:

http://web.sonoma.edu/nwic/docs/CHRISDataRequestForm.pdf

Please make your selections on the data request form based on the following instructions.

1. Keep your search radius as tight as possible, but we understand if you have a requirement. The wider the search radius, the higher the cost. You are welcome to request a Project area only search, but please make it clear on the request form that that is what you are seeking.

2. <u>You will get custom maps of resource locations for the project area and the radius that you choose. We will only be providing maps of report locations for the project area and up to a ¼-mile radius</u>. If you need bibliographic information for more than ¼-mile radius – you will be charged for all report map features within your selected search radius. You can opt out of having us create custom maps but you still pay for the map features in the project area or the selected search radius if you want the associated bibliographic information or pdfs of resources or reports.

3. You can request copies of site records and reports if they are digitally available.

4. You will also get the bibliographies (List, Details, Spreadsheet) that you choose for resources and reports. Because the bibliographic database is not yet complete, you will only get what is available at the time of your records search.
5. If you request more than what we are offering here, we may provide it if it is available or we reserve the right to default to these instructions. If you want copies of resources and reports that are not available digitally at the time of the search, you can send us a separate request for processing when we are allowed to return to the office. Fees will apply.

6. **You will need to search the OHP BERD yourself for your project area and your search radius.** This replaces the old OHP HPD. It is available online at the OHP website.

7. You can go online to find historic maps, so we are not providing them at this time.

8. Your packet will be sent to you electronically via Dropbox. We use 7-zip to password protect the files so you will need both on your computers. We email you the password. If you can't use Dropbox for some reason, then you will need to provide us with your Fed ex account number and we will ship you a disc with the results. As a last resort, we will ship on a disc via the USPS. You may be billed for our shipping and handling costs.

9. We will be billing you at the staff rate of $150 per hour and you will be charged for all resources and reports according to the "custom map charges", <u>even if you don't get a custom or hand-drawn map.</u> You will also be billed 0.15 per pdf page, as usual. Quad fees will apply if your research includes more than 2 quads. The fee structure for custom maps was designed to mimic the cost of doing the search by hand so the fees are comparable.

10. **<u>A copy of the digital fee structure is available on the Office of Historic Preservation website under the CHRIS tab. If the digital fee structure is new to you or you don't understand it; please ask questions before we process your request, not after. Thank you.</u>**

APPENDIX 3

NATIVE AMERICAN SACRED LANDS FILE SEARCH RESULTS

STATE OF CALIFORNIA Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

March 2, 2021

Nina Gallardo
CRM TECH

Via Email to: ngallardo@crmtech.us

Re: Proposed Oeste Recharge Project, San Bernardino County

Dear Ms. Gallardo:

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.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Bernardino County
3/2/2021

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Road
Banning, CA, 92220
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov
Cahuilla
Serrano

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
12700 Pumarra Road
Banning, CA, 92220
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov
Cahuilla
Serrano

Quechan Tribe of the Fort Yuma Reservation
Manfred Scott, Acting Chairman
Kw'ts'an Cultural Committee
P.O. Box 1899
Yuma, AZ, 85366
Phone: (928) 750 - 2516
scottmanfred@yahoo.com
Quechan

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899
Yuma, AZ, 85366
Phone: (760) 572 - 2423
historicpreservation@quechantribe.com
Quechan

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838
Newhall, CA, 91322
Phone: (503) 539 - 0933
Fax: (503) 574-3308
ddyocum@comcast.net
Kitanemuk
Vanyume
Tataviam

San Manuel Band of Mission Indians
Jessica Mauck, Director of Cultural Resources
26569 Community Center Drive
Highland, CA, 92346
Phone: (909) 864 - 8933
jmauck@sanmanuel-nsn.gov
Serrano

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com
Serrano

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com
Serrano

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 Proposed Oeste Recharge Project, San Bernardino County.

APPENDIX 4

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORD FORMS

Site 36-021351 (California Aqueduct, East Branch)

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # **P-36-021351 (Update)**
HRI # ______________________
Trinomial ______________________

Page 1 of 1
Recorded by: Laura Voisin George, ASM Affiliates
☐ Continuation ■ Update

***Resource Name or #** California Aqueduct
Date: May 1, 2018

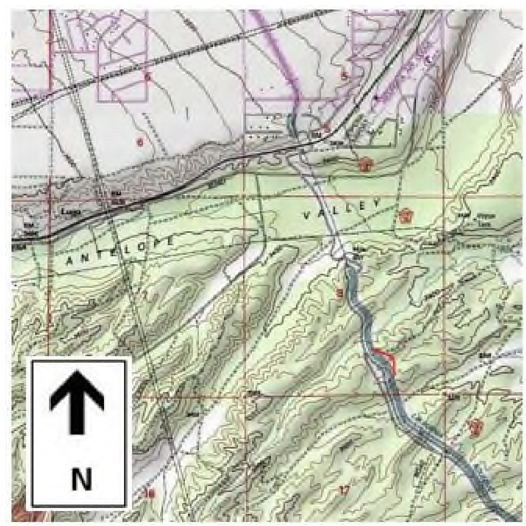
***P3a. Description:**
This resource is the California Aqueduct East Branch, a 98-mile-long segment of the 444-mile-long California Aqueduct. Part of the California State Water Project, the California Aqueduct was constructed between 1966 and 1973. The Eldorado-Lugo and Lugo-Mohave 500kV transmission lines cross the resource in the northern foothills of the west end of the San Bernardino Mountains, approximately 1.25 miles south of Hesperia Airport and 3.5 miles north of the aqueduct's intersection with the Silverwood Lake Reservoir.

The California Aqueduct has previously been recorded by URS (2008), ESA (2009), Pacific Legacy (2013), and Davis (2017).

This segment of the California Aqueduct is a concrete-lined trapezoidal-shaped open canal, approximately 80 feet in width, and runs in a generally north-northwest to south-southeast direction. There is a paved access road on the easterly side of the aqueduct, and an unpaved access road on the westerly side. It is in good condition. Sandy banks rise on the far side of each access road at this location, and the surrounding terrain features creosote scrub community vegetation.

***P11. Report Citation:**(cite survey report and sources, or enter"none.")
Historic Resources Assessment Report for the Eldorado-Lugo-Mohave Capacitor Project, San Bernardino County, California (2018).

California Aqueduct East Branch (P-36-021351) at transmission corridor, view to southwest.



State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-36-021351 (Update)
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

 ***Resource Name or #:** California Aqueduct East Branch

P1. Other Identifier: East Branch of the California Aqueduct (EBA) (Anderson 2009)
***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County:** San Bernardino
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** Hesperia and Silverwood Lake **Date:** 1956 (PR1956) and 1996, (see Continuation Sheet)**; S.B.B.M.**
c. Address: None **City:** N/A Zip: N/A
d. UTM: Nad83**; Zone: 11**N Segment 1: 469578mE/ 3804850mN (N end), 470149mE/ 3803997mN (S end); Segment 2: 470633mE/ 3802256mN (N end), 470988mE/ 3801320mN (S end); Segment 3: 470304mE/ 3803240mN (N end), 470625mE/ 3802391mN (S end) (Trimble Geo TX)

e**. Other Locational Data**: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 3,400 feet amsl
From Interstate 15 in Victorville, travel south and exit on Main Street in Hesperia. Travel east approximately 5.0 miles to C Ave. Turn right (south) onto C Ave. and proceed approximately 2.5 miles to Old Ranchero Road. Turn right (west) on Old Ranchero Road. Old Ranchero Road turns into Ranchero Road. Travel a total of 1.35 miles to the aqueduct and park to access the documented Segment 1, approximately 175 ft south of the road (*see* Continuation Sheet).

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The California Aqueduct East Branch is a 98-mile segment of the larger 444-mile California Aqueduct. A small segment of the California Aqueduct East Branch, on Baldy Mesa topographic quadrangle sheet, was originally recorded by Hollins (2008) and later the entire 98-mile segment was documented and evaluated by Anderson (2009). The California Aqueduct East Branch was constructed between 1966 and 1973. Anderson (2009) evaluated the California Aqueduct East Branch under NRHP Criterion G within the context of California Water conveyance systems and recommended the resource as appearing eligible for the National Register of Historic Places (NRHP) and the California Register of Historic Resources (CRHR) under Criteria A/1 and C/3. The Office of Historic Preservation did not list the California Aqueduct as a resource or property in 2015 (OHP 2015). See Hollins (2008) and Anderson (2009) records for additional historical information and a comprehensive description and discussion of the California Aqueduct East Branch (see Continuation Sheet) and BSO form for evaluation .

***P3b. Resource Attributes:** (List attributes and codes) HP20 (Canal/Aqueduct)
***P4. Resources Present:** ☐Building ☒Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: Camera A2, 08/28/2012. Frame 1073. View southwest. Overview of documented segment 1 at SCE transmission line crossing, depicting colluvial erosion on west side of aqueduct, west of paved access road.

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
California Department of Water Resources, 1416 9th Street
Sacramento, CA 95814

***P8. Recorded by:** (Name, affiliation, and address) M. O'Neill, P. Clarkson, C. Hagan
Pacific Legacy, Inc.
44702 10th St. West,
Lancaster, CA 93534

***P9. Date Recorded:** 08/06/12, 08/28/12, and 07/25/2013

***P10. Survey Type:** Intensive Survey

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") Pacific Legacy, Inc. (2015) *Class III Cultural Resources Inventory for Southern California Edison's Coolwater-Lugo Transmission Project, San Bernardino County, California*. Submitted to Bureau of Land Management, Barstow Field Office, California Desert District

***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☒Linear Feature Record ☐Rock Art Record ☐Photograph Record ☐ Other (List):

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Primary #: P-36-021351
HRI#:

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) California Aqueduct East Branch ***NRHP Status Code** 2S2

B1. Historic Name: California Aqueduct East Branch
B2. Common Name: California Aqueduct East Branch
B3. Original Use: Water Conveyance System B4. Present Use: Water Conveyance System
***B5. Architectural Style:** N/A
***B6. Construction History:** Built / installed between 1966-1973.
***B7. Moved?** ■ **No** ☐ **Yes** ☐ **Unknown** **Date:** N/A **Original Location:** N/A
***B8. Related Features**: All features and facilities within the California State Water Project (CSWP) including 34 storage facilities, reservoirs, and lakes; 20 pumping plants; 4 pumping-generating plants; 5 hydroelectric power plants; and roughly 701 miles of open canals and pipe.
B9a. Architect: State of California b. Builder: State of California
***B10. Significance: Theme:** Water Conveyance **Area:** California
Period of Significance: 1966-1973 **Property Type**: Water Conveyance System - Aqueduct
Applicable Criteria: NRHP / CRHR Criterion A / 1 and C / 3.
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The East Branch of the California Aqueduct was constructed between 1966 and 1973 as a 98-mile segment of the 444-mile California Aqueduct system.

The East Branch of the California Aqueduct is officially determined eligible for the NRHP and CRHR under Criterion A / 1 for its association with the history of water systems development in California, and under Criterion C / 3 for its engineering and design. Although the resource was not 50 years old at the time it was recommended eligible for listing in the NRHP / CRHR, it was evaluated under Criterion G of the NRHP because it has achieved significance in the past 50 years in the context of California water conveyance systems and the modern period of California water reosurce planning. This East Branch retains a high level of integrity of location, design, setting, materials, workmanship, feeling, and association.

B11. Additional Resource Attributes: HP20

***B12. References:** *Pacific Legacy, Inc. (2015) Class III Cultural Resources Inventory for Southern California Edison's Coolwater-Lugo Transmission Project, San Bernardino County, California. Submitted to Bureau of Land Management, Barstow Field Office, California Desert District.*

B13. Remarks: None

***B14. Evaluator:** Wendy L. Tinsley Becker, RPH, AICP, Principal & Christina Chiang, Architectural Historian | Urbana Preservation & Planning, LLC | www.urbanapreservation.com
***Date of Evaluation:** November 13, 2014

(This space reserved for official comments.)

(Sketch Map with north arrow required.)

Refer to DPR 523 J for site location map(s).

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-36-021351 (Update)
HRI #
Trinomial

 Resource Name or #: (Assigned by recorder) California Aqueduct East Branch

L1. Historic and/or Common Name: East Branch of the California Aqueduct

L2a. Portion Described: ☐ Entire Resource ☒Segment ☐ Point Observation **Designation:** Segment 1

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map)
Documented segment 1 is located approximately 730 ft. north of Ranchero Road, where Ranchero Road passes over the California Aqueduct East Branch. The north end of documented segment 1 is located at 469578mE/ 3804850mN; the south end is at 470149mE/ 3803997mN.

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
The California Aqueduct East Branch was constructed between 1966 and 1973. This segment of the aqueduct is a concrete lined trapezoidal shaped canal with one steel escape ladder. The canal in this section is oriented slightly northwest-southeast. A paved access road parallels the canal on both sides. An approximate 15 ft tall cut parallels the aqueduct on the southern side with deep fissures from colluvial erosion. A triple concrete overchute is further south along the canal. An overcrossing at Ranchero Road is located in the northern portion of the documented section.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)
- **a. Top Width:** ~90-120 feet
- **b. Bottom Width:** 12-16 feet
- **c. Height or Depth:** 20 feet
- **d. Length of Segment:** 0.65 miles

L4e. Sketch of Cross-Section (include scale) **Facing:** NW

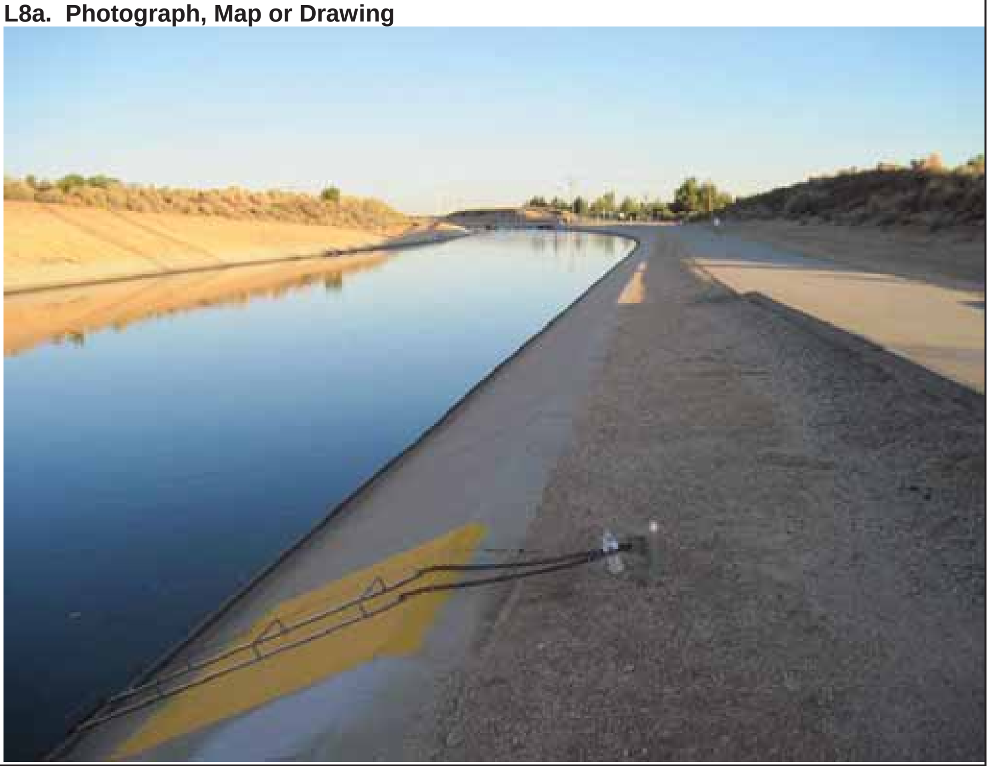
08/28/12, Camera A2, Frame 1076: View towards Ranchero Road

L5. Associated Resources: None

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This segment is situated on the margins of residential neighborhoods, adjacent to a rural setting. The area is within a desert juniper scrub vegetation zone. Vegetation in the immediate vicinity includes juniper, Joshua tree, yucca, buckwheat, sage and various other shrubs and grasses. The soils are brown sandy loam; the slope is minimal at the aqueduct and 10-30° adjacent with colluvial erosion evident on the west side cut, west of the access road. The exposure is 100%, aspect is to the southeast.

L7. Integrity Considerations:
The resource is well maintained in operating condition and still functions as a water conveyance system.

L8a. Photograph, Map or Drawing



L8b. Description of Photo, Map, or Drawing (View, scale, etc.)
08/28/12, Camera A2, Frame 1075. Overview of documented section of canal towards Ranchero Road. View NW.

L9. Remarks: None

L10. Form Prepared by: (Name, affiliation, and address)
M. O’Neill, C. Hagan
Pacific Legacy, Inc.
44702 10th St. West,
Lancaster, CA 93534

L11. Date: 08/28/2012

DPR 523E (1/95)

LINEAR FEATURE RECORD

Resource Name or #: (Assigned by recorder) California Aqueduct East Branch

L1. Historic and/or Common Name: East Branch of the California Aqueduct

L2a. Portion Described: ☐ Entire Resource ☒Segment ☐ Point Observation **Designation:** Segment 2

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map)
Documented segment 2 is located south of Summit Valley Road approximately 0.7 miles and accessed by the paved access road along the canal. The north end of documented segment 2 is located at 470633mE/ 3802256mN; the south end is at 470988mE/ 3801320mN.

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
The California Aqueduct East Branch was constructed between 1966 and 1973. This segment of the aqueduct is a concrete lined trapezoidal shaped canal with two steel escape ladders and numbering “401.50” on the concrete wall on the west side. The numbers are painted white over a black background. The canal in this section is oriented northwest-southeast with a slight curve. A paved access road parallels the canal on both sides.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)
a. Top Width: ~90-120 feet
b. Bottom Width: 12-16 feet
c. Height or Depth: 20 feet
d. Length of Segment: 0.65 miles

L4e. Sketch of Cross-Section (include scale) **Facing:** W

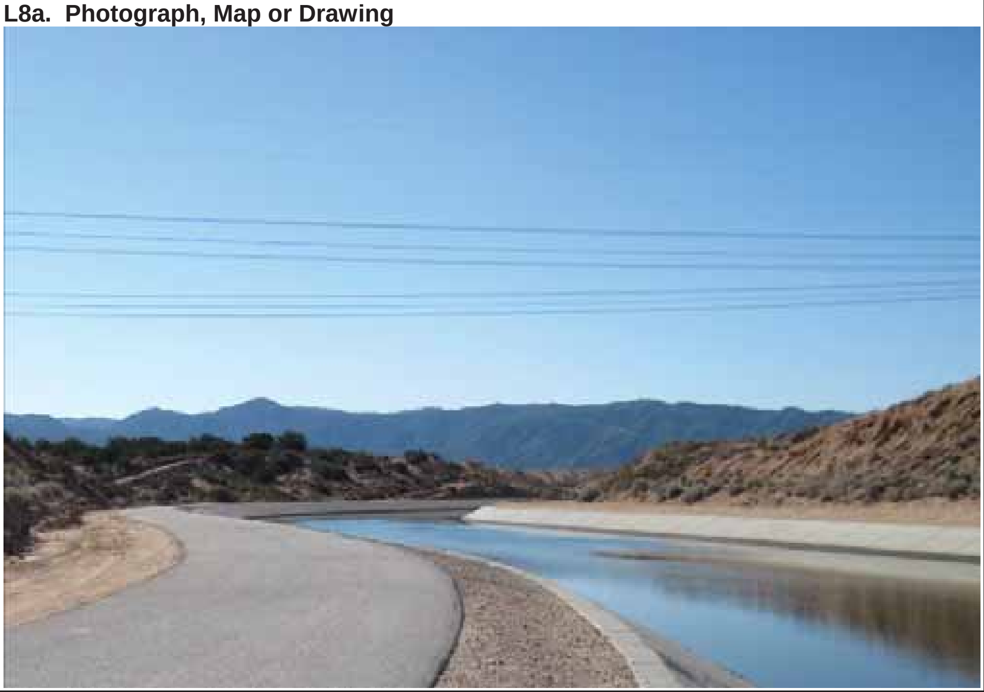
08/06/12, Camera A2 Frame 1027: Numbers visible on west side of canal wall.

L5. Associated Resources: None

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This segment is situated in a rural setting within a desert juniper scrub vegetation zone. Vegetation in the immediate vicinity includes juniper, Joshua tree, yucca, buckwheat, sage and various other shrubs and grasses. The soils are brown sandy loam, the slope is minimal at the aqueduct and increases to 30-45° adjacent. The exposure is 100%, aspect is 360°. Segment 2 of the aqueduct cuts through a hilly area and has been impacted by substantial erosional processes (colluvial) as noted by rivulets and deep fissures in the adjacent hillslopes.

L7. Integrity Considerations:
The resource is well maintained in operating condition and still functions as a water conveyance system.

L8a. Photograph, Map or Drawing



L8b. Description of Photo, Map, or Drawing (View, scale, etc.)
08/06/12. Camera A2: Frame 1021 Overview of documented section of canal from east bank, with transmission lines crossing canal. View south.

L9. Remarks: The aqueduct continues to the south beyond the survey corridor.

L10. Form Prepared by:
M. O’Neill, P. Clarkson
Pacific Legacy, Inc.
44702 10th St. West,
Lancaster, CA 93534

L11. Date: 08/06/2012

Primary # P-36-021351 (Update)
HRI #

LINEAR FEATURE RECORD

Trinomial

Resource Name or #: (Assigned by recorder) California Aqueduct East Branch

L1. Historic and/or Common Name: East Branch of the California Aqueduct

L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:** Segment 3

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map)
Documented segment 3 located between Segment 1 and 2, south of Summit Valley Road. The north end of documented segment 3 is located at 470304mE/ 3803240mN; the south end is at 470625mE/ 3802391mN.

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
The California Aqueduct East Branch was constructed between 1966 and 1973. This segment of the aqueduct is a concrete lined trapezoidal shaped canal with two steel escape ladder, one each side of the aqueduct. The canal in this section is oriented slightly northwest-southeast. A paved access road parallels the canal on the eastern side and an unpaved road is on the western side. North of this segment, the aqueduct continues underground as it passes across the Antelope Valley and reemerges on the ridge north of the valley.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)
a. Top Width: ~90-120 feet
b. Bottom Width: 12-16 feet
c. Height or Depth: 20 feet
d. Length of Segment: 0.57 miles

L4e. Sketch of Cross-Section (include scale) **Facing:** NE

07/25/13, Camera A, Frame 5179 south end of exposed aqueduct

L5. Associated Resources: None

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This segment is situated in the Antelope Valley. The area is within a desert juniper scrub vegetation zone. Vegetation in the immediate vicinity includes juniper, Joshua trees, yucca, buckwheat, sage, and various other scrubs and grasses. The soils are brown sandy loam; the slope is minimal at the aqueduct and increases to approximately 40° where it continues underground. Exposure is 100%, aspect is to the southeast

L7. Integrity Considerations:
The resource is well maintained in operating condition and still functions as a water conveyance system.

L8a. Photograph, Map or Drawing

L8b. Description of Photo, Map, or Drawing (View, scale, etc.)
07/25/13, Camera A, Frame 5182 North end of underground aqueduct. View SW.

L9. Remarks: None

L10. Form Prepared by: (Name, affiliation, and address)
M. O'Neill, D. Trout, D. Schroeder, M. Pecheco
Pacific Legacy, Inc.
44702 10th St. West,
Lancaster, CA 93534

L11. Date: 07/25/2013

PHOTOGRAPH RECORD

Resource Name or #: California Aqueduct East Branch **Year** 2012, 2013

Camera Format: Digital (Camera A and A2)
Original Media Kept at: Pacific Legacy, Inc., 44702 10th St. West, Lancaster, CA 93534

Mo.	Day	Time	Exp./Frame	Subject/Description	View Toward	Accession #
Camera A2 (2012)						
8	6		1017	Overview of California Aqueduct, Segment 2	N	
8	6		1018	Overview of California Aqueduct, Segment 2	N	
8	6		1019	Overview of aqueduct from northern boundary of Segment 2, crew member to the south	S	
8	6		1020	Overview of aqueduct from northern boundary os Segment 2, crew member to the south	S	
8	6		1021	Overview of aqueduct from northern boundary os Segment 2, crew member to the south	S	
8	6		1022	Overview of aqueduct from southern boundary of Segment 2. with crew member at northern boundary	N	
8	6		1023	Overview of aqueduct from southern boundary of Segment 2. with crew member at northern boundary	N	
8	6		1024	Transmission line running over California Aqueduct	SW	
8	6		1025	Transmission line running over California Aqueduct	SW	
8	6		1026	Deleted	----	
8	6		1027	Painting along western bank of Segment 2 of aqueduct	W	
8	6		1028	Painting along western bank of Segment 2 of aqueduct	W	8
Camera A2 (2012)						
8	28		1071-1072	Overview of California Aqueduct	SE	
8	28		1073-1074	Overview of documented segment 1 at SCE transmission line crossing, depicting colluvial erosion on west side of aqueduct, west of paved access road.	SW	
8	28		1075-1076	Overview of segment 1 with Ranchero Road	NW	
Camera A (2013)						
7	25		5179	South end of exposed Aqueduct, Segment 3	NE	
7	25		5180	South end of exposed Aqueduct, Segment 3	NE	
7	25		5181	North end of underground Aqueduct, Segment 3	SW	
7	25		5182	North end of underground Aqueduct, Segment 3	SW	

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #: P-36-021351 (Update)

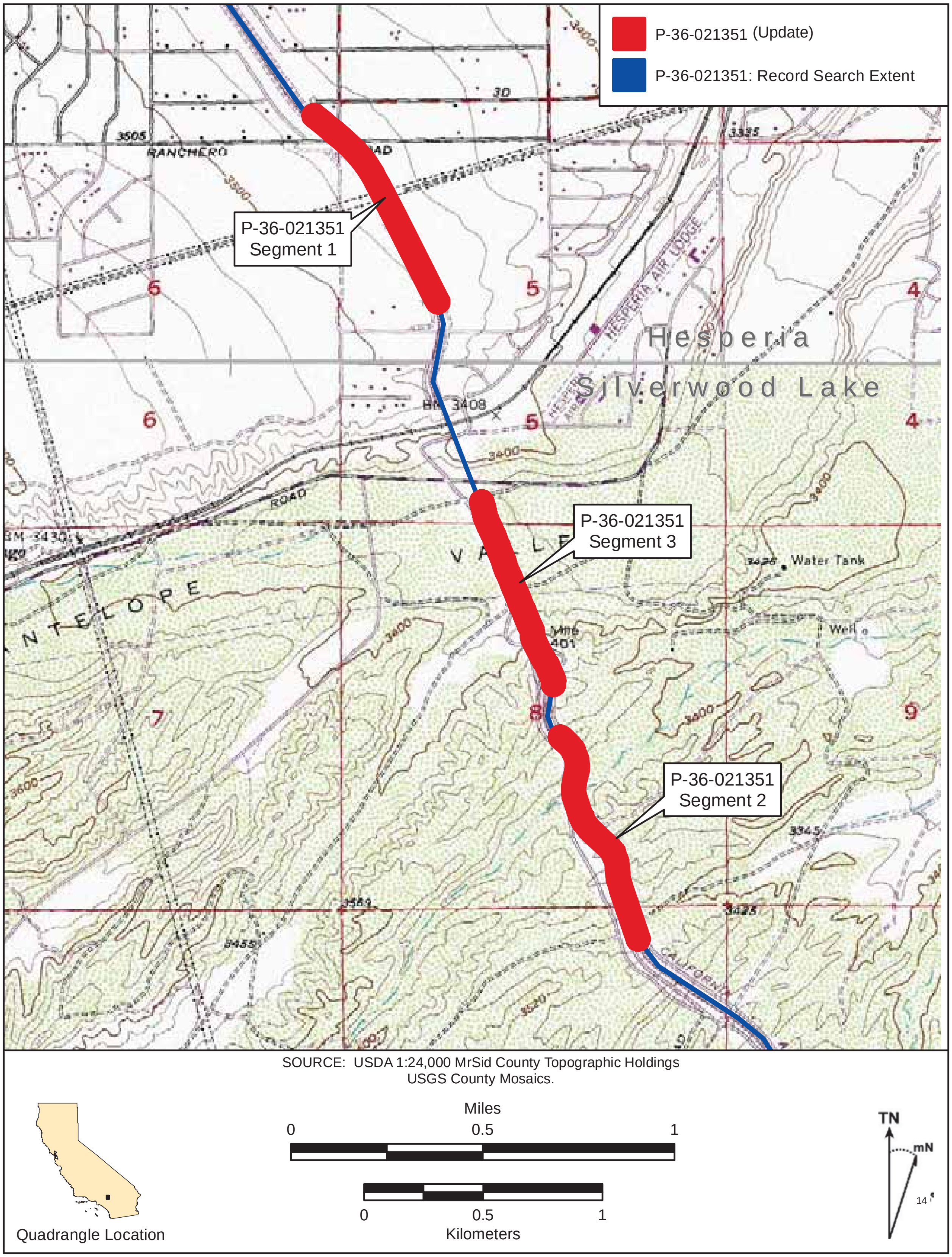
HRI #:

Trinomial:

LOCATION MAP

Page: 7 of 8 *Resource Name or # (Assigned by recorder) California Aqueduct East Branch

*Map Name: Hesperia; Silverwood Lake *Scale: 1:24,000 *Date of Map: 1956 (PR 1980); 1996



DPR 523J (1/95) *Required Information

*Recorded by: M. O'Neill *Date: 07/25/2013 ☒ **Continuation** ☒ **Update**

***P2. Location:**
Segment 1
***b. USGS 7.5' Quad:** Hesperia **Date:** 1956 (PR 1980) **T**4N; **R**4W;
SE ¼ of SE¼ of Sec 31;
SW ¼ of SW¼ of Sec 32;
b. USGS 7.5' Quad: Hesperia **Date:** 1956 (PR 1980) **T**3N; **R**4W;
NE ¼ of NE ¼ of Sec 6;
W ½ of NW ¼ of Sec 5;
SE ¼ of NW ¼ of Sec 5;

Segment 2:
b. USGS 7.5' Quad: Silverwood Lake **Date:** 1996 **T**3N; **R**4W;
W ½ of SE¼ of Sec 8;
SE ¼ of SE ¼ of Sec 8;
N ½ of NE ¼ of Sec 17;

Segment 3:
b. USGS 7.5' Quad: Silverwood Lake **Date:** 1996 **T**3N; **R**4W;
SE ¼ of SW ¼ of Sec 5;
E ½ of NW¼ of Sec 8;
W ½ of NE ¼ of Sec 8;

***P2e. Other Locational Data**
To reach the documented Segment 2, proceed from Old Ranchero Road to Summit Valley Road. Turn left (south) on to Summit Valley Road and continue approximately 1.40 miles and make a sharp left on to an unnamed paved aqueduct service road. Go through the gate and proceed south along the aqueduct to a paved service road, under the transmission lines. Turn Continue 0.7 miles on the unnamed road to reach the northern most exposed portion of Segment 2.

To reach the documented Segment 3, proceed from Old Ranchero Road to Summit Valley Road. Turn left (south) on to Summit Valley Road and continue approximately 1.40 miles and make a sharp left on to the paved aqueduct service road. Go through the gate and proceed south along the aqueduct to a paved service road, under the transmission lines, and park.

***P3a. Description:**
This record documents three segments of the California Aqueduct East Branch situated in the Antelope Valley, near Hesperia, in San Bernardino County. Segment 1 is the northern segment and located north of Ranchero Road. Segment 2 is the southern segment located approximately 0.7 miles south of Summit Valley Road. Segment 3 is located between Segment 1 and 2, immediately south of Summit Valley Road. The resource is in good and well maintained condition and continues to functions as a water conveyance system.

References:
Anderson, K.
2009 Site record for P-36-021351. On file at the San Bernardino Archaeological Information Center, Redlands, California.

Hollins, J.
2008 Site record for P-36-021351. On file at the San Bernardino Archaeological Information Center, Redlands, California.

Office of Historic Preservation (OHP), California
2015 California Historical Resources, San Bernardino County. Digital list, http://www.ohp.parks.ca.gov/ListedResources/?view=county&criteria=36., accessed February 2015.

1067405 update 8/13

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 36-021351
HRI #
Trinomial CA-SBR-15913 H
NRHP Status Code

Other Listings
Review Code   Reviewer   Date

    ***Resource Name or #:** 36-021351 (Goodwin Drive/Goss Road Bridge)

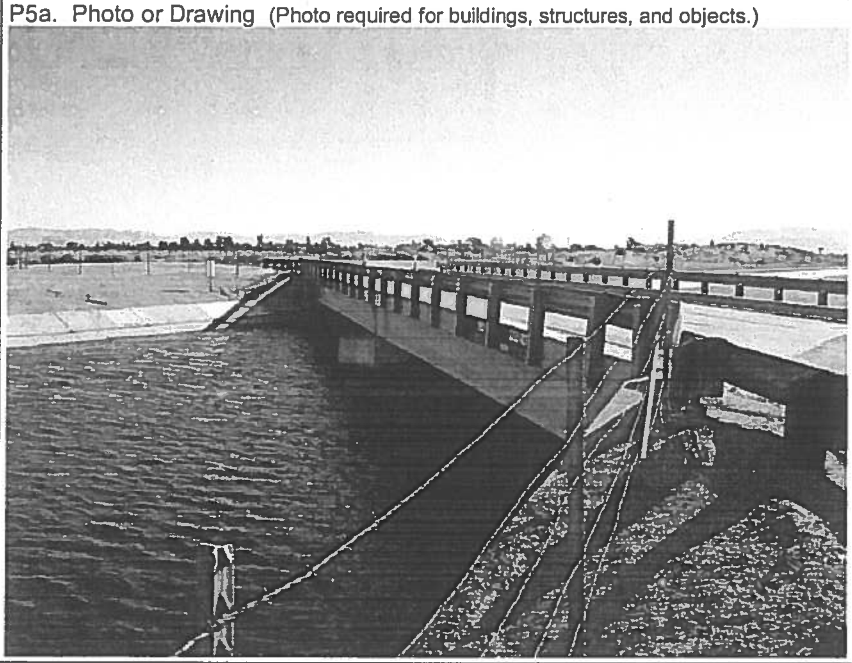
P1. Other Identifier: Goodwin Drive Bridge
***P2. Location:** ☐ Not for Publication ■ Unrestricted   ***a. County:** San Bernardino
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** Baldy Mesa   **Date:** 1956 **T 4N ; R 7W ;** SW ¼ of **SE ¼ of Sec** 6; S.B.**B.M.**
c. Address: City: Zip:
d. UTM: Zone: 11 ; 459581 mE/ 3812825 mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 3471
From exit 143 of I-15, head west 4 miles on Main St/Phelan Rd. turn right on Baldy Mesa and head north 2 miles to Desert Road. Turn right and head west .6 miles to bridge (road becomes Goodwin Dr.)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Goodwin Drive /Goss Road is a narrow, unpaved, minor collector road located in rural San Bernardino County west of the City of Hesperia. The Goodwin Drive/Goss Road Bridge crosses the California Aqueduct (East Branch), and is approximately 134 feet long and 30 feet wide. It is a two span reinforced concrete slab bridge. The bridge has vertical metal beam railings and recessed concrete panels on spans of the vertical side walls. A single, skewed rectangular reinforced concrete pier supports the bridge above the aqueduct.

***P3b. Resource Attributes:** HP19. Bridge
***P4. Resources Present:** ☐Building ■Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: Goodwin Drive/Goss Road Bridge, facing east

***P6. Date Constructed/Age and Sources: 1970** ■Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Department of Water Resources
3500 Industrial Blvd.
West Sacramento, CA 95691

***P8. Recorded by:**
Katherine Anderson | ESA
2600 Capitol Ave, Ste 200
Sacramento CA 95816

***P9. Date Recorded:** 11/1/11
***P10. Survey Type:** intensive

***P11. Report Citation:** ESA, 2012. Historic Resources Evaluation Report ror the Seismic Retrofit of Six Bridges Over the California Aqueduct, Near Hesperia, San Bernardino County, and Kern County, California. Prepared for DWR. April 2012.

***Attachments:** ☐NONE ■Location Map ☐Sketch Map ☐Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code 3D

*Resource Name or # 36-021351 (Goodwin Drive/Goss Road Bridge)

B1. Historic Name: Goodwin Drive/Goss Road Bridge
B2. Common Name: Goodwin Drive/Goss Road Bridge
B3. Original Use: bridge B4. Present Use: bridge
***B5. Architectural Style:** concrete slab
***B6. Construction History:**
1970 Original Construction

***B7. Moved?** ■No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:**
California Aqueduct

B9a. Architect: DWR; Moffat & Nichol Engineers of Long Beach b. Builder: Granite Construction Company
***B10. Significance: Theme:** water conveyance **Area:** Southern California
Period of Significance: 1960-1974 **Property Type:** bridge **Applicable Criteria:** n/a

The Goodwin Drive/Goss Road Bridge was constructed in 1971 during the construction of the East Branch of the California Aqueduct. DWR, as well as Moffat & Nichol Engineers from Long Beach, California designed the bridge. Granite Construction Company constructed it. It does not appear to have been altered since its original construction.

Goodwin Drive/Goss Road Bridge is a contributor to the California Aqueduct, and is peripherally associated with the history of major water systems development in California. The October 2011 Caltrans Historic Highway Bridge Inventory lists the bridge as a Category 5 resource, that is, as not eligible for the NRHP. However, the bridge has been re-evaluated and determined to be a contributing element of the California Aqueduct, which has been recommended eligible for listing in the NRHP.

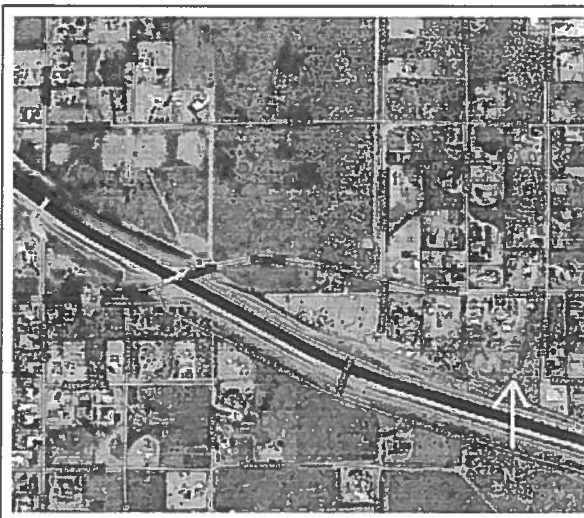
Integrity. Goodwin Drive/Goss Road Bridge appears unaltered from its original design. Little to no additions or modifications have been made to the bridge. Goodwin Drive/Goss Road Bridge maintains integrity of location, design, materials, workmanship, association, and feeling. Since the original construction of the bridges, some single family residential construction has occurred in the vicinity of the Goodwin Drive/Goss Road, resulting in change to the rural desert setting of the bridge. These alterations of setting have not significantly detracted from the integrity of the bridge. Goodwin Drive/Goss Road Bridge therefore retains sufficient physical integrity to convey any potential historical significance.

B11. Additional Resource Attributes: HP19. Bridge

***B12. References:**

B13. Remarks:

***B14. Evaluator:** Katherine Anderson | ESA
2600 Capitol Ave, Ste 200
Sacramento CA 95816
***Date of Evaluation:** 11/22/11



(This space reserved for official comments.)

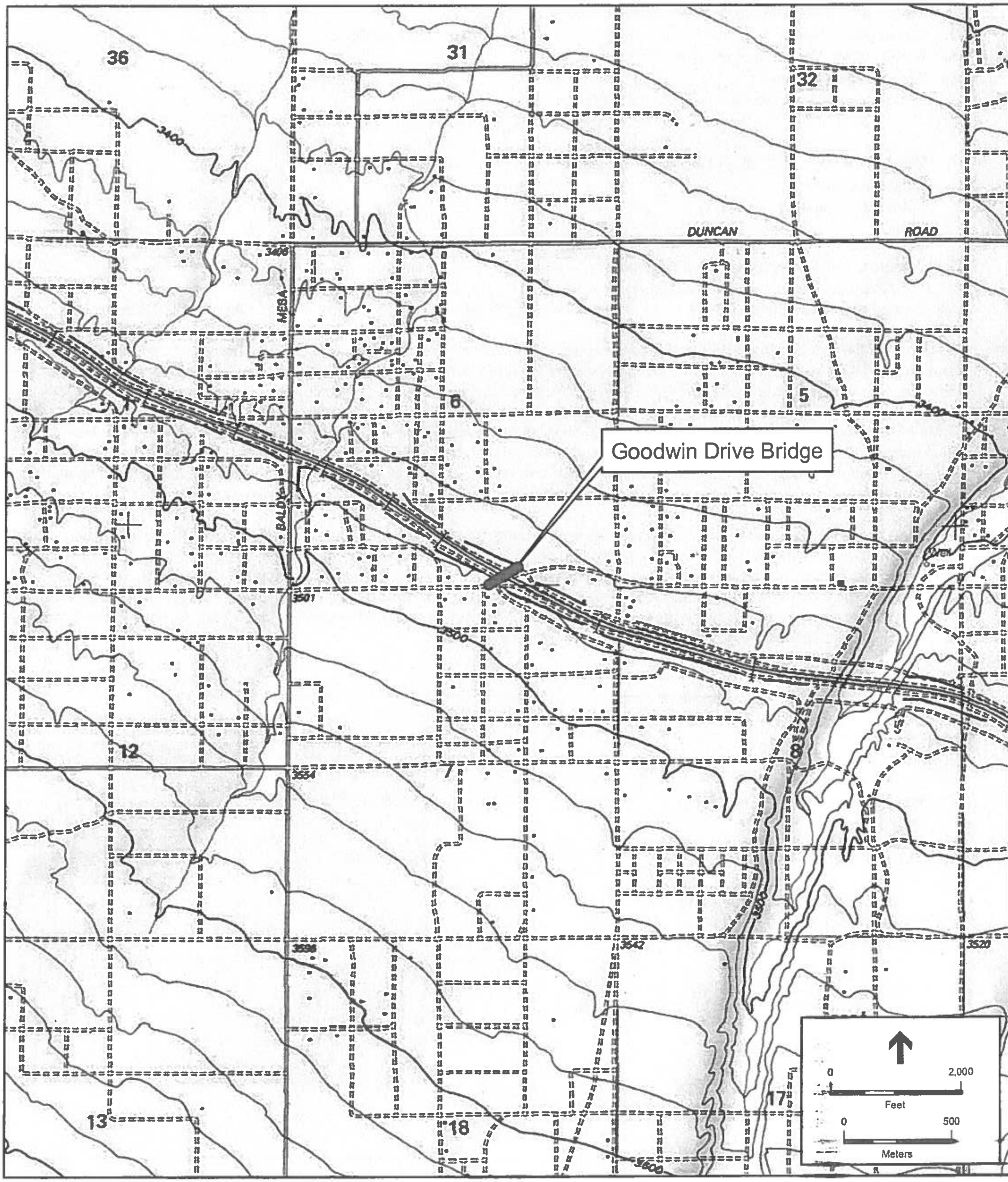
State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 36-021351
HRI #
Trinomial

* Resource Name or Number: 36-021351 (Goodwin Drive Bridge)

*Map name: Baldy Mesa (1956 PR 1988)

*Scale: 1:24000



1067405 Update 8/13

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 36-021351
HRI #
Trinomial CA-SBR-15913H
NRHP Status Code

Other Listings
Review Code Reviewer Date

Page 1 of 3 *Resource Name or #: 36-021351 (Duncan Road Bridge)

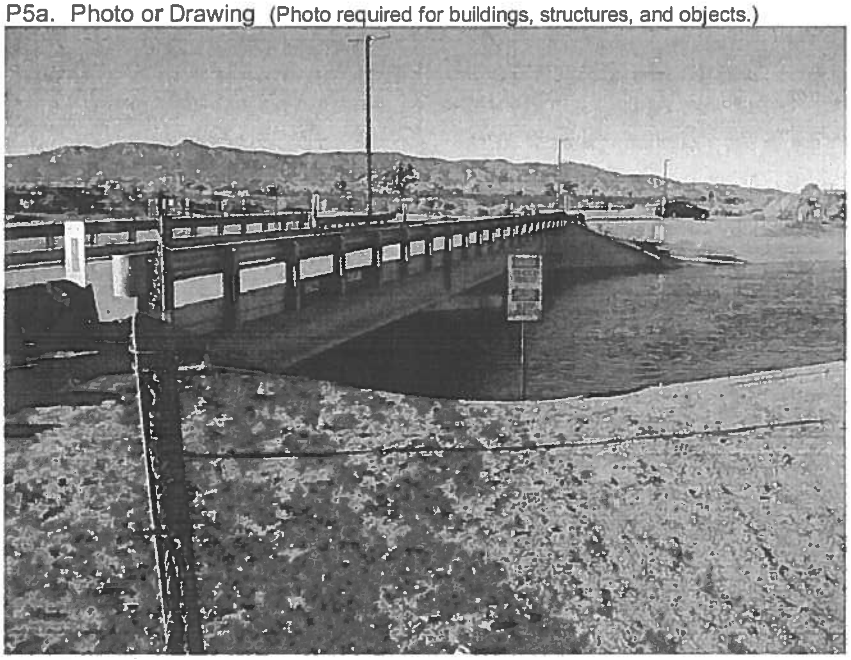
P1. Other Identifier: Duncan Road Bridge
***P2. Location:** ☐ Not for Publication ■ Unrestricted *a. County: San Bernardino
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
*b. USGS 7.5' Quad: Baldy Mesa Date: 1956 T 4N ; R 6W ; NE ¼ of NE ¼ of Sec 2; S.B.B.M.
c. Address: City: Zip:
d. UTM: Zone: 11 ; 456624 mE/ 3814368 mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 3481 ft
From Exit 147 of I-15, head west 7 miles on Bear Valley Road (which becomes Duncan Road) to bridge.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Duncan Road is a narrow, unpaved, minor collector road in rural San Bernardino County west of the City of Hesperia. The Duncan Road Bridge crosses the California Aqueduct (East Branch), and is approximately 134 feet long, 30 feet wide. It is a two span reinforced concrete slab bridge. The bridge has vertical metal beam railings and recessed concrete panels on spans of the vertical side walls. A single, skewed rectangular reinforced concrete pier supports the bridge above the aqueduct.

***P3b. Resource Attributes:** HP19. Bridge
***P4. Resources Present:** ☐Building ■Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: Duncan Road Bridge, facing west

***P6. Date Constructed/Age and Sources:** 1971 ■Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Department of Water Resources
3500 Industrial Blvd.
West Sacramento, CA 95691

***P8. Recorded by:**
Katherine Anderson | ESA
2600 Capitol Ave, Ste 200
Sacramento CA 95816

***P9. Date Recorded:** 11/1/11
***P10. Survey Type:** intensive

***P11. Report Citation:** ESA, 2012. Historic Resources Evaluation Report for the Seismic Retrofit of Six Bridges Over the California Aqueduct, Near Hesperia, San Bernardino County, aAnd Kern County, California. Prepared for DWR. April 2012.

***Attachments:** ☐NONE ■Location Map ☐Sketch Map ☐Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

B1. Historic Name: Duncan Road Bridge
B2. Common Name: Duncan Road Bridge
B3. Original Use: bridge   B4. Present Use: bridge
***B5. Architectural Style:** concrete slab
***B6. Construction History:**
1971 Original Construction

***B7. Moved?** ■No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:**
California Aqueduct

B9a. Architect: DWR; Moffat & Nichol Engineers of Long Beach   b. Builder: Granite Construction Company
***B10. Significance: Theme:** water conveyance   **Area:** Southern California
Period of Significance: 1960-1974   **Property Type:** bridge   **Applicable Criteria:** n/a

The Duncan Road Bridge was constructed in 1971 during the construction of the East Branch of the California Aqueduct. DWR, as well as Moffat & Nichol Engineers from Long Beach, California designed the bridge. Granite Construction Company constructed it. It does not appear to have been altered since its original construction.

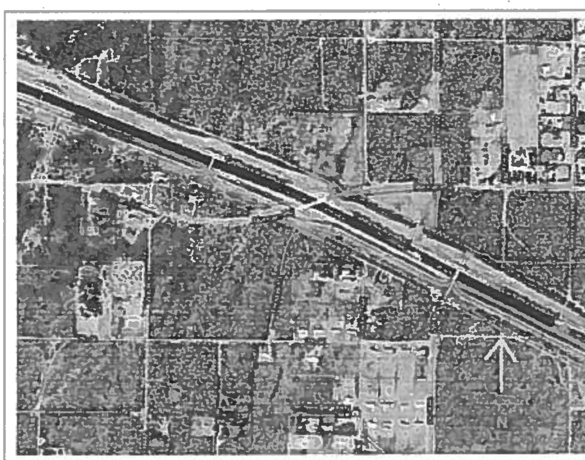
Duncan Road Bridge is a contributor to the California Aqueduct, and is peripherally associated with the history of major water systems development in California. The October 2011 Caltrans Historic Highway Bridge Inventory lists the bridge as a Category 5 resource, that is, as not eligible for the NRHP. However, the bridge has been re-evaluated and determined to be a contributing element to the California Aqueduct, which has been recommended eligible for listing in the NRHP.

Integrity. Duncan Road Bridge appears unaltered from its original design. Little to no additions or modifications have been made to the bridge. Duncan Road Bridge maintains integrity of location, design, materials, workmanship, association, and feeling. Since the original construction of the bridges, some single family residential construction has occurred in the vicinity of the Duncan Road, resulting in change to the rural desert setting of the bridge. These alterations of setting have not significantly detracted from the integrity of the bridge. Duncan Road Bridge therefore retains sufficient physical integrity to convey any potential historical significance.

B11. Additional Resource Attributes: HP19. Bridge

***B12. References:**

B13. Remarks:



***B14. Evaluator:** Katherine Anderson | ESA
2600 Capitol Ave, Ste 200
Sacramento CA 95816
***Date of Evaluation:** 11/22/11

(This space reserved for official comments.)

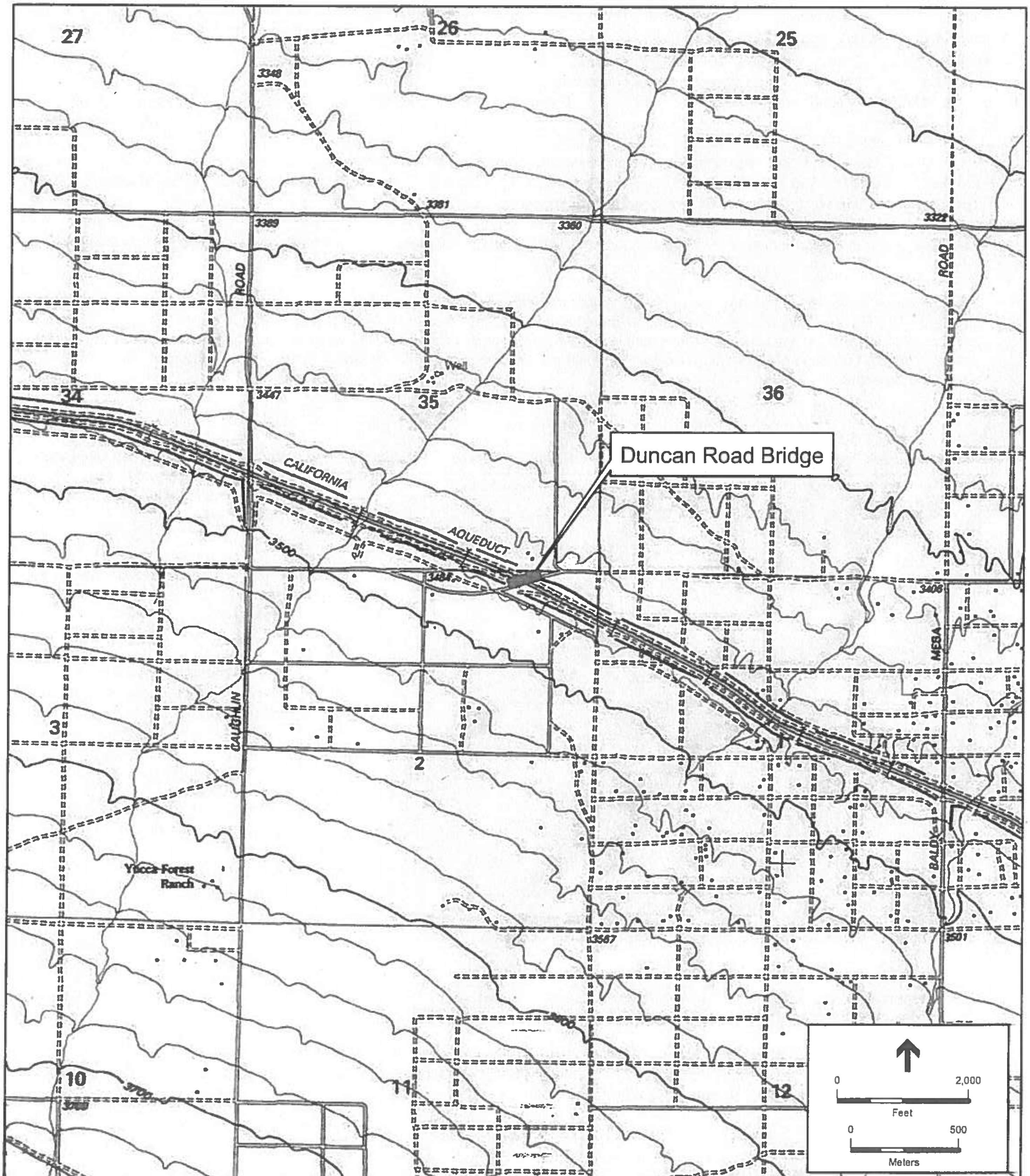
State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 36-021351
HRI #
Trinomial

* Resource Name or Number: 36-021351 (Duncan Road Bridge)

*Map name: Baldy Mesa (1956 PR 1988)

*Scale: 1:24000



* Required Information

1067405 update 8/13

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 36-021351
HRI #
Trinomial CA-SBR-15913 H
NRHP Status Code

Other Listings
Review Code Reviewer Date

 *Resource Name or #: 36-021351 (Maple Avenue Bridge)

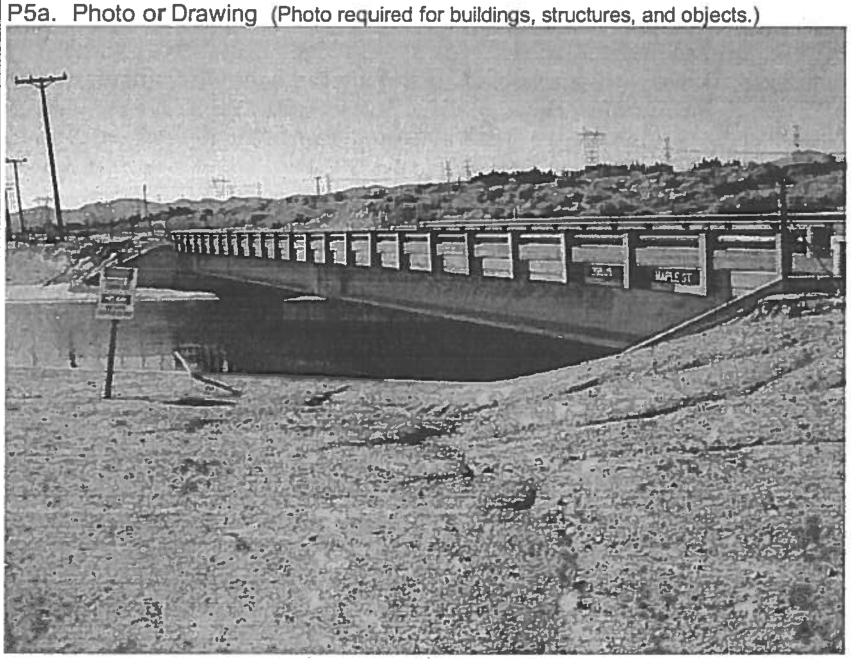
P1. Other Identifier: Maple Avenue Bridge
***P2. Location:** ☐ Not for Publication ■ Unrestricted ***a. County:** San Bernardino
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** Hesperia **Date:** 1956 **T 4N ; R 5W ;** SE ¼ **of** SE ¼ **of Sec** 25; **S.B.B.M.**
c. Address: City: Zip:
d. UTM: Zone: 11 ; 468167 mE/ 3806556 mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 3475 ft
From exit 143 of I-15 head east 1.9 miles on Main St to Maple Drive. Turn right and head south 1.9 miles to the bridge

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Maple Avenue is a narrow, two-lane, local minor collector road located in the City of Hesperia. The Maple Avenue Bridge crosses the California Aqueduct (East Branch), and is approximately 155 feet long and 30 feet wide. It is a two span reinforced concrete slab bridge. The bridge has vertical metal beam railings and recessed concrete panels on spans of the vertical side walls. A single, skewed rectangular reinforced concrete pier supports the bridge above the aqueduct.

***P3b. Resource Attributes:** HP19. Bridge
***P4. Resources Present:** ☐Building ■Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: Maple Avenue Bridge, facing east

***P6. Date Constructed/Age and Sources:** 1971 ■Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Department of Water Resources
3500 Industrial Blvd.
West Sacramento, CA 95691

***P8. Recorded by:**
Katherine Anderson | ESA
2600 Capitol Ave, Ste 200
Sacramento CA 95816

***P9. Date Recorded:** 11/1/11
***P10. Survey Type:** intensive

***P11. Report Citation:** ESA, 2012. Historic Resources Evaluation Report for the Seismic Retrofit tf Six Bridges Over the California Aqueduct, Near Hesperia, San Bernardino County, and Kern County, California. Prepared for DWR. April 2012.

***Attachments:** ☐NONE ■Location Map ☐Sketch Map ☐Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary # 36-021351
HRI#

*NRHP Status Code 3D

*Resource Name or # 36-021351 (Maple Avenue Bridge)

B1. Historic Name: Maple Avenue Bridge
B2. Common Name: Maple Avenue Bridge
B3. Original Use: bridge
B4. Present Use: bridge
***B5. Architectural Style:** concrete slab
***B6. Construction History:**
1971 Original Construction

***B7. Moved?** ■No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:**
California Aqueduct

B9a. Architect: DWR; Moffat & Nichol Engineers of Long Beach
b. Builder: Granite Construction Company
***B10. Significance: Theme:** water conveyance **Area:** Southern California
Period of Significance: 1960-1974 **Property Type:** bridge **Applicable Criteria:** n/a

The Maple Avenue Bridge was constructed in 1971 during the construction of the East Branch of the California Aqueduct. DWR, as well as Moffat & Nichol Engineers from Long Beach, California designed the bridge. Granite Construction Company constructed it. It does not appear to have been altered since its original construction.

Maple Avenue Bridge is a contributor to the California Aqueduct, and is peripherally associated with the history of major water systems development in California. The October 2011 Caltrans Historic Highway Bridge Inventory lists the bridge as a Category 5 resource, that is, as not eligible for the NRHP. However, the bridge has been re-evaluated and determined to be a contributing element of the California Aqueduct, which has been recommended eligible for listing in the NRHP.

Integrity. Maple Avenue Bridge appears unaltered from its original design. Little to no additions or modifications have been made to the bridge. Maple Avenue Bridge maintains integrity of location, design, materials, workmanship, association, and feeling. Since the original construction of the bridges, some single family residential construction has occurred in the vicinity of the Maple Avenue, resulting in change to the rural desert setting of the bridge. These alterations of setting have not significantly detracted from the integrity of the bridge. Maple Avenue Bridge therefore retains sufficient physical integrity to convey any potential historical significance.

B11. Additional Resource Attributes: HP19. Bridge

***B12. References:**

B13. Remarks:

***B14. Evaluator:** Katherine Anderson | ESA
2600 Capitol Ave, Ste 200
Sacramento CA 95816
***Date of Evaluation:** 11/22/11

(This space reserved for official comments.)

State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary # 36-021351
HRI #

LOCATION MAP

Trinomial

* Resource Name or Number: 36-021351 (Maple Road Bridge)

*Map name: Hesperia (1956 PR 1988)

*Scale: 1:24000

* Required Information

1067405 Update 8/13

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 36-021351
HRI #
Trinomial CA-SBR-15913 H
NRHP Status Code

Other Listings
Review Code Reviewer Date

 *Resource Name or #: 36-021351 (Mesquite Street Bridge)

P1. Other Identifier: Mesquite Street Bridge

***P2. Location:** ☐ Not for Publication ■ Unrestricted *a. County: San Bernardino
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad: Hesperia Date: 1956 T 4N ; R 4W ; SW¼ of SW¼ of Sec 30 and NW¼ of NW¼ of Sec 31; S.B.B.M.

c. Address: City: Zip:

d. UTM: Zone: 11 ; 468364 mE/ 3806301 mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 3477 ft

From exit 143 of I-15 head east 1.9 miles on Main St to Maple Drive. Turn right and head south 2 miles to Mesquite Street. Turn left and head west 700 ft to the bridge.

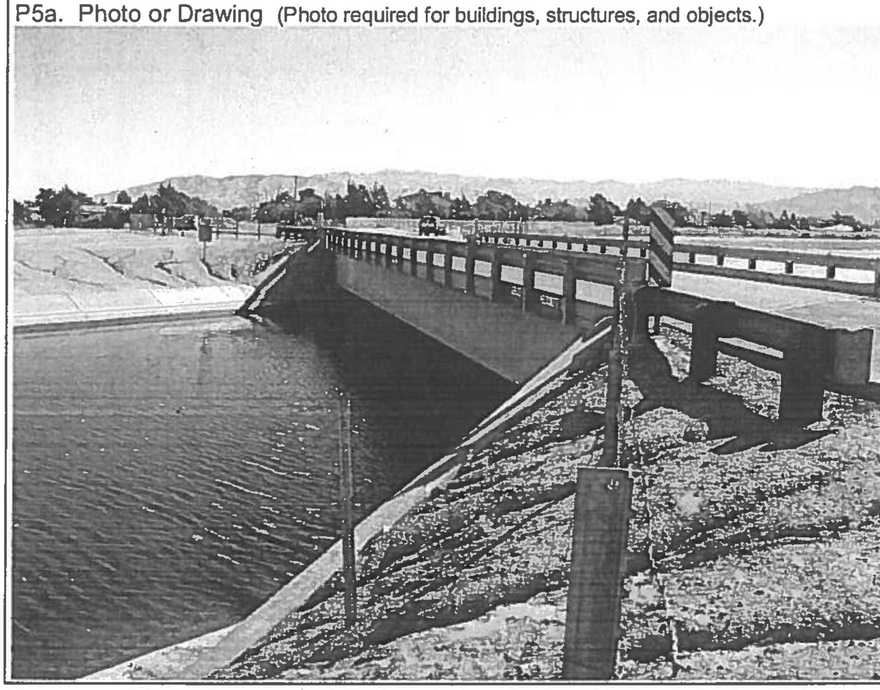
***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Mesquite Street is a narrow, two-lane, local minor collector road located in the City of Hesperia.The Mesquite Street Bridge crosses the California Aqueduct (East Branch), and is approximately 121 feet long and 30 feet wide. It is a single span reinforced concrete slab bridge. The bridge has vertical metal beam railings and a recessed concrete panel on the vertical side walls.

***P3b. Resource Attributes:** HP19. Bridge

***P4. Resources Present:** ☐Building ■Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: Mesquite Street Bridge, facing west

***P6. Date Constructed/Age and Sources:** 1971 ■Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Department of Water Resources
3500 Industrial Blvd.
West Sacramento, CA 95691

***P8. Recorded by:**
Katherine Anderson | ESA
2600 Capitol Ave, Ste 200
Sacramento CA 95816

***P9. Date Recorded:** 11/1/11

***P10. Survey Type:** intensive

***P11. Report Citation:** ESA, 2012. Historic Resources Evaluation Report for the Seismic Retrofit of Six Bridges Over the California Aqueduct, Near Hesperia, San Bernardino County, and Kern County, California. Prepared for DWR. April 2012.

***Attachments:** ☐NONE ■Location Map ☐Sketch Map ☐Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

Primary # 36-021351
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code 3D

*Resource Name or # 36-021351 (Mesquite Street Bridge)

B1. Historic Name: Mesquite Street Bridge
B2. Common Name: Mesquite Street Bridge
B3. Original Use: bridge B4. Present Use: bridge
***B5. Architectural Style:** concrete slab
***B6. Construction History:**
1971 Original Construction

***B7. Moved?** ■No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:**
California Aquedcut

B9a. Architect: DWR; Moffat & Nichol Engineers of Long Beach b. Builder: Granite Construction Company
***B10. Significance: Theme:** water conveyance **Area:** Southern California
Period of Significance: 1960-1974 **Property Type:** bridge **Applicable Criteria:** n/a

The Mesquite Street Bridge was constructed in 1971 during the construction of the East Branch of the California Aqueduct. DWR, as well as Moffat & Nichol Engineers from Long Beach, California designed the bridge. Granite Construction Company constructed it. It does not appear to have been altered since its original construction.

Mesquite Street Bridge is a contributor to the California Aqueduct, and is peripherally associated with the history of major water systems development in California. The October 2011 Caltrans Historic Highway Bridge Inventory lists the bridge as a Category 5 resource, that is, as not eligible for the NRHP. However, the bridge has been re-evaluated and determined to be a contributing element of the California Aqueduct, which has been recommended eligible for listing in the NRHP.

Integrity. Mesquite Street Bridge appears unaltered from its original design. Little to no additions or modifications have been made to the bridge. Mesquite Street Bridge maintains integrity of location, design, materials, workmanship, association, and feeling. Since the original construction of the bridges, some single family residential construction has occurred in the vicinity of the Mesquite Street, resulting in change to the rural desert setting of the bridge. These alterations of setting have not significantly detracted from the integrity of the bridge. Mesquite Street Bridge therefore retains sufficient physical integrity to convey any potential historical significance.

B11. Additional Resource Attributes: HP19. Bridge

***B12. References:**

B13. Remarks:

***B14. Evaluator:** Katherine Anderson | ESA
2600 Capitol Ave, Ste 200
Sacramento CA 95816
***Date of Evaluation:** 11/22/11

(This space reserved for official comments.)

State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # 36-021351
HRI #
Trinomial

* Resource Name or Number: 36-021351 (Mesquite Street Bridge)

*Map name: Baldy Mesa (1956 PR 1988)

*Scale: 1:24000

* Required Information

10607405 Update 8/13

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 36-021351
HRI #
Trinomial CA-SBR-15913 H
NRHP Status Code

Other Listings
Review Code Reviewer Date

 *Resource Name or #: 36-021351 Ranchero Road Bridge

P1. Other Identifier: Ranchero Road Bridge

***P2. Location:** ☐ Not for Publication ■ Unrestricted ***a. County:** San Bernardino

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Hesperia **Date:** 1956 **T 4N; R 4W**; SE ¼ of SE¼ of Sec 31& SW¼ of SW ¼ of Sec 32; **T 3N; R 4W**; NW ¼ of NW¼ of Sec 5 & NE¼ of NE¼ of Sec 6; S.B. B.M.

c. Address: City: Zip:

d. UTM: Zone: 11 ; 469753 mE/ 3804701 mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 3477

From exit 141 of I-15 head southeast on Joshua Street to Mariposa Street and turn right and head southwest 2 miles to Ranchero Road. Turn left and head east 5 miles to bridge.

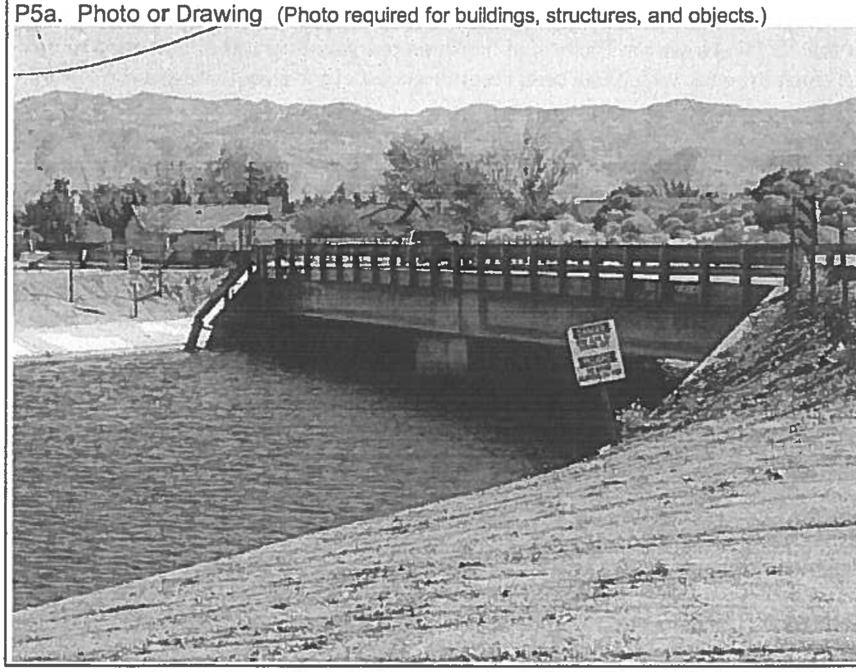
***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Ranchero Road is a narrow, two-lane, local minor collector road located in the City of Hesperia. The Ranchero Road Bridge crosses the California Aqueduct (East Branch), and is approximately 138 feet long and 30 feet wide. It is a two-span reinforced concrete slab bridge. The bridge has vertical metal beam railings and recessed concrete panels on spans of the vertical side walls. A single, skewed rectangular reinforced concrete pier supports the bridge above the aqueduct.

***P3b. Resource Attributes:** HP19. Bridge

***P4. Resources Present:** ☐Building ■Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: Ranchero Road Bridge, facing west

***P6. Date Constructed/Age and Sources:** 1971 ■Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Department of Water Resources
3500 Industrial Blvd.
West Sacramento, CA 95691

***P8. Recorded by:**
Katherine Anderson | ESA
2600 Capitol Ave, Ste 200
Sacramento CA 95816

***P9. Date Recorded:** 11/1/11

***P10. Survey Type:** intensive

***P11. Report Citation:** ESA, 2012. Historic Resources Evaluation Report for the Seismic Retrofit of Six Bridges Over the California Aqueduct, Near Hesperia, San Bernardino County, and Kern County, California. Prepared for DWR. April 2012.

***Attachments:** ☐NONE ■Location Map ☐Sketch Map ☐Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Primary # 36-021351
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code 3D

*Resource Name or # 36-021351 (Ranchero Road Bridge)

B1. Historic Name: Ranchero Road Bridge
B2. Common Name: Ranchero Road Bridge
B3. Original Use: bridge
B4. Present Use: bridge
*B5. **Architectural Style:** concrete slab
*B6. **Construction History:**
1971 Original Construction

*B7. **Moved?** ■No ☐Yes ☐Unknown **Date:** **Original Location:**
*B8. **Related Features:**
California Aqueduct (East Branch)

B9a. Architect: DWR; Moffat & Nichol Engineers of Long Beach
b. Builder: Granite Construction Company
*B10. **Significance: Theme:** water conveyance
Area: Southern California
Period of Significance: 1960-1974
Property Type: bridge
Applicable Criteria: n/a

The Ranchero Road Bridge was constructed in 1971 during the construction of the East Branch of the California Aqueduct. DWR, as well as Moffat & Nichol Engineers from Long Beach, California designed the bridge. Granite Construction Company constructed it. It does not appear to have been altered since its original construction.

Ranchero Road Bridge is a contributor to the California Aqueduct (East Branch), and is peripherally associated with the history of major water systems development in California. The October 2011 Caltrans Historic Highway Bridge Inventory lists the bridge as a Category 5 resource, that is, as not eligible for the NRHP. However, the bridge has been re-evaluated and determined to be a contributing element of the California Aqueduct (East Branch), which has been recommended eligible for listing in the NRHP.

Integrity. Ranchero Road Bridge appears unaltered from its original design. Little to no additions or modifications have been made to the bridge. Ranchero Road Bridge maintains integrity of location, design, materials, workmanship, association, and feeling. Since the original construction of the bridges, some single family residential construction has occurred in the vicinity of the Ranchero Road, resulting in change to the rural desert setting of the bridge. These alterations of setting have not significantly detracted from the integrity of the bridge. Ranchero Road Bridge therefore retains sufficient physical integrity to convey any potential historical significance.

B11. Additional Resource Attributes: HP19. Bridge

*B12. **References:**

B13. Remarks:

*B14. **Evaluator:** Katherine Anderson | ESA
2600 Capitol Ave, Ste 200
Sacramento CA 95816
***Date of Evaluation:** 11/22/11

(This space reserved for official comments.)

State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

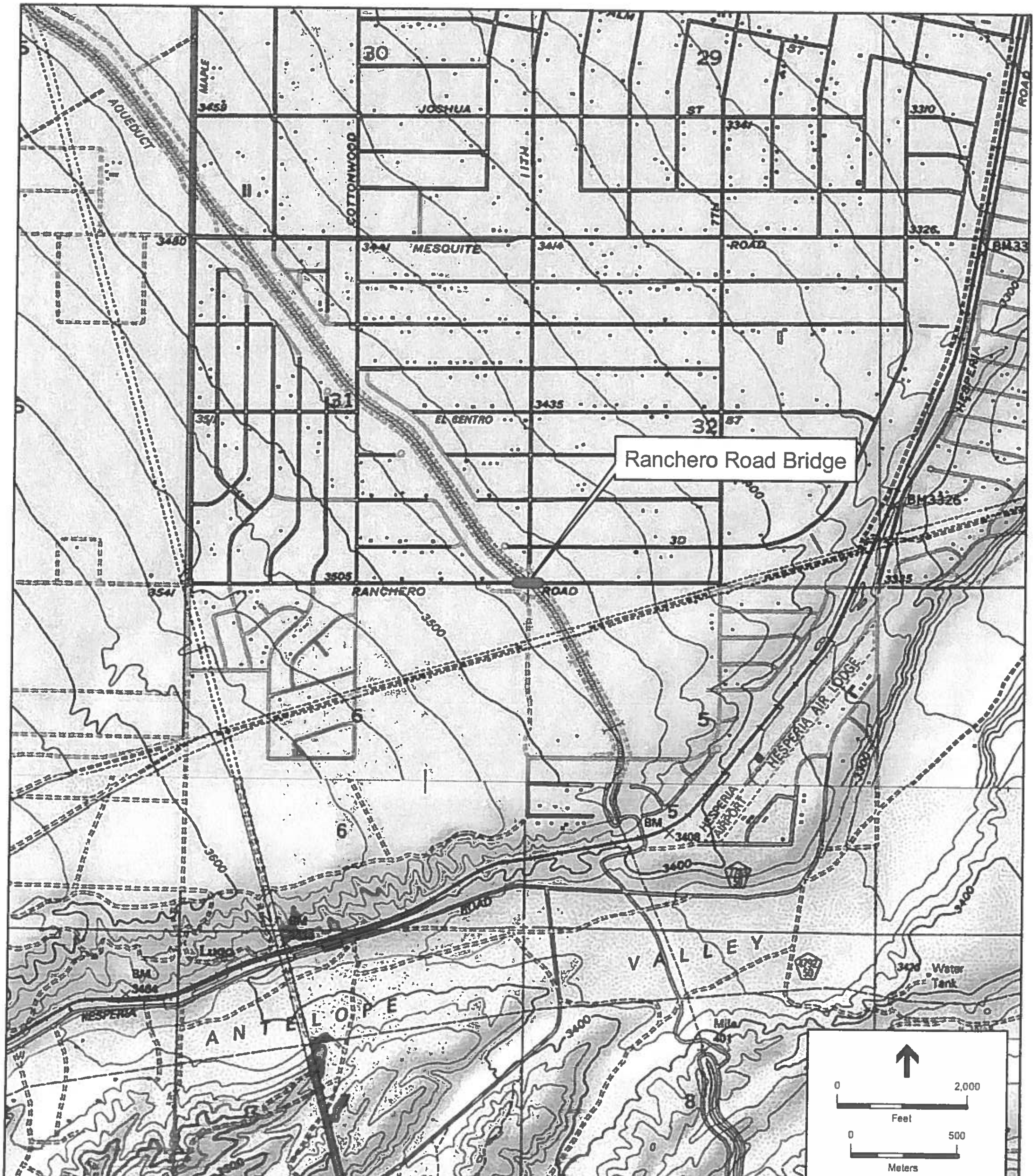
LOCATION MAP

Primary # 36-021351
HRI #
Trinomial

* Resource Name or Number: 36-021351 (Ranchero Road Bridge)

*Map name: Hesperia (1956 PR 1988)

*Scale: 1:24000



* Required Information

1067405 update 8/13

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 36-021351
HRI #
Trinomial CA-SBR-15913 H
NRHP Status Code 3
Other Listings
Review Code Reviewer Date

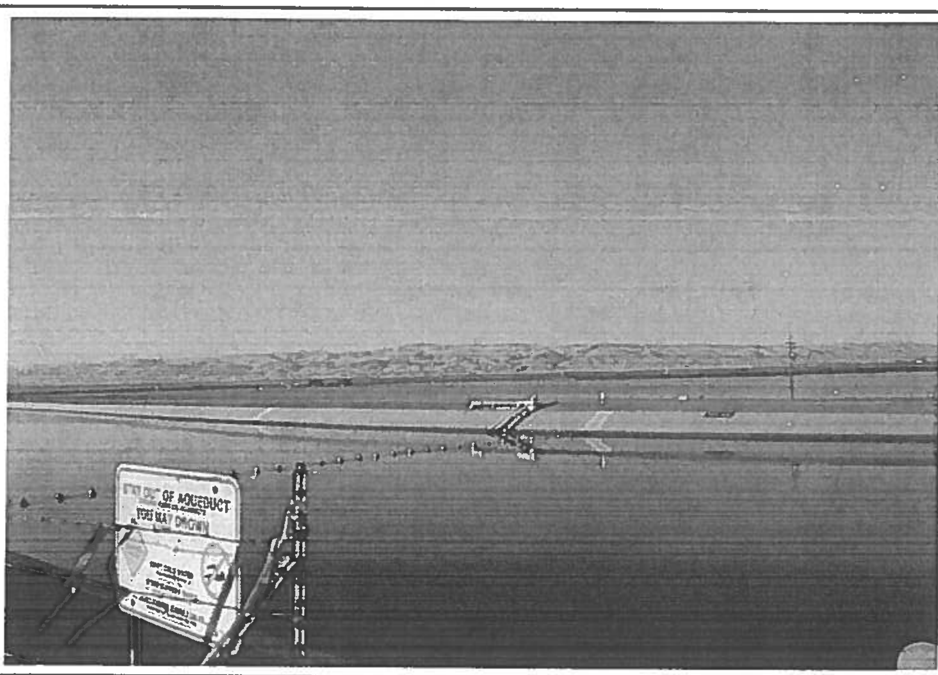
 ***Resource Name or #** (Assigned by recorder) California Aqueduct

P1. Other Identifier:
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County** See Continuation Sheet
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** See Continuation Sheet **Date** See Continuation Sheet **T** __; **R** __; __ ¼ **of Sec** __; ______ **B.M.**
c. Address BADY MESA + HESPERIA City Zip
d. UTM: (give more than one for large and/or linear resources) Zone ______; ______________mE/ ______________mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The main line of the California Aqueduct is divided into five divisions: North San Joaquin, San Luis, South San Joaquin, Tehachapi, and the East Branch (previously the Mojave and Santa Ana Divisions) that are oriented in a general north to south direction. The aqueduct also features two main branches: the Coastal, which generally extends southwest from the main line at Milepost 184.63, 16 miles south of Kettleman City and terminates in San Luis Obispo and Santa Barbara Counties, and West which extends southwest from the Tehachapi Afterbay in Kern County to Castaic Lake, north of Santa Clarita in Los Angeles County. The entire main line of the aqueduct is 444 miles long. It begins in the Sacramento-San Joaquin Delta in the North San Joaquin Division, and terminates at the southern end of the state at Lake Perris, Riverside County, in the East Branch Division. Each division contains such features as bridges, siphons, culverts, and canal drains. The combination of these features and the canal itself forms a unified water conveyance system. (See Continuation Sheet)

***P3b. Resource Attributes:** (List attributes and codes) HP20. Canal/Aqueduct
***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☒ Element of District ☐ Other (Isolates, etc.)



P5b. Description of Photo: (View, date, accession #) California Aqueduct, MP 117.5, October 21, 2011

***P6. Date Constructed/Age and Sources:**
☒ Historic ☐ Prehistoric ☐ Both
1960-1974 / Dept. of Water Resources

***P7. Owner and Address:**
California Department of Water Resources
1416 9th Street
Sacramento, CA 95814

***P8. Recorded by:** (Name, affiliation, address)
Patricia Ambacher
AECOM
2020 L Street, Suite 400
Sacramento, CA 95811

***P9. Date Recorded:** October 21, 2011

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** *Historical Resources Evaluation Report: 17 Bridges Seismic Retrofit Project,* AECOM 2012
***Attachments:** NONE ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list)

*NRHP Status Code 3
*Resource Name or # (Assigned by recorder) California Aqueduct

B1. Historic Name: California Aqueduct
B2. Common Name: California Aqueduct
B3. Original Use: Aqueduct B4. Present Use: Aqueduct
***B5. Architectural Style:** Utilitarian
***B6. Construction History:** (Construction date, alteration, and date of alterations) 1960-1974
***B7. Moved?** ☒ No ☐ Yes ☐ Unknown **Date:** ______ **Original Location:** ______
***B8. Related Features:** Bridges that cross the aqueduct, control facilities, canals, siphons, drains

B9. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Transportation and Water Conveyance **Area** California
Period of Significance 1960-1974 **Property Type** Aqueduct **Applicable Criteria** A,C
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

By the mid-1950s, the California Department of Water Resources (DWR) identified the primary water issue in California as the one of maldistribution. According to the DWR, too much water was wasted in northern California, and too little rain fell in southern California (DWR 1957:10–11). Plans to rectify this maldistrubiton began in earnest after World War II during a period when California experienced a population surge and dramatic development throughout much of the state. Local governments and water officials quickly realized that their water supplies could not meet the growing demand of their communities. Farmers were also draining regional groundwater basins to irrigate their crops (DWR 2011). To rectify this issue, state engineer, Arthur D. Edmonston, published a proposal that suggested building a multipurpose dam, reservoir, and power plant on the Feather River, northeast of the small town of Oroville in the northern Sacramento Valley; an aqueduct to transport water from the Sacramento-San Joaquin Delta to Santa Clara and Alameda Counties; and a second aqueduct to serve the San Joaquin Valley and southern California (DWR 2011). The storage of water would reduce flooding hazards, and the stored water could be released into the Sacramento River at planned intervals and then deposited into the Sacramento–San Joaquin Delta. Here it would be able to check the flow of salt water from the San Francisco Bay, which during droughts had seeped as far inland as Sacramento. The project would be paid for in part by the electricity generated at the dam's power plant in Oroville. (See Continuation Sheet)

B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:** See Continuation Sheet

B13. Remarks:

***B14. Evaluator:** Mark Bowen

***Date of Evaluation:** April 12, 2012

(This space reserved for official comments.)

(Sketch Map with north arrow required.)

See Location Map

County (cont)

Counties Listed From North to South

Aqueduct's Main Line	*Coastal Branch*	*West Branch*
Alameda County	Kern County	Los Angeles County
San Joaquin County	San Luis Obispo County	
Stanislaus County	Santa Barbara County	
Merced County		
Fresno County		
Kings County		
Kern County		
Los Angeles County		
San Bernardino County		
Riverside County		

USGS 7.5' Quad (cont)

Quads Listed from North to South

Aqueduct's Main Line

Clifton Court Forebay 1978
Midway 1953 (R 1980)
Tracy 1954 (R 1981)
Vernalis 1991
Solyo 1991
Westley 1991
Patterson 1953 (R 1971)
Crows Landing 1952 (R 1980)
Newman 1952 (R 1971)
Howard Ranch 1953 (R 1971)
San Luis Dam 1969 (R 1978)
Volta 1960 (R 1971)
Ortigalita Peak NW 1969 (R 1984)
Charleston School 1956 (R 1971)
Laguna Seca Ranch 1956 (R 1971)
Hammonds Ranch 1956 (R 1984)
Chounet Ranch 1956 (R 1971)
Chaney Ranch 1955 (R 1971)
Monocline Ridge 1955 (R 1971)
Levis 1956 (R 1984)
Cantua Creek 1956 (R 1984)
West Camp 1954 (R 1973)
Tres Picos Farms 1956 (R 1971)
Domengine Ranch 1956 (R 1979)
Harris Ranch 1956 (R 1971)
Calflax 1956 (R 1971)
Huron 1956 (R 1971)
La Cima 1963 (R 1971)
Kettleman City 1963 (R 1981)
Los Viejos 1954 (R 1981)
Avenal Gap 1954 (R 1973)
Antelope Plain 1954 (R 1982)
Los Hills NW 1954 (R 1973)
Los Hills 1953 (R 1973)
Belridge 1953 (R 1973)
Lokern 1954 (R 1973)
West Elk Hills 1954 (R 1973)
East Elk Hills 1954 (R 1973)
Tupman 1954 (R 1968 and 1973)
Mouth of Kern 1950 (R 1968 and 1973)
Maricopa 1950 (R 1973)
Pentland 1953 (R 1968 and 1973)
Conner SW 1955 (R 1968 and 1973)
Coal Oil Canyon 1955 (R 1968 and 1973)
Mettler 1955 (R 1968 and 1973)
Grapevine 1991
Pastoria Creek 1991
La Liebre Ranch 1965 (R 1974)
Neenach School 1965 (R 1974)
Fairmont Butte 1965 (1974)
Lake Hughes 1957 (R 1974)
Del Sur 1958 (R 1974)
Lancaster West 1958 (R 1974)
Ritter Ridge 1958 (R 1974)
Palm Dale 1958 (R 1974)
Littlerock 1957 (R 1974)
Juniper Hills 1959 (R 1988)
Valyermo 1958 (R 1988)
Mescal Creek 1956 (R 1988)
Phelan 1956 (R 1988)
Baldy Mesa 1956 (R 1988)
Hesperia 1956 (R 1980)
Silverwood Lake 1956 (R 1988)
San Bernardino North 1967 (R 1988)
San Bernardino South 1967 (R 1980)
Riverside East 1967 (R 1980)
Sunnymead 1967 (R 1980)
Perris 1967 (R 1979)

Coastal Branch

Avenal Gap 1954 (R 1973)
Emigrant Hill 1953 (R 1973)
Sawtooth Ridge 1961 (R 1994)
Orchard Peak 1961 (R 1993)
Cholame 1961 (R 1993)
Camatta Canyon 1961 (R 1976)
Shedd Canyon 1961 (R 1993)
Wilson Corner 1966 (R 1976)
Santa Margarita 1965 (R 1993)
San Luis Obispo 1965 (R 1994)
Lopez Mountain 1965 (R 1993)
Arroyo Grande NE 1965 (R 1993)
Oceano 1965 (R 1979)
Nipomo 1965

West Branch

La Liebre Ranch 1965 (R 1974)
Lebec 1991
Black Mountain 1991
Liebre Mountain 1958 (R 1988)
Whitaker Peak 1958 (R 1988)
Warm Springs Mountain 1958 (R 1988)
Newhall 1952 (R 1988)

Description (cont)

The California Aqueduct is trapezoidal and lined with un-reinforced concrete. The depth, bottom width, and surface width of the canal vary slightly in each division. In the North San Joaquin Division, the aqueduct is approximately 33 feet deep and 40 feet wide at the bottom. This section of the canal is approximately 63 miles long with side slopes of 1½:1. In the San Luis Unit, the canal's depth and bottom width ranges between approximately 25 and 37 feet deep and 50 to 110 feet wide. The 103-mile-long canal has side slopes of 2:1. In the South San Joaquin Division, the aqueduct is 121 miles long and its depth ranges between approximately 21 and 26 feet. Its bottom width varies between 24 and 32 feet with a 2:1 and 2½:1 slope. The aqueduct is 24.5 feet deep with a bottom width of 10 feet in the Tehachapi Division. The side slopes are 2:1. In the East Branch, the aqueduct has an average depth of 20 feet, with a bottom width of between 12 and 16 feet. The East Branch's 98 mile-long segment has side slopes that vary between 2:1 and 3:1. The average surface width for the California Aqueduct is between 90 and 110 feet. The widest bottom width is 50 feet and the deepest section is approximately 33 feet (DWR 2010).

Significance (cont)

Edmonston also proposed constructing a giant aqueduct fed by massive, custom-designed pumps that would force the water from the Delta southward, where it could be used to water the dry southern valley and the cities of southern California after pumps moved it over the Tehachapi Mountains at the southern end of the San Joaquin Valley (DWR 1974:7). These planning efforts eventually came to fruition as the State Water Project (SWP). Financing for the SWP was approved by the voters of California in 1960 as a result of the Burns-Porter Act (DWR 2010). When brought to the voters as a referendum, the public which was divided along northern and southern California ideologies (both having concerns regarding loss of water), approved the bond measure by a narrow margin of 173,944 votes.

A key component of the SWP is the California Aqueduct, the primary delivery system of the SWP. It is the longest water conveyance feature of the SWP and its primary purpose is to transport water from the Delta to the San Joaquin Valley and Southern California. Branches of the aqueduct move water to the San Francisco Bay Area and Santa Barbara and San Luis Obispo counties. Construction on the California Aqueduct began in 1960 and the main line was completed in 1973 (Autobee 2011:8; Golze 1965:8).

Early in the planning and design phase for the California Aqueduct, the engineers decided that a lined canal would be more efficient than a compacted earthen lined canal. An earthen lined canal, while less expensive to build, would create a loss of water from seepage, higher head loss because of friction, and increased maintenance. The advantages of a lined canal included less seepage and maintenance, lower head loss, and greater reliability overall. Unreinforced concrete was selected for the lining because it would not be under stress that would necessitate reinforced concrete. The lining was intended to be a minimum of two inches thick, 3.5 inches for side slopes between 15 and 30 feet, and for longer slopes the thickness increased to four inches. A horizontal lip of 12 inches was placed at the top of the lining to help prevent seepage behind the lining (DWR 1974:8).

Engineers designed roads on each side of the California Aqueduct in sections where the area exceeded 36 feet between the inside edge of the roadway to the bottom of the far canal side. The roads were designed to drain away from the canal and be between two and four feet above the canal's lining. The primary road was planned for future use as an operating road for patrolling, canal maintenance, and through-traveling. These primary operating roads received better paving. At points subject to flooding, bridges were constructed on the primary operating roads if an alternative public bridge was not usable. On average, engineers constructed operational bridges or other vehicular crossings of the canal at four mile intervals (DWR 1974:11).

The San Luis Unit, which includes the San Luis Reservoir, located about 15 miles west of Los Banos, adjacent to State Route 152, was an outgrowth of the Bureau of Reclamation's 1949 Central Valley plan that called for additional storage capacity to alleviate record groundwater drawdowns (Autobee 2011:7; DWR 1974:49, 52). The San Luis Unit portion of the California Aqueduct is unique in that it is a joint project between the federal (Reclamation) and the state (DWR) governments, with the federal government responsible for 45% of the funds and California responsible for 55% (San Luis Unit Central Valley Project 1963:1, 4). The O'Neill Pumping Plant draws water from the San Luis Reservoir and pumps it south. The San Luis Unit extends from the O'Neil Forebay (created with the construction of the dam) nearly 100 miles to Kettleman City. DWR was responsible for constructing the segment from the Delta inlet to the San Luis Reservoir in Merced County. BOR constructed the next 102 miles of the aqueduct, which is identified as the San Luis Canal. The extended conveyance structure is again identified as the California Aqueduct after it passes the Westlands Water District to the south in Fresno and Kings counties (Garone 2011:209).

Today, the SWP provides drinking water for 25 million people; irrigates approximately 750,000 acres of crops; and features 34 storage facilities, 20 pumping plants, four pumping-generating plants, five hydroelectric power plants, and 700 miles of open canals and pipelines.

The California Aqueduct appears to meet the criteria for listing in the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR) at the state level of significance under NRHP/CRHR Criterion A/1 representing a comprehensively planned and publicly sanctioned water conveyance public works project to facilitate development throughout the state. It also appears to meet the criteria under NRHP/CRHR C/3 for its complex design necessary to redistribute water throughout the state of California on such a massive level. The period of significance for the resource is 1960-1974, the years of construction.

The California Aqueduct was the largest and most significant of the water conveyances systems developed as part of the SWP California. The SWP includes 701 miles of aqueducts, canals and pipelines and the California Aqueduct comprises 444 miles of the system. The aqueduct was a critical component of the SWP and was an essential feature in the development of California. The water serves users in the San Joaquin Valley where the aqueduct allowed thousands of acres of new land to be cultivated, thereby dramatically increasing California's agricultural efforts in the region and propelling the state to the top in nationwide in agricultural production. In Southern California, the aqueduct serves municipal users by supplying drinking water. The aqueduct represents one of the most bold and successful public works projects ever initiated by a state government. The California Aqueduct profoundly altered the distribution of water resources across California. Without its construction, the maldistribution of water in California would likely have continued because Northern California still receives more rain than any other region in California. Without the SWP and the aqueduct, precious runoff would have drained into to the ocean unused. The forecasted population increases, particularly for Southern California and the San Francisco Bay Area necessitated a system of water redistribution. The aqueduct facilitated the agricultural development the San Joaquin Valley and Southern California. Therefore, it appears to meet NRHP/CRHR Criterion A/1.

The California Aqueduct is associated with many individuals who contributed to the planning and implementation of the project. Within certain contexts those individuals could be considered significant under NRHP/CRHR Criterion B/2. One notable person associated with the aqueduct is Governor Edmund G. "Pat" Brown. Brown was instrumental in spurring political and public support for the construction of the SWP, including the California Aqueduct, and its completion was one of his most significant accomplishments as governor. The aqueduct was one of several significant achievements of Brown's governorship. Brown was also responsible for the Fair Housing Act, Fair Unemployment Act, the master plan for higher education in California and the expansion of the state highway system. Each of these is also important for their association with Governor Brown. According to *National Register Bulletin 32: Guidelines for Evaluating and Documenting Properties Associated with Significant Persons*, an eligible property must be directly associated with the significant individual and be the best property to represent the person's significance. The aqueduct does not appear significant under NRHP/CRHR Criterion B/2 for its association with Governor Brown because it is not the best representation of Brown's significance. His significance can be better tied to other properties, including places such as his former office or home. Those are the properties where Brown conducted his work, including the planning and drafting of critical legislation that brought the aqueduct to fruition. The aqueduct does symbolize Brown's dedication to California's development, but the symbolic value is not a substitute for direct association. Nor is it the best representation or only surviving property that can convey Brown's significance as governor.

As an engineering structure, the California Aqueduct appears to meet NRHP/CRHR Criterion C/3. The California Aqueduct introduced design innovations in the construction of the system. Within the context of water conveyance it is a significant and distinguishable engineering entity significant for its type, period and method of construction and is the largest water conveyance structure in California. The trapezoidal design and the concrete lining of the aqueduct allowed it to carry more water and reduce the loss of head water and seepage and made the aqueduct more efficient. Because the SWP operates on a controlled volume concept, the design for the aqueduct required more check structures that could accommodate change in flows during peak flows with a minimal surface fluctuation. The California Aqueduct was built as a utility system with the capacity for performance and a tremendous amount of structural integrity. The aqueduct is also distinguishable in its use of a high depth-width ratio which allowed for the reduction of adverse effects of alignment curvature on the flow.

Under NRHP/CRHR Criterion D/4 the California Aqueduct is not likely to yield information important to history because as a water conveyance system it is not the principal source of important information. Therefore, the aqueduct is not a contributor under this criterion.

Because completion of the aqueduct is less than 45 years old it is also evaluated under NRHP Criterion Consideration G and the CRHR special consideration for properties less than 50 years old. The California was a planned comprehensive water redistribution system that helped shape the development of much of California following the mid-20th century. Water development is an important and ongoing historic theme within the history of the west. Added to this is the magnitude of planned change to the California landscape brought about by this single engineered public works project and the ability for the California Aqueduct to meet the definition of "exceptional importance" at the statewide level is clear. The general understanding of the exceptional importance of this system is evidenced in the ASCE listing it as one of only 10 internationally ranked "Monuments of the Millennium" for its remarkable engineering aspects, as well as for the positive impact it had on regional economic trade and development.

In addition to being significant, the California Aqueduct also retains sufficient integrity to convey its significance. The aqueduct retains integrity of location because it exists in its original alignment and has not been redirected. Integrity of design is maintained and the aqueduct continues to reflect the historic functions as a water conveyance structure and its scale, proportion and relationship to other features of the SWP is maintained. The integrity of materials is also retained. The aqueduct has undergone routine maintenance, but its primary material of unreinforced concrete has not changed. The California Aqueduct continues to display integrity of workmanship and the construction techniques used on the aqueduct are still visible. Although the setting around the aqueduct is altered in places, the setting for the overall 444 miles is intact. The aqueduct was designed to blend into the landscape, which remains largely rural and agricultural. Thus, the California Aqueduct retains integrity of setting and expresses the basic physical conditions under which it was constructed. Lastly, the California Aqueduct retains integrity of feeling and association. The proximity to agricultural lands and Interstate 5, provides a historic sense of time and place for the aqueduct. In combination with the control facilities, bridges that cross the aqueduct, and maintenance roads, enhances the aqueducts integrity of feeling and association and allows the aqueduct to express its significance as a water conveyance feature.

In summary, the California Aqueduct appears to meet the criteria for listing in the NRHP and the CRHR for its representation as a comprehensively planned and publicly sanctioned water conveyance public works project to facilitate development throughout the state and its complex design necessary to redistribute water throughout the state of California on such a massive level. The aqueduct also retains the aspects of integrity required to convey its significance.

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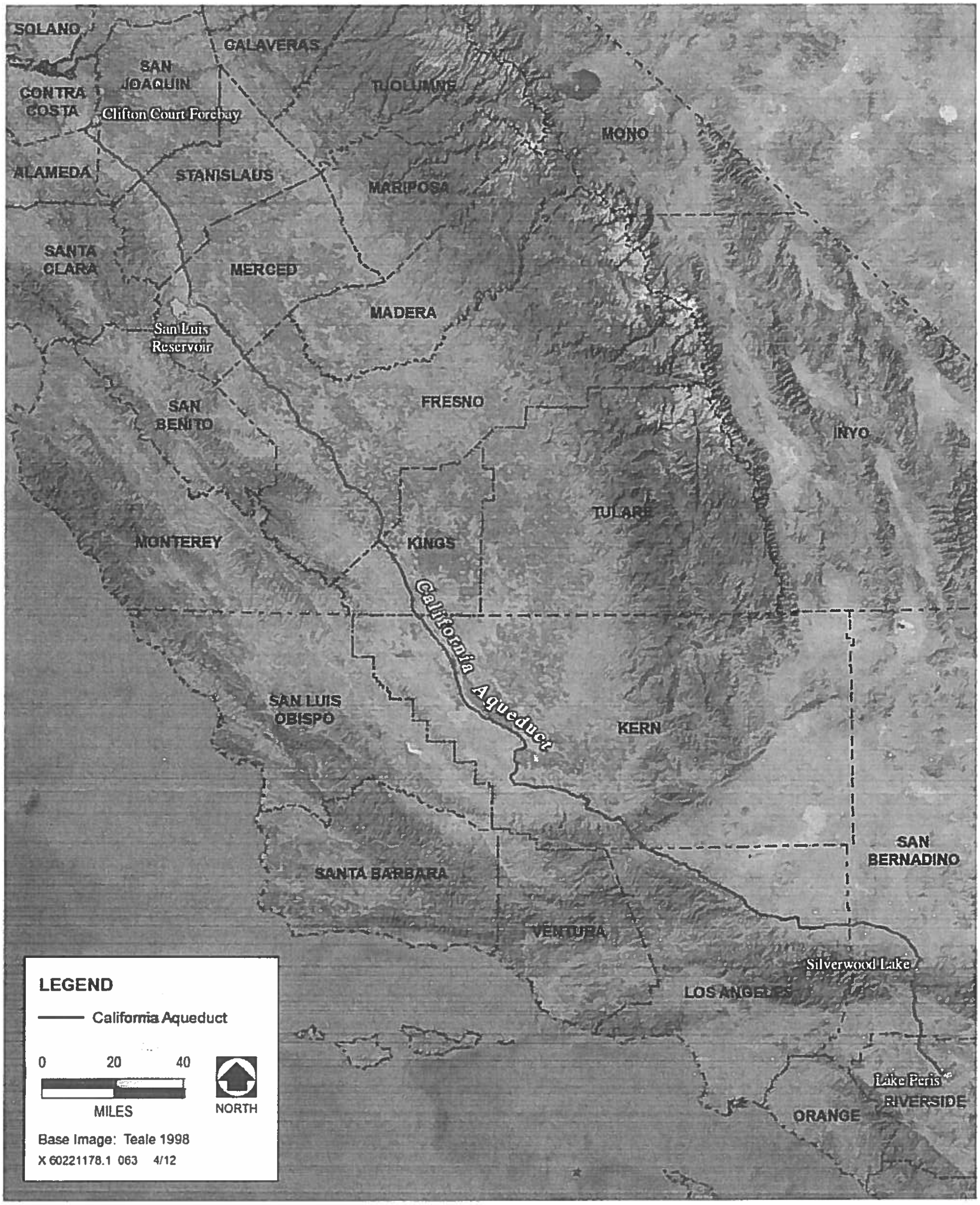
State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 36-021351
HRI #
Trinomial

*Resource Name or # (Assigned by recorder) California Aqueduct

*Map Name California Aqueduct *Scale 1:40 *Date of Map 2011



Update 8/12

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-36-021351
HRI #
Trinomial CA-SBR-15913H
NRHP Status Code

Other Listings
Review Code Reviewer Date

 ***Resource Name or #:** SRI-5124 (UPDATE)

P1. Other Identifier: SRI-5124
***P2. Location:** ☑ **Not for Publication** ☐ **Unrestricted** ***a. County:** San Bernardino
***b. USGS Quad:** 7.5' SILVERWOOD LAKE (2009); T 3N R 4W, NE¼ of NW¼ of Sec. 32; SBBM
c. Address:
d. UTM: Zone 11; 470371 mE/ 3796217 mN NAD27 GPS
e. Other Locational Data:
This section of the aquaduct crosses Highway 173 at postmile 1.6.

***P3a. Description:**
This is an update for a portion of the California Aqueduct, P-36-021351. The segment recorded here crosses Highway 173, near the Mojave Siphon Powerplant. The segment is completely buried and not visible on the ground surface within the right-of-way.

***P3b. Resource Attributes:** HP20, Aqueduct; AH6, Water conveyance system;
***P4. Resources Present:** ☐ Building ☐ Structure ☐ Object ☑ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

***P5b. Description of Photo:**
Facing NE; 4/27/2011; aquaduct

***P6. Date Constructed/Age & Sources:**
☑ Historic ☐ Prehistoric ☐ Both

***P7. Owner and Address:**
STATE OF CALIFORNIA, STATE CAPITOL, SUITE 1173
SACRAMENTO, CA

***P8. Recorded by:**
S. Kremkau, SRI

***P9. Date Recorded:** 5/11/2011
***P10. Survey Type:**
Reconnaissance survey of highway right-of-way

***P11. Citation:** Report forthcoming

***Attachments:** ☐ None ☑ Location Map ☑ Sketch Map ☑ Continuation Sheet ☐ Building, Structure, and Object Record ☑ Archaeological Record ☐ District Record ☑ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☑ Photograph Record ☐ Other:

Primary # P-36-021351
Trinomial

 *Resource Name or #: SRI-5124 (UPDATE)

***A1. Dimensions: a. Length** 108 m (N/S) **x b. Width** 41 m (E/W)
Method of Measurement: ☐ Paced ☐ Taped ☐ Visual estimate ☑ GPS ☐ Other:
Method of Determination: ☐ Artifacts ☑ Features ☐ Soil ☐ Vegetation ☐ Topography ☐ Cut bank ☐ Animal burrow ☐ Excavation ☐ Property boundary ☑ Other: The site boundary is determined in part by the right-of-way established ...
Reliability of determination: ☐ High ☑ Medium ☐ Low
Explain: The route of the aquaduct is easy to follow, but the site is entirely underground within the ...
Limitations: ☐ Restricted access ☑ Paved/built over ☑ Site limits incompletely defined ☐ Disturbances ☐ Vegetation ☐ Other:

A2. Depth: ☐ None ☑ Unknown **Method of determination:** The site is below the ground surface in ...

***A3. Human Remains:** ☐ Present ☑ Absent ☐ Possible ☐ Unknown

***A4. Features:**
This is an update for a portion of the California Aqueduct, P-36-021351. The site consists of a section of aqueduct (Feature 6197), which is entirely underground within in the Caltrans right-of-way. The Mojave Siphon Powerplant is just beyond the right-of-way on the south side of Highway 173. A metal fence blocks access from the highway to the powerplant, and small section of the fence is present in the right-of-way.

***A5. Cultural Constituents:**
No artifacts are associated with the site.

***A6. Were Specimens Collected?** ☑ No ☐ Yes

***A7. Site Condition** ☑ Good ☐ Fair ☐ Poor
The site is completely buried within the right-of-way.

***A8. Nearest Water:** The Mojave River exits Silverwood Lake is just east of the site.

***A9. Elevation:** 975 m amsl

A10. Environmental Setting:
The section of the site within the right-of-way is located at the southern side of an east/west trending ridge, in a transition zone between chaparral scrub vegetation to the south and a floodplain to the north. The area immediately around the site has been disturbed by the construction of the aquaduct and related facilities.

A11. Historical Information:
According to the previous record, the aqueduct was constructed between 1966 to 1973.

***A12. Age:** ☐ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ☐ 1880-1914 ☐ 1914-1945 ☑ Post-1945 ☐ Undetermined

A13. Interpretations:
None

A14. Remarks:
This is an update for a portion of the California Aqueduct, P-36-021351.

A15. References:
None

A16. Photographs: See photograph record
Original Media/Negatives Kept At: 21 W. Stuart Ave, Redlands, CA 92373

***A17. Form Prepared By:** S. Kremkau **Date:** 5/11/2011
Affiliation and Address: Statistical Research, Inc., 21 W. Stuart Ave, Redlands, CA 92373

LINEAR FEATURE RECORD

Primary # P-36-021351
HRI #
Trinomial

***Resource Name or #:** SRI-5124 (UPDATE)

L1. Historic and/or Common Name: None

L2a. Portion Described: ☐ Entire Resource ☑ Segment ☐ Point Observation **Designation:** Feature 6197

L2b. Location of Point or Segment:

Zone 11; 470364 mE/ 3796197 mN NAD27 GPS
Zone 11; 470381 mE/ 3796248 mN NAD27 GPS

L3. Description:

This is an update for a portion of the California Aqueduct, P-36-021351. The site consists of a section of aqueduct (Feature 6197), which is entirely underground within in the Caltrans right-of-way. The Mojave Siphon Powerplant is just beyond the right-of-way on the south side of Highway 173. A metal fence blocks access from the highway to the powerplant, and small section of the fence is present in the right-of-way.

L4. Dimensions:

a. **Top Width:** 35.00 m
b. **Bottom Width:** N/A
c. **Height or Depth:** 1.00 m
d. **Length of Segment:** 50.00 m

L4e. Sketch of Cross-Section: **Facing:**

L5. Associated Resources:

None

L6. Setting:

The section of the site within the right-of-way is located at the southern side of an east/west trending ridge, in a transition zone between chaparral scrub vegetation to the south and a floodplain to the north. The area immediately around the site has been disturbed by the construction of the aquaduct and related facilities.

L7. Integrity Considerations:

The site is completely buried within the right-of-way.

L8b. Description of Photo, Map, or Drawing

See sketch map

L9. Remarks:

This is an update for a portion of the California Aqueduct, P-36-021351.

L10. Form Prepared By:

S. Kremkau

L11. Date: 5/11/2011

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PHOTOGRAPH RECORD

Primary # P-36-021351
HRI #
Trinomial

***Resource Name or #:** SRI-5124 (UPDATE)

Camera Format:
Lens Size:
Film Type and Speed: Digital
Negatives Kept At: 21 W. Stuart Ave, Redlands, CA 92373

Date	Time	Exp/ Frame	Subject/Description	View Toward	Accession #
5/13/2011		1123	aquaduct	NE	
4/27/2011		3405	aquaduct	NE	
5/13/2011		1124	aquaduct	SW	

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

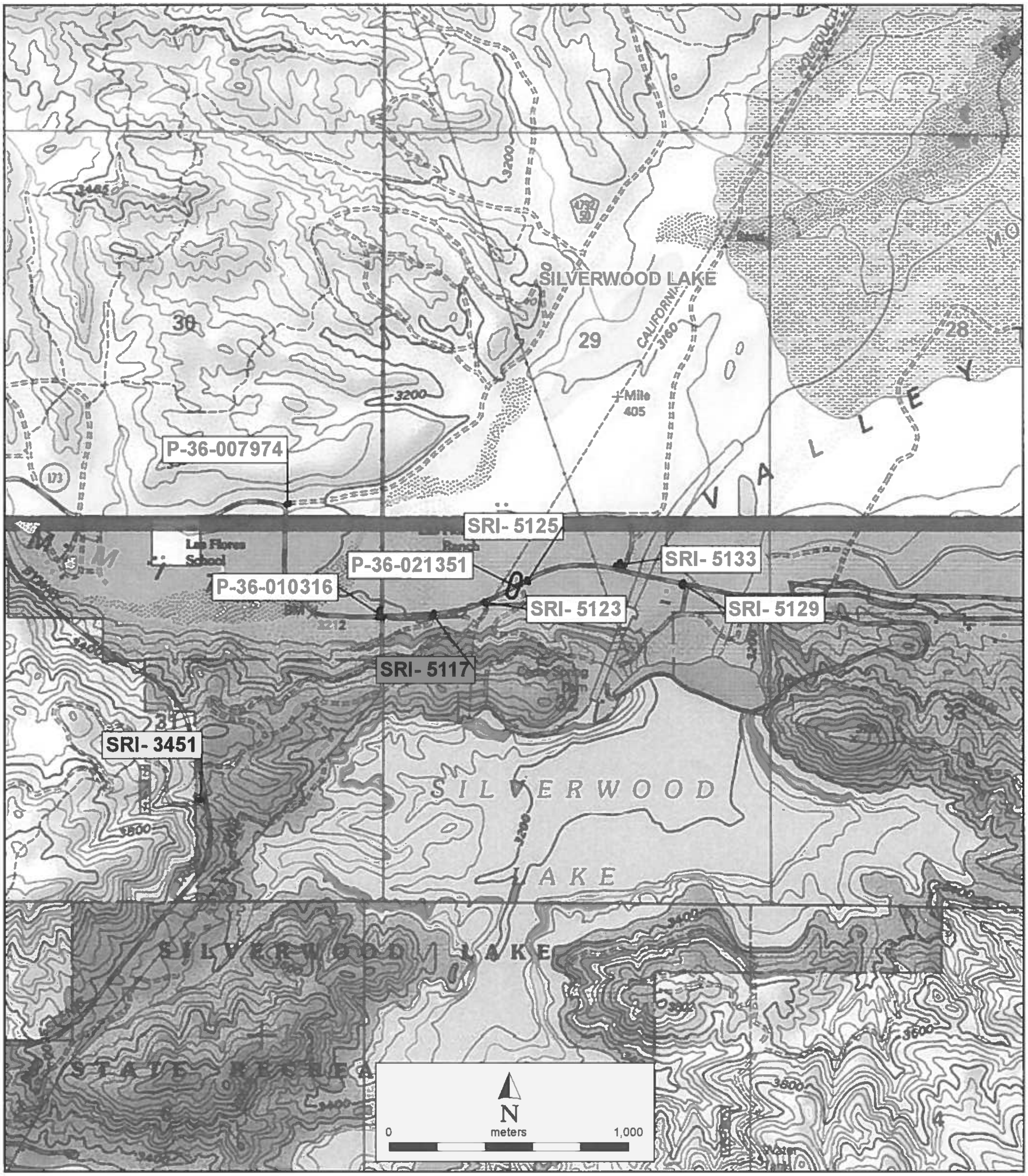
LOCATION MAP

Primary # P-36-021351
HRI #
Trinomial

*Resource Name or #: SRI-5124 (UPDATE)

*Map Name: 7.5' SILVERWOOD LAKE USGS Topographic Quad Scale: 1:24,000

*Year: 2009



*Required Information

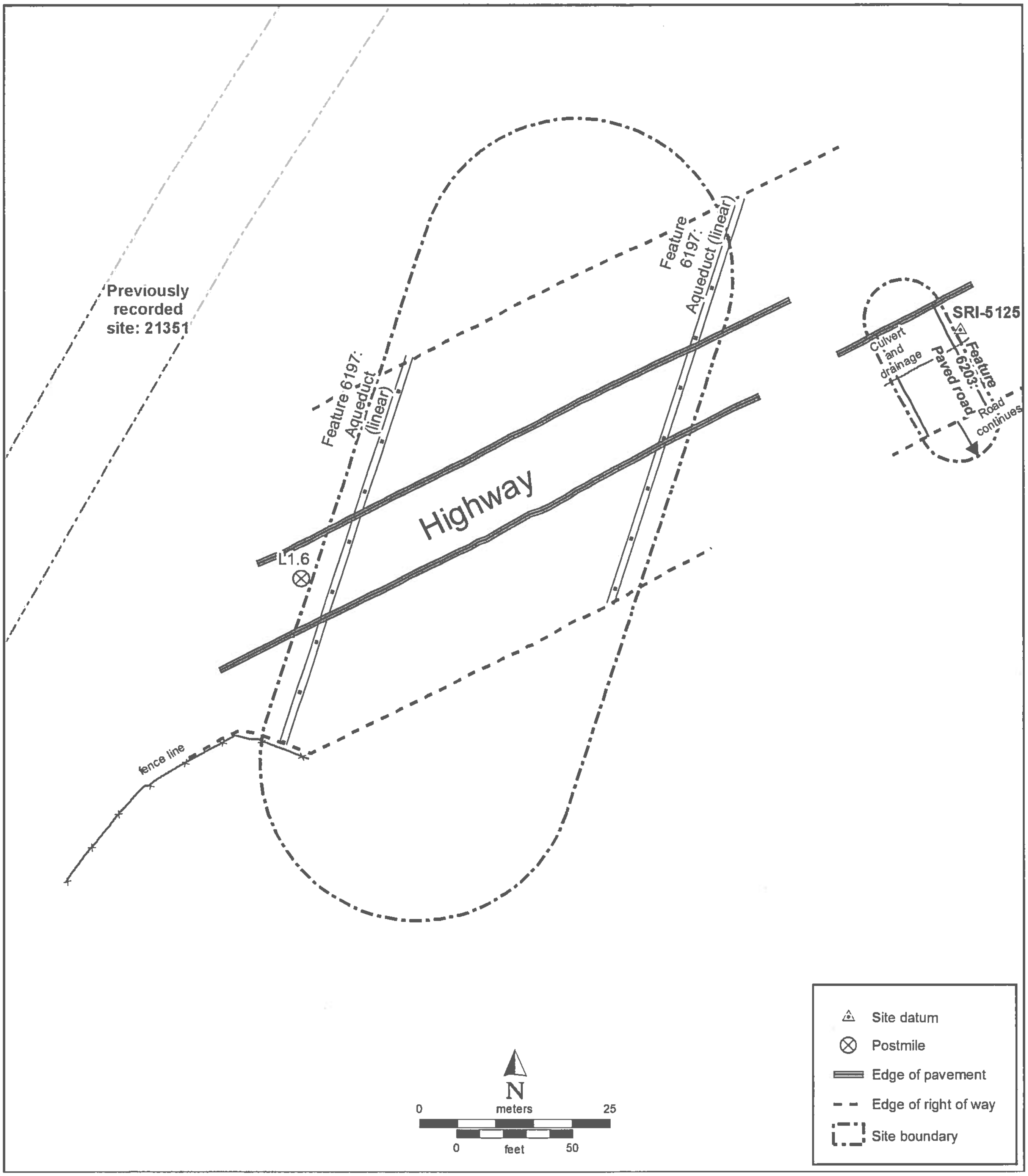
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary # P-36-021351
HRI #
Trinomial

***Resource Name or #:** SRI-5124 (UPDATE)

***Drawn By:** S. Kremkau

***Date:** 05/11/2011



*Required Information

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P-36-021351
HRI #
Trinomial

***Resource Name or #:** SRI-5124 (UPDATE)

***Recorded By:** S. Kremkau ***Date:** 5/11/2011 ☑ Continuation ☐ Update

P2d. UTM
Zone 11; 470381 mE/ 3796248 mN NAD27 GPS

P4. Resources Present
[X] Other (linear)

A1. Method of determination
by Caltrans.

A1. Reliability of determination
right-of-way, so the exact site dimensions are unknown.

A2. Depth method of determination
the right-of-way, but the depth is unknown.

1066652 5/10

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # 36-021351 H
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code | Reviewer | Date

Page 1 of 29 | *Resource Name or #: East Branch of the California Aqueduct (EBA)

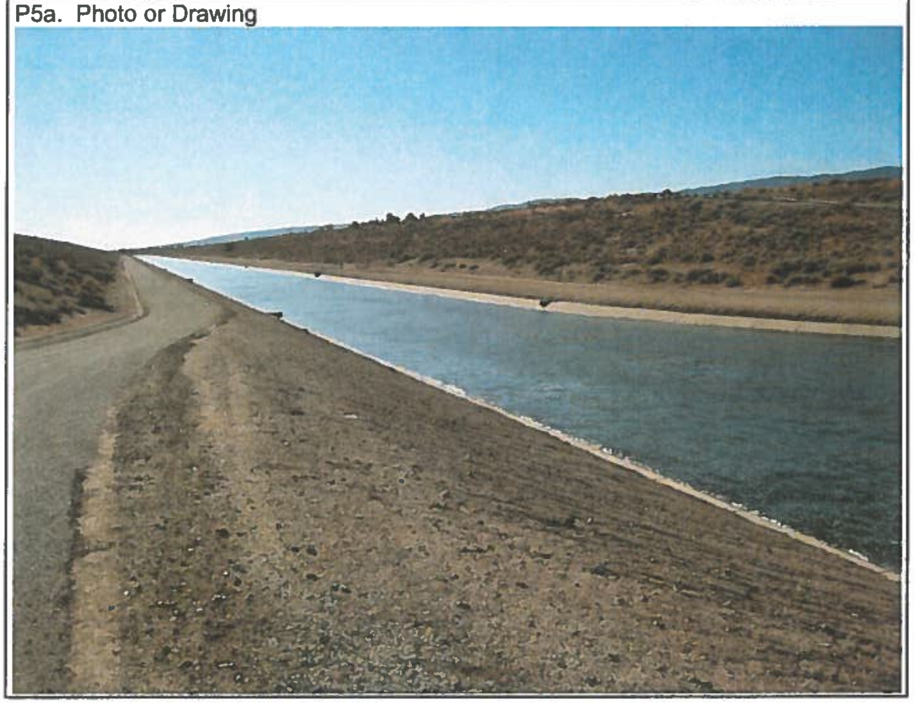
P1. Other Identifier: East Branch of the California Aqueduct (EBA)
***P2. Location:** ☐ Not for Publication ■ Unrestricted *a. County: San Bernardino, Los Angeles, Riverside
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** Baldy Mesa, Mescal Creek, Phelan, Shadow Mountains SE, Silverwood Lake, Burnt Peak, Del Sur, Fairmont Butte, Juniper Hills, La Liebre Ranch, Lake Hughes, Lancaster West, Littlerock, Mescal Creek, Neenach School, Palmdale, Ritter Ridge, and Valyermo **Date:** n/a **T** ; **R** ; **¼ of** **¼ of Sec** ; ~~M.D.~~ SB **B.M.**
c. Address: City: Zip:
d. UTM: Zone: 11; mE/ mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation:

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Constructed between 1966 and 1973, the East Branch of the California Aqueduct (EBA) is a 98-mile segment of the larger, 444-mile California Aqueduct (State Water Project or SWP), which delivers water from northern California to southern California. The northern end of the EBA begins where the east and west branches of the California Aqueduct split just below the Tehachapi Afterbay in eastern Los Angeles County, while the southern end of the EBA terminates at Lake Perris in western San Bernardino County. The EBA runs along the eastern base of the San Gabriel and San Bernardino Mountains, passing near the communities of Lancaster, Palmdale, Hesperia, and Victorville. The EBA consists of series of canals, siphons, tunnels, penstocks, a power plant, and a pumping plant (See Continuation Sheet).

***P3b. Resource Attributes:** HP20 -- canal/aqueduct
***P4. Resources Present:** ☐Building ■Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing



P5b. Description of Photo: EBA, facing southwest, near Alamo Power Plant

***P6. Date Constructed/Age and Sources:** ■Historic ☐Prehistoric ☐Both
1966-1973

***P7. Owner and Address:**
CA Dept. of Water Resources
1416 Ninth Street
Sacramento, CA 95814

***P8. Recorded by:** Katherine Anderson.
ESA | 2600 Capitol Ave, Suite 200.
Sacramento, CA 95816

***P9. Date Recorded:** November, 2009
***P10. Survey Type:** intensive

***P11. Report Citation:** ESA, *DWR East Branch Enlargement Phase II Administrative Draft EIR*. Prepared for the California Department of Water Resources, 2009

***Attachments:** ☐NONE ■Location Map ☐Sketch Map ■Continuation Sheet ■Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

***P3a. Description:**

The EBA consists of a number of contributing elements that form a cohesive water conveyance system, including the canal itself, canal check structures, siphons, overcrossings and culverts, bridges, and associated facilities such as the Alamo Power Plant and the Pearblossom Pumping Station. Each of these is described below.

<u>Canal</u>

The EBA canal is a concrete lined trapezoidal canal measuring between 12 and 16 feet wide at its base, between 90 and 120 feet wide at the surface, and with an average depth of 20 feet (**Figure 1**). The 98-mile-long canal is divided into multiple zones or 'pools. 'Most pools have side slopes of 2:1, while some pools have slopes of 3:1. The concrete lining thickness varies between 3-4 inches. Earthen berms line both sides of the canal except in areas of more mountainous terrain. Located on top of the berms are paved and unpaved maintenance roads which measure approximately 20 feet wide. The canal becomes narrower and shallower the further south it extends, as water is distributed to various agencies. The entire right of way (ROW) is surrounded by chain link fencing, including the maintenance roads and at bridge overcrossings where metal gates are used to prevent unauthorized vehicle access.

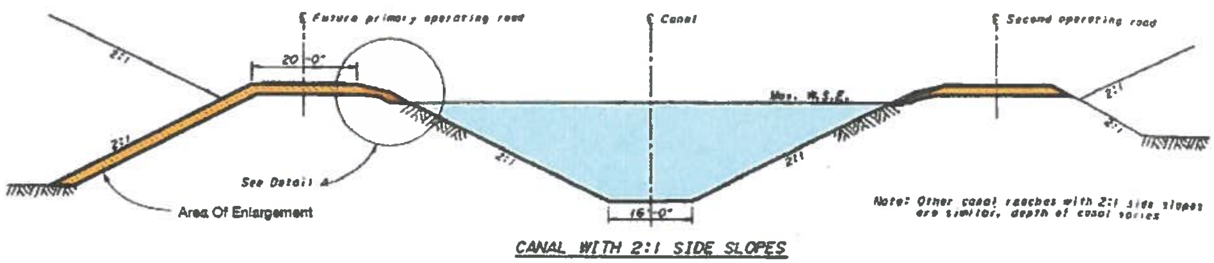


Figure 1. Typical Canal Cross Section

<u>Canal Check Structures</u>

The EBA consists of a series of canal pools controlled by gate check structures (**Figure 2** on following page). The EBA contains 24 canal check structures, each of which consists of two to four 13-foot wide bays. The spacing of checks was based on operational considerations with the slope of the canal a primary factor. Hydraulic isolation of the San Andreas Fault crossing also influenced check spacing. This resulted in spacing of 2 to 6 miles between checks from Cottonwood Chute to Pearblossom Pumping Plant and 4 to 17 miles between checks from Pearblossom Pumping Plant to Silverwood Lake. A typical canal check structure consists of two concrete box culvert bays, each approximately 13 feet wide and approximately 30 feet long. Metal radial gates are located within the bays and extend the depth of the canal, with operating machinery located in enclosed concrete block buildings adjacent to the check structure. Chain link and barbed wire fencing, with associated access gates, enclose the entire facility.

Figure 2. Canal Check Structure, facing southwest

Siphons

The EBA consists of 15 siphons, ranging in length from 185 feet to approximately 12,600 feet, predominantly located underground and consisting of two to three 13-foot diameter barrels, depending on the location. The flow of water is controlled by 13-foot high radial gates (**Figure 3**). Siphons are pipelines used to convey water across a range of elevations (or topography) without the need for pumping.

Figure 2. Box Siphon, facing southwest

Overcrossings

Overcrossings, or bridges, allow vehicular egress across the canal throughout the system. There are 37 bridges which cross the EBA. Most of these are continuations of public roadways which existed prior to the construction of the EBA, and were built simultaneously with the canal from 1966 to 1973. A typical roadway bridge is a two-lane vehicular bridge constructed of pre-stressed concrete and supported by steel beams or girders and with concrete abutments, a paved roadway deck, and steel guardrails (**Figure 4**). The bridges allow for both public and private access. The DWR constructed Neenach Bridge to carry State Highway 138 over the canal. The Antelope Highway Bridge was constructed concurrently with the canal. In anticipation of the EBA and prior to canal construction, bridges were built to carry State Highway 395 and Interstate Highway 15 over the canal. One railroad bridge was built prior to aqueduct construction to carry the Southern Pacific Company's Cajon-Palmdale rail line over the canal. The Interstate 15 bridge has a steel, double-box section which carries traffic over the canal. The State Highway 395 bridge is a concrete bridge which has a clear-span over the canal. Southern Pacific Company's railroad bridge has two pile-supported piers within the canal waterway.

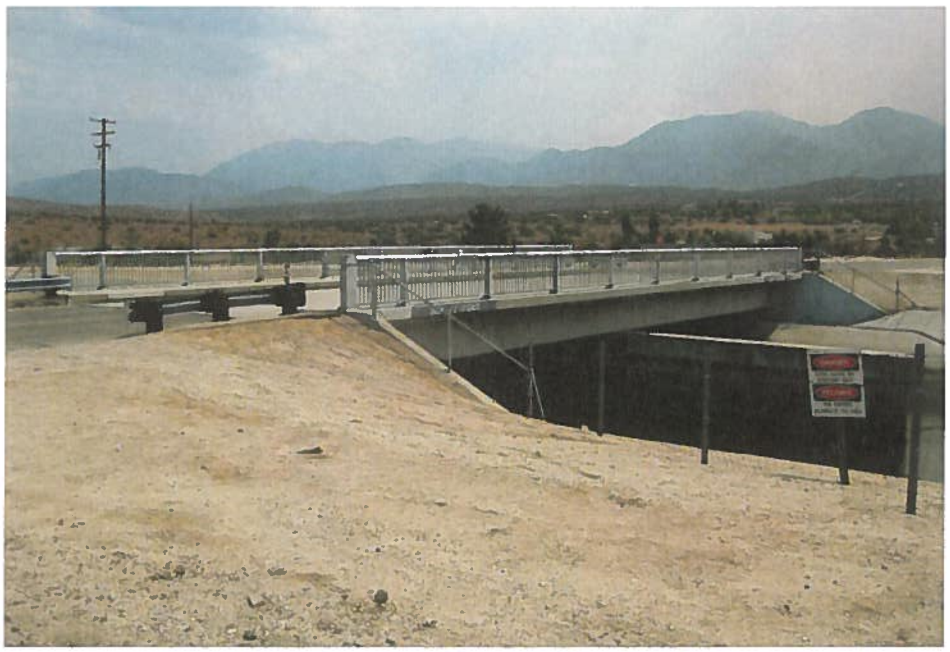


Figure 4. Typical Overcrossing - 121st Street East Bridge

Culverts and Overchutes

Culverts and Overchutes are features which allow water to flow over or under the canal. The EBA has 107 culverts and 83 overchutes in the Project area. Primarily for use during floods, these features allow floodwater to cross the canal without entering it. There are several different varieties of concrete culverts and overchutes located along the EBA, primarily differing in their width. They typically consist of one to three channels for overshoots and one to five channels for culverts which come in both box and pipe varieties. The size of the overchute or culvert is determined by the quantity of water expected in floodflows in that location. Both types of features are constructed of reinforced-concrete, although culverts include both box and pipe varieties. Culverts are used in areas of more pronounced topographic relief, whereas overchutes occur in flatter terrain. A typical overchute, such as the triple box overchute (**Figure 5**), consists of three rectangular, open air reinforced concrete channels spanning the width of the canal. Typical culverts, such as the triple box culvert (**Figure 6**), consist of reinforced concrete boxes crossing underneath the canal, with tapered concrete inlets to direct waterflow.

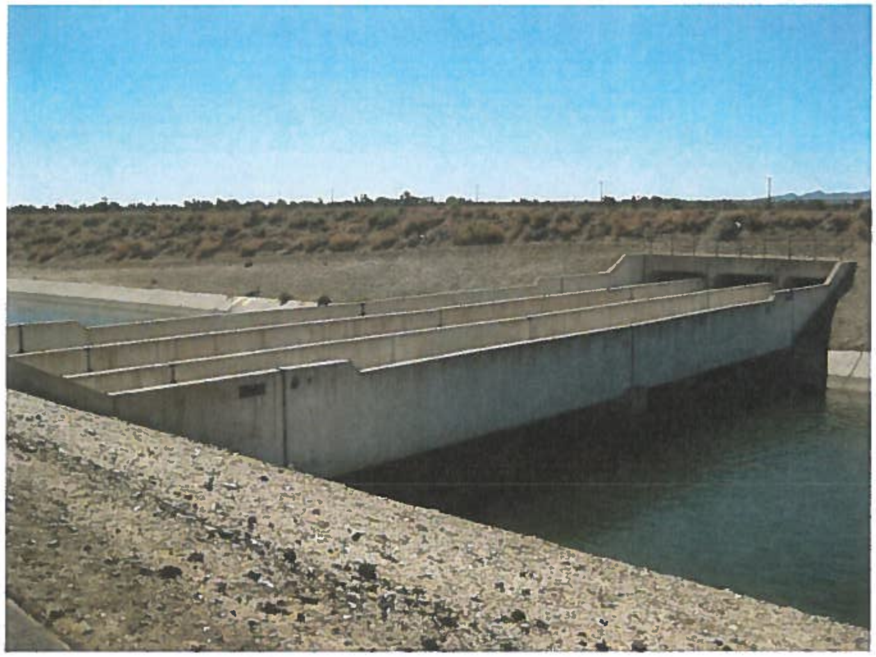


Figure 5. Triple Overchute, facing southwest

Figure 6. Triple Box Culvert, facing south

Alamo Power Plant

The water system's secondary function, after conveying water, is providing hydroelectric power. The Alamo Power Plant is located at the northern end of the EBA, approximately 1.7 miles downstream of the bifurcation of the East and West Branches. The Alamo Power Plant uses water passing through it to generate electricity through the movement of electrical turbines. The Alamo Power Plant is large, single story structure constructed of reinforced concrete, and measures approximately 85 feet by 100 feet (**Figure 7**). A large, steel gantry crane located on the roof of the plant is used to perform maintenance on the turbines contained within the structure.

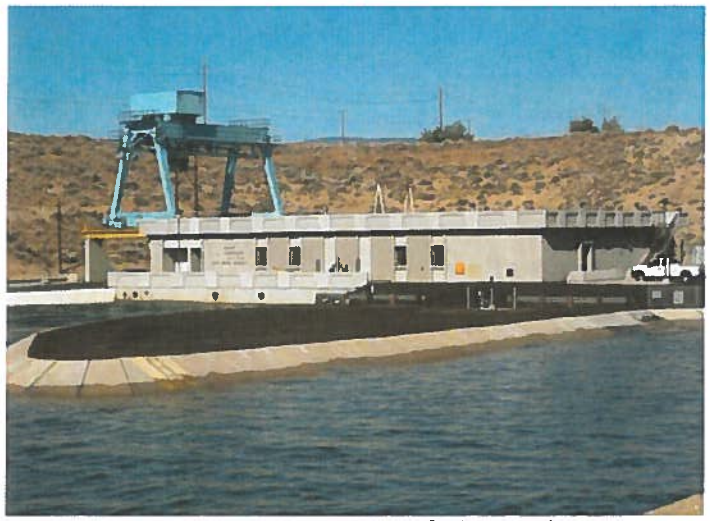


Figure 7. Alamo Power Plant, facing northwest

Pearblossom Pumping Plant

The Pearblossom Pumping Plant is located near Highway 138, northwest of the community of Pearblossom. The plant consists of a reinforced concrete substructure with a structural steel superstructure, and measures approximately 275 feet by 124 feet (**Figure 8**). The pumps lift the water 542 feet, allowing it to flow downhill for 40-50 miles to the Mojave Siphon Power Plant. Additional photos of the EBA are provided below.

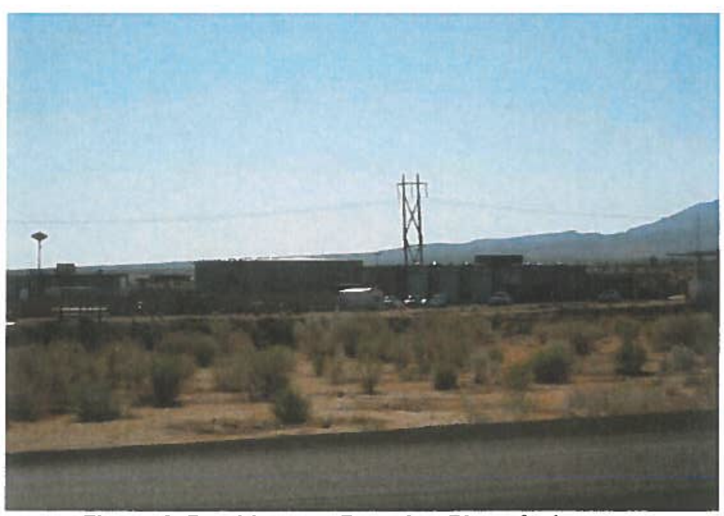
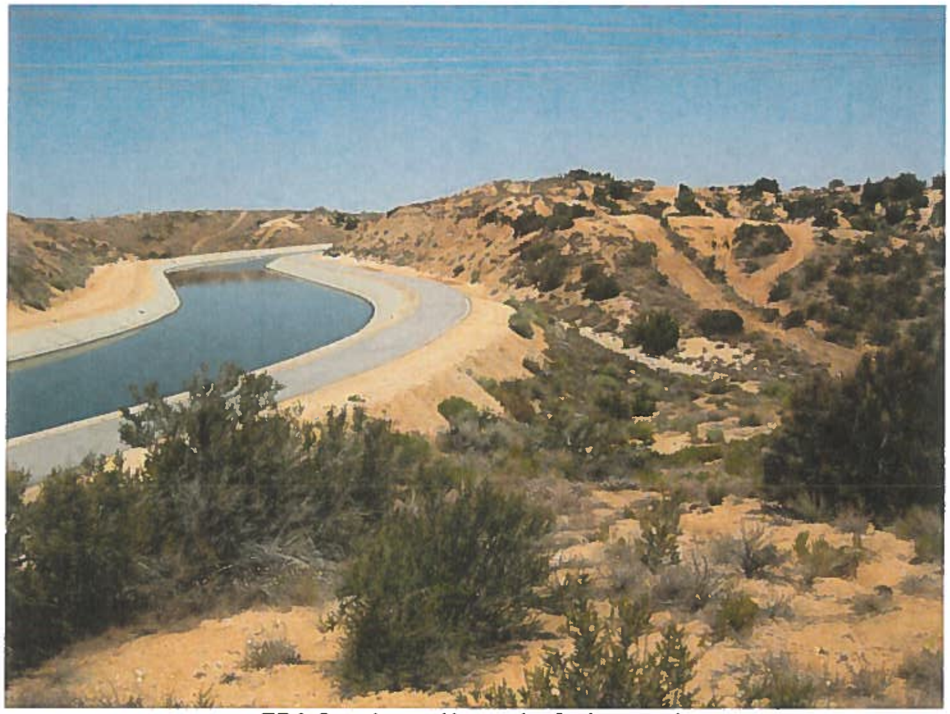


Figure 8. Pearblossom Pumping Plant, facing east

EBA canal and double overchute, facing southwest

Lancaster Bridge and EBA Canal, facing northwest



EBA Canal near Hesperia, facing north

EBA Canal near Hesperia, facing south

Primary # 36-021351
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 3S

***Resource Name or #:** East Branch of the California Aqueduct (EBA)

B1. Historic Name: East Branch of the California Aqueduct
B2. Common Name: East Branch of the California Aqueduct
B3. Original Use: canal/aqueduct B4. Present Use: canal/aqueduct
***B5. Architectural Style:** industrial
***B6. Construction History:**

1966-1973	Original construction
1984	Phase I enlargement

***B7. Moved?** ■No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:**

B9a. Architect: California Dept. of Water Resources b. Builder: Kirst Construction Company and Granite Construction Company

***B10. Significance: Theme:** water conveyance **Area:** California
Period of Significance: 1955-1973 **Property Type:** Canal and related structures **Applicable Criteria:** A, C

<u>California Aqueduct</u>

While an aqueduct to bring water from northern California to southern California had been a part of the State Water Project from the early 1950s, the exact route and means of providing that water was a matter of extensive debate. The route over the Tehachapi range, the "high line," was originally advanced by A.D. Edmonston in the mid 1950s; however regional political negations resulted in an extended debate over the route for the aqueduct (Cooper, 1968). More westerly communities and water districts preferred a coastal route which would require less pumping but result in longer lengths and greater construction costs. The easterly communities preferred the high line route, which would require water to be pump-lifted more than 3,000 feet uphill over the Tehachapi range, resulting in increased electrical costs for operation. Tunneling through the Tehachapi range was suggested, however the destructive presence of the San Andreas Fault led engineers to place the pipelines above ground for easy access for future repair (Cooper, 1968). (See Continuation Sheet)

B11. Additional Resource Attributes: HP20 -- canal/aqueduct

***B12. References:**

(See Continuation Sheet)

B13. Remarks:

***B14. Evaluator:** Katherine Anderson, ESA. 2600 Capitol Ave, Suite 200, Sacramento, CA 95814

***Date of Evaluation:** November, 2009.

(This space reserved for official comments.)

 *Required information

***B10. Significance:**

The selection of the aqueduct route would determine which areas in southern California would thrive and which would wait. In order to determine the financial feasibility of the project, the state legislature in 1956 authorized a comprehensive survey of alternative aqueduct routes and their economic and financial implications. The study analyzed project population growth within southern California, as well as the economic feasibility of a variety of aqueduct routes bringing water from northern California. It was determined that both a coastal and inland route would be necessary to supply southern California with water for its projected population. Engineers suggested a combination of routes, with aqueduct branches to carry water in several directions. In 1958, DWR Bulletin 78, *Investigation of Alternative Aqueduct Systems to Serve Southern California,* unveiled the plan for the three branch system: coastal, western and eastern:

> "The latest projections of future population and economic growth in these areas, as reported in this bulletin, indicate that the recent phenomenal growth therein will continue. It is estimated that about 5.5 million acre-feet of supplemental water would have to be imported from northern California by the year 2020 to sustain this growth, and that initial water deliveries would have to be made by 1965 in the San Joaquin Valley portion of these areas, and by 1971 to most of the remainder.
>
> It is concluded that the one system that would meet these demands for water most economically, would comprise an aqueduct from the Delta along the west side of the San Joaquin Valley to Avenal Gap, branching there into a coastal aqueduct leading to Santa Maria Valley, and an inland aqueduct from Avenal Gap south through Kern County and across the Tehachapi Mountains; with a west branch terminating at the north edge of San Fernando Valley and an east branch extending along the south edge of the Antelope Valley through the San Bernardino Mountains and terminating at Perris Reservoir site in Riverside County. This system would also provide the best combination, from the standpoint of mineral quality, of imported northern California water with the other sources of water, both local and imported, available to southern California." (DWR, 1958)

By 1963, 13 water agencies had signed contracts with the DWR, and of those, 10 would be provided with water carried by the East Branch Aqueduct: San Bernardino Valley Metropolitan Water District, Desert Water Agency, San Gabriel Valley Metropolitan Water District, San Gorgonio Pass WA, Palmdale Irrigation District, Coachella Valley Water District, Crestline-Lake Arrowhead Water Agency, Mojave Water Agency, Littlerock Creek Irrigation District, and the City of West Covina (DWR, 1963). Previously, many of these districts had relied on groundwater resources or the Colorado River or Owens River Aqueduct to supply their water needs. This resulted in inadequate water supply that was intended to be supplemented by the transfer of water from northern California to southern California. Water delivery began in the northernmost districts, and extended south as sections of the aqueduct were completed (DWR, 1958).

Construction began on the California Aqueduct in 1963, with the fist delivery of water to the San Joaquin Valley by 1968. Because the aqueduct was the largest and most vital element of the system, contractors worked on it through the entire construction period of the SWP. The aqueduct was constructed to the Tehachapi Range in 1971. The A.D. Edmonston Pumping Plant, the largest pumping facility of the State Water Project, with the ability to lift water almost 2,000 feet up and over the Tehachapi Mountains began construction in 1965, and was completed in 1970. The aqueduct to Lake Perris at the southernmost end of the project, as well as Perris Dam, was completed in 1973. The 128 foot high dam, holding 127 acre/feet of water, resulted in the creation of the third largest manmade lake in southern California. The filling of Perris Lake marked the end of initial SWP construction, with all basic facilities completed and operational by 1973 (DWR, 1973). By the 1970s, southern California was connected by a vast network of Federal, State and local dams and aqueducts to water supplies from northern California and the Colorado River watersheds.

From the early 1970s to the late 1980s, design and construction activities centered on building power plants and adding pumping units and turbine-generators deferred from the initial construction, enlarging or extending aqueduct reaches, and providing facilities to ensure water quality in the Delta (DWR, 2009). In the 1990s, design and construction activities focused on repairing and replacing components of existing facilities, constructing Phase II of the Coastal Branch to deliver water to San Luis Obispo and Santa Barbara counties, and extending the SWP to the San Gorgonio Pass service area (DWR, 2009). Maintenance, improvement, and expansion of the California Aqueduct and associated facilities are a continuing process.

East Branch of the California Aqueduct

The East Branch of the California Aqueduct (EBA) conveys water from the Tehachapi Afterbay to Lake Perris and consists of approximately 98 miles of canals, siphons, tunnels, penstocks, power plants, pumping plants, and reservoirs. The EBA extends from eastern Los Angeles County into western San Bernardino County, along the eastern base of the San Gabriel and San Bernardino Mountains, passing near the communities of Lancaster, Palmdale, Hesperia, and Victorville.

Construction of the EBA began in 1966 and continued through 1973. Working southward, the construction occurred in stages. The construction headquarters was located in Palmdale, with auxiliary offices at the various construction sites along the length of the EBA. The construction of the portion of the EBA from Tehachapi to Silverwood Lake occurred between 1970 and 1971. The section of the EBA from Silverwood Lake to Perris Lake was constructed between 1971 and 1973. Designed in-house by DWR engineers, and constructed by two private prime contractors, Kirst Construction Company and Granite Construction Company, the EBA originally consisted of approximately 91.5 miles of canal, 6.5 miles of inverted siphons, the San Bernardino Tunnel, one pumping plant, and one power plant (DWR, 1974, 1983). The total cost of the project was about $70 million.

Since its original construction, the EBA has undergone other enlargement projects in order to increase water capacity flowing to southern California. The Phase I Enlargement of the EBA added approximately 750 cubic feet per second (cfs) to the system and was completed in 1984. This enlargement included raising the canal lining, raising the walls of the check structures, installing additional siphon barrels, and increasing the capacities of the Pearblossom Pumping Plant and Alamo Power Plant, as well as the Mojave Siphon Powerplant and Devil Canyon Powerplant (the two latter facilities are not included in the present project area). The purpose of the enlargement was to partially offset the reduction of the Metropolitan Water District of Southern California's (MWD) Colorado River supply resulting from operation of the Central Arizona Project, and meet increasing demands on the eastern side of MWD's service area.

The EBA was evaluated for its historical significance under National Register and California Register criteria in the context of California water conveyance systems. Although the EBA is not yet 50 years old, it was evaluated under National Register Criterion G because it may have achieved significance within the past 50 years.

At approximately one-quarter of the length of the entire 444-mile California Aqueduct system, the 98-mile EBA segment and its contributing elements such as the canal, canal overcrossings, culverts, bridges, siphons, check structures, the Alamo Power Plant and the Pearblossom Pumping Plant, appears to be eligible under NRHP/CRHR Criteria 1/A for its association with major water systems development in southern California, and under Criteria and 3/C within the field of water conveyance engineering and design. Each of these is described in more detail below.

Criterion 1/A (Events)

Under NRHP/CRHR Criterion 1/A, the EBA is considered important for its association with the history of major water systems development in California. The California Aqueduct has significance in relation to large-scale developments in transporting water throughout California and supplying such resources to arid regions to influence the growth of farming and agricultural development starting in 1968. The aqueduct is part of the State Water Project, which "represents one of the most ambitious public works projects undertaken by the State of California" (JRP and Caltrans, 2000). The State Water Project provides water to more than two-thirds of the state's population and the Aqueduct is "by far the largest and most vital element" of the State Water Project (JRP and Caltrans, 2000). The State Water Project is a massive state-funded public works project and is significant for moving millions of acre-feet of water from northern California south for commercial, industrial and residential use in the San Joaquin Valley and southern California.

Criterion 2/B (Persons)

The EBA does not appear to be significant under NRHP/CRHR Criterion 2/B for its association with persons important in local, state, or national history. The EBA was designed in-house by DWR engineers and was constructed by various private contractors. There is no indication that the SWP leadership, or other individuals, obtained prominence because of their association with the construction or development of this portion of the EBA.

Criterion 3/C (Architecture/Engineering)

Under NRHP/CRHR Criterion 3/C, the EBA appears to be significant for its importance within the field of water conveyance engineering and design. This significance would derive from a structure embodying distinctive characteristics of type, period, or method of construction or representing the work of a master engineer, designer, or builder. Attributes to consider are its rarity, innovative design techniques or construction methods, boldness of the engineering achievement, and aesthetics. These attributes are weighed in conjunction with evaluation of a water conveyance's type, period, or method of construction and its association with possible historically significant engineers and/or builders. The California Aqueduct, including the contributory EBA segment, is potentially significant as an exceptional example of hydraulic engineering.

From its conception and construction, the California Aqueduct/State Water Project has been recognized as a major engineering enterprise. The California Aqueduct was selected by the American Society of Civil Engineers (ASCE) for its "ASCE Outstanding Civil Engineering Award for 1972" (DWR, 1974). In 2000, ASCE named the California Aqueduct/State Water Project as "one of the 100 Greatest American Engineering Achievements in the last century" and identified it as a "Civil Engineering Monument of the Millennium" in May 2001. The first Monument of the Millennium to be located on US soil, the California Aqueduct/State Water Project was selected for the water supply and distribution achievement in consideration of its remarkable engineering aspects, as well as for the positive impact it has had on regional economic trade and development. The ASCE further recognized the entire State Water Project as a landmark in American civil engineering in 2002 (American Society of Civil Engineers, 2001, 2002). In addition, the California Aqueduct is noted in *The Reference Guide to Famous Engineering Landmarks of the World* (Berlow, 1998).

Criterion D/4 (Information Potential)

The EBA does not appear to be significant under NRHP/CRHR Criterion D/4, as it does not appear that the aqueduct has the potential to yield information important to the prehistory or history of the local area, state, or nation.

Integrity

The EBA possesses a high level of integrity. Previous expansions and enlargements of the canal and associated facilities have been designed and implemented in a manner keeping with the function and industrial character of the canal and its associated features. These additions and alterations do not substantially detract from the overall integrity of the system. The EBA has maintained its original alignment within the APE despite these later alterations, and retains its integrity of location of setting and possesses integrity of design, materials, workmanship, feeling and association.

Summary

As a contributory component and critical element of the larger California Aqueduct/State Water Project system which has been previously recommended eligible for listing in the National Register and California Register, the 98-mile EBA segment would also be eligible for listing in the National Register and California Register. As a historic architectural/engineering resource eligible for listing in the National Register and California Register, the EBA would be considered a historic resource for CEQA purposes.

References:

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State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 36-021351
HRI#
Trinomial

Page 15 of 29 | *Resource Name or #: East Branch of the California Aqueduct (EBA)

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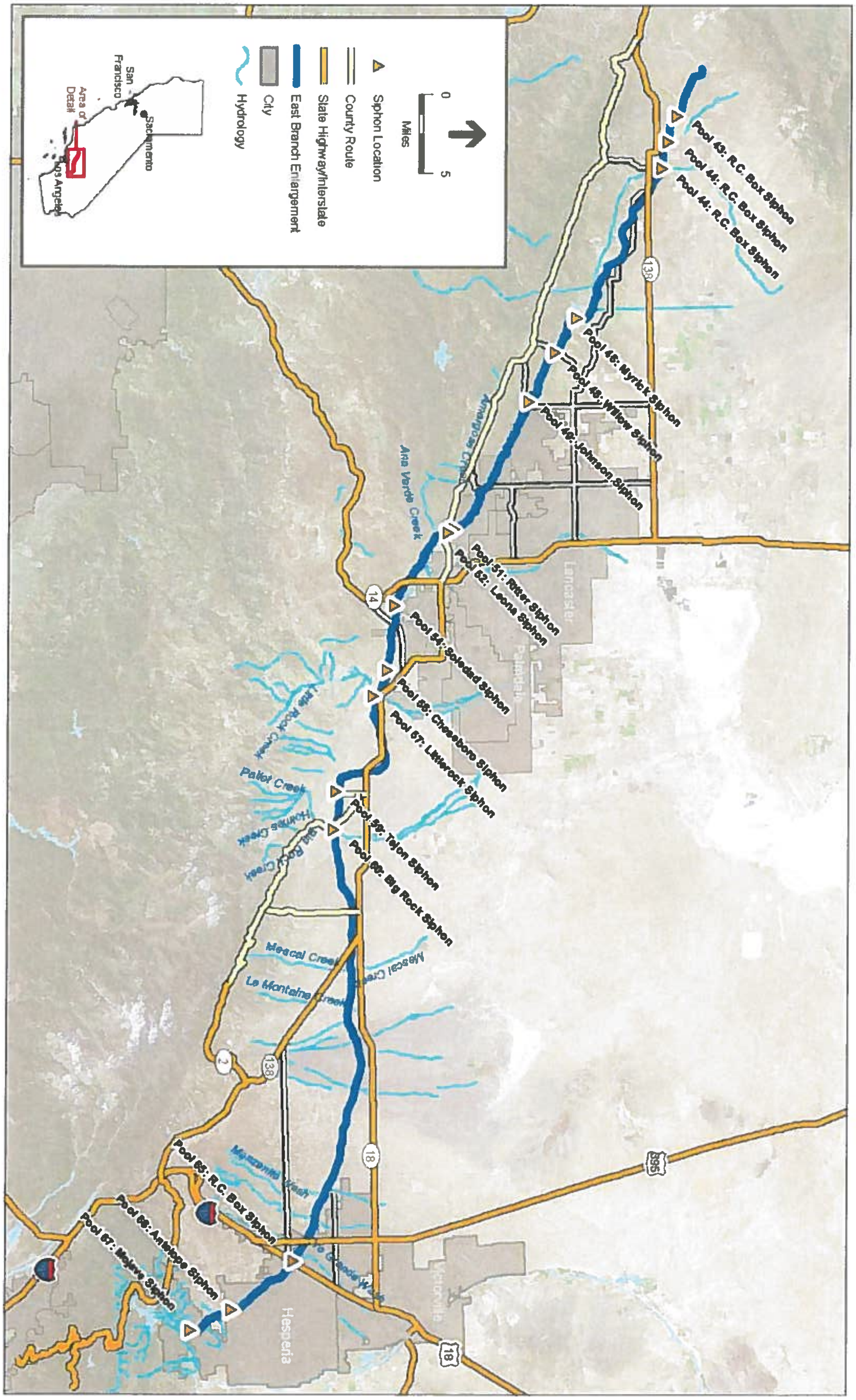

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
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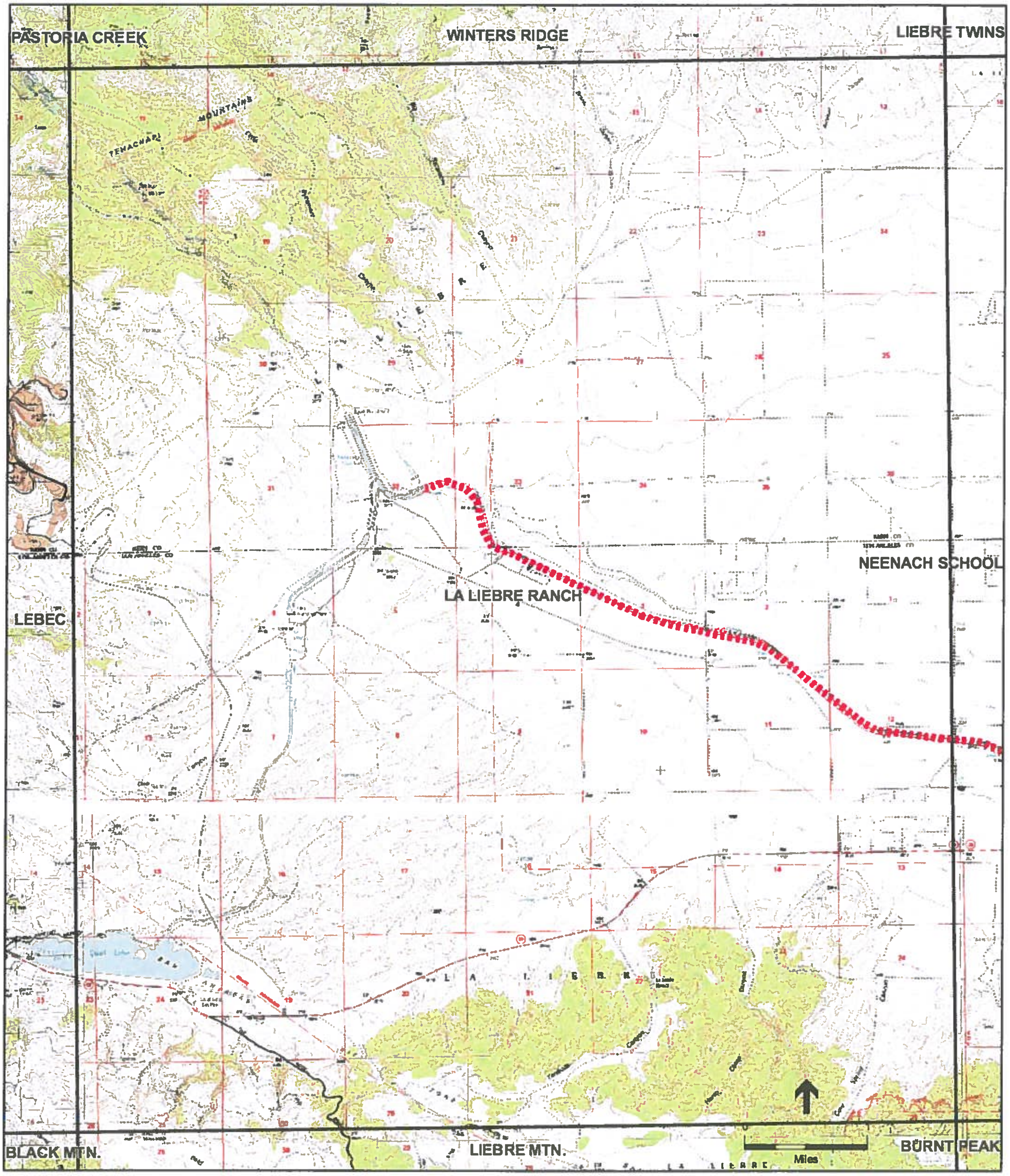

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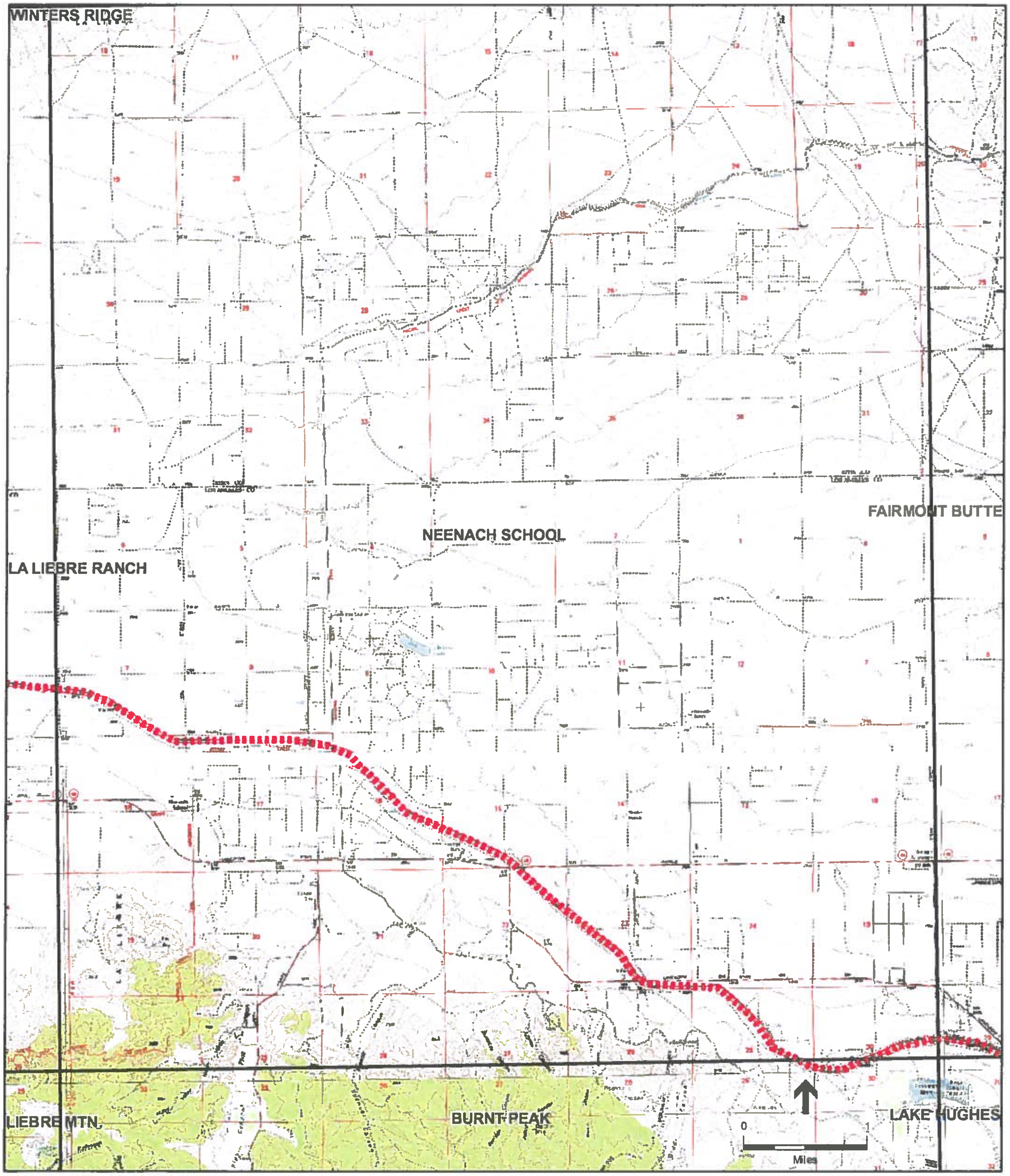

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LOCATION MAP

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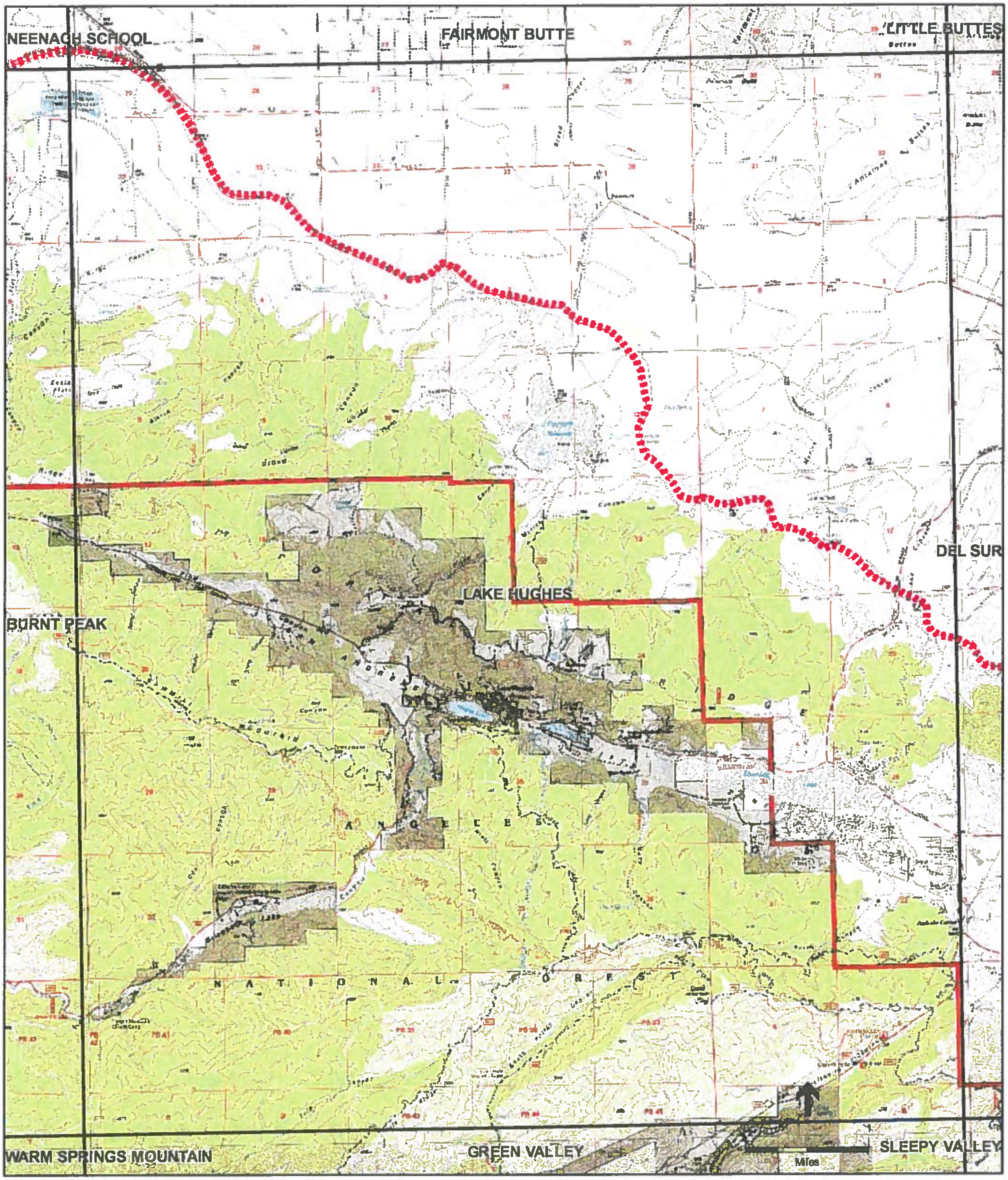

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LOCATION MAP

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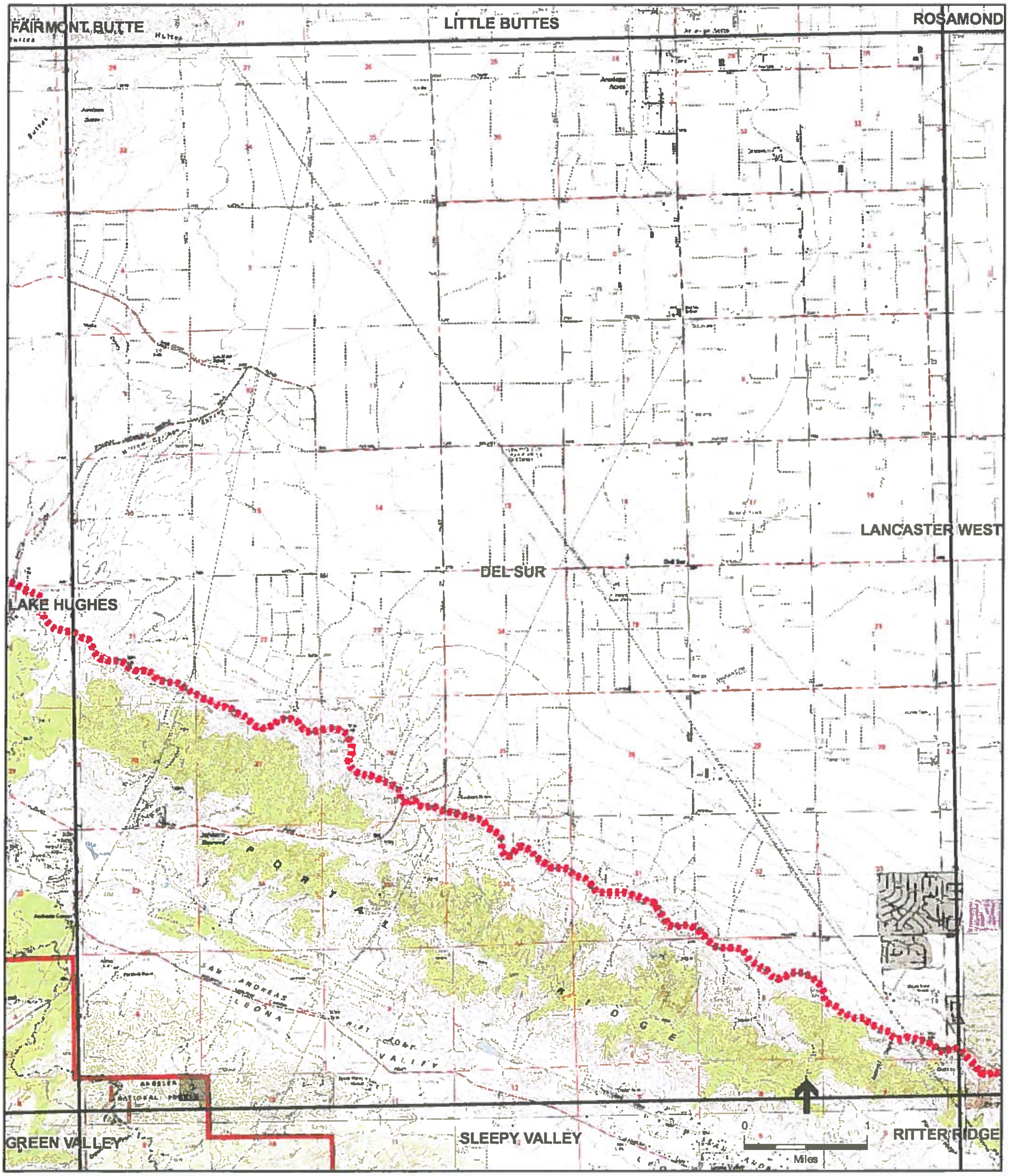

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LOCATION MAP

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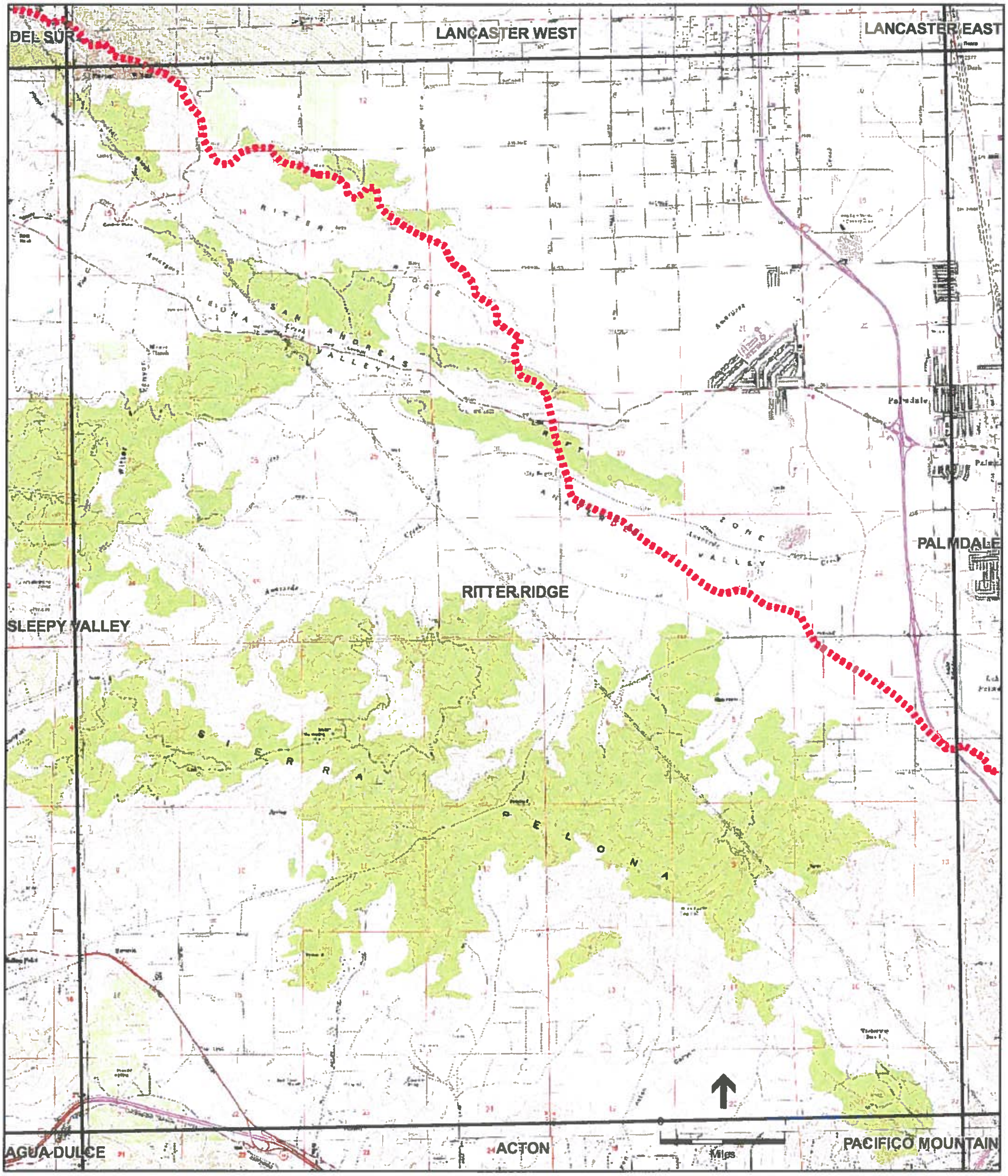

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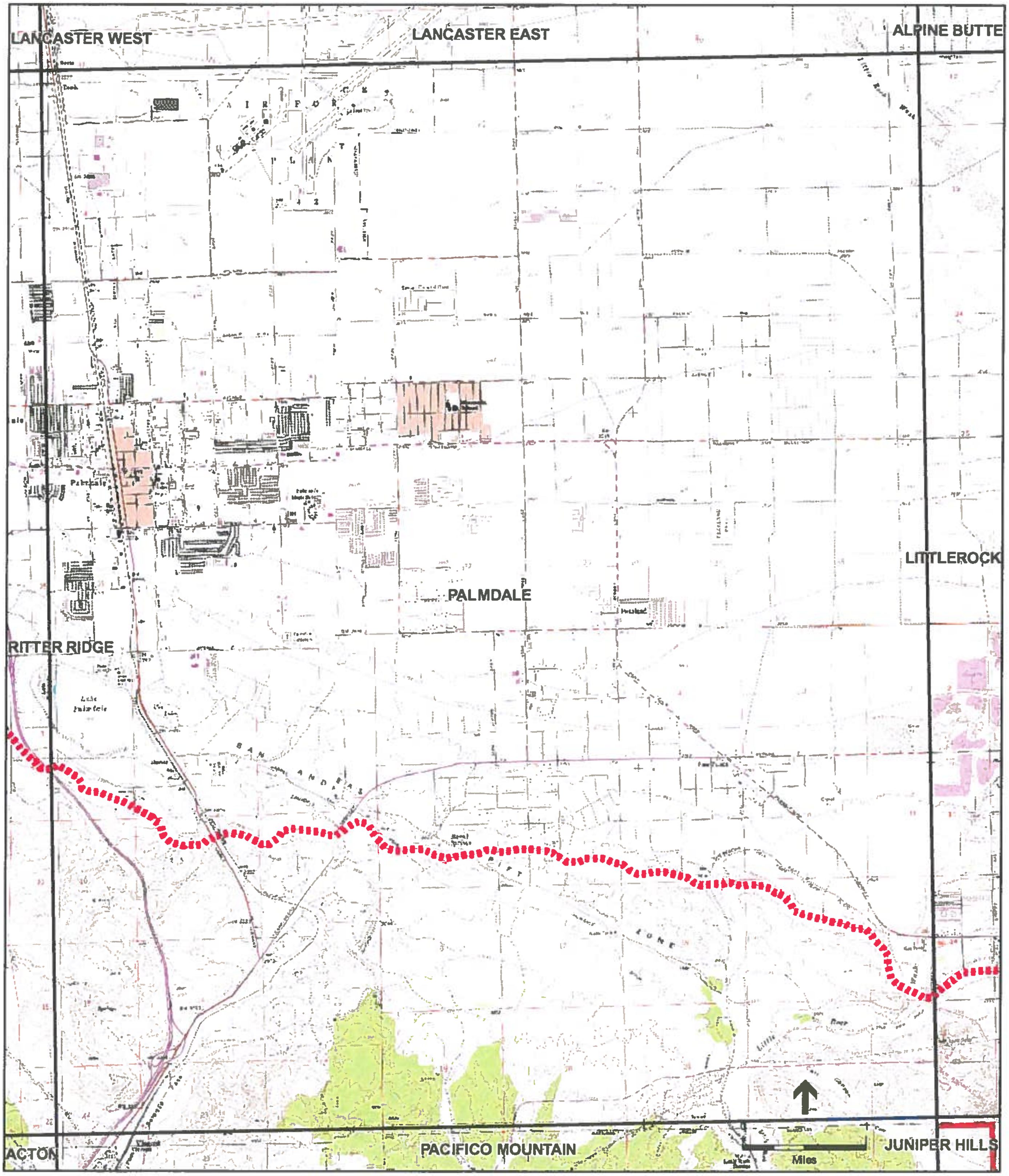
Map Name: Palmdale **Scale:** 1:70,000 **Map Date:** 1974



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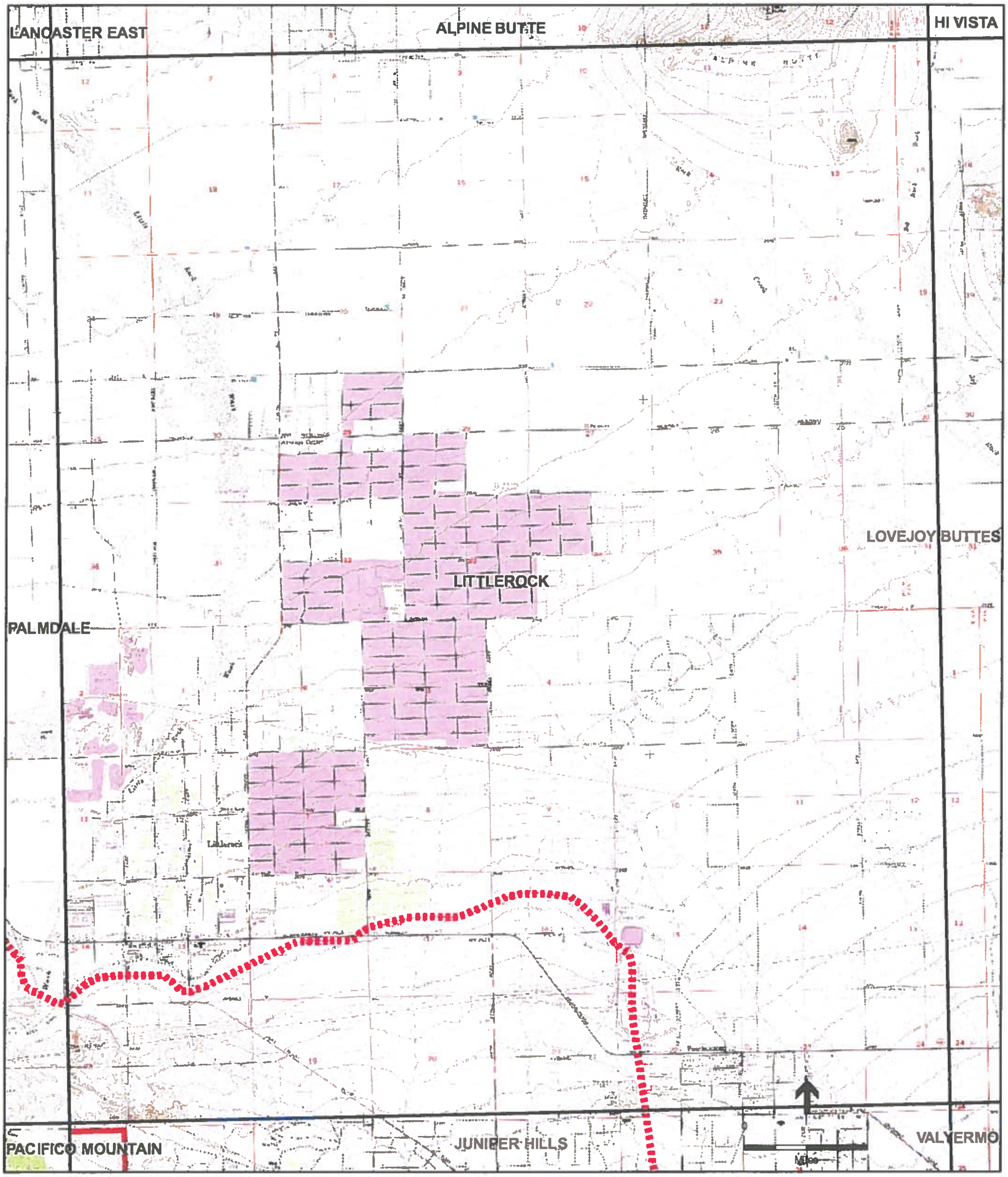

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LOCATION MAP

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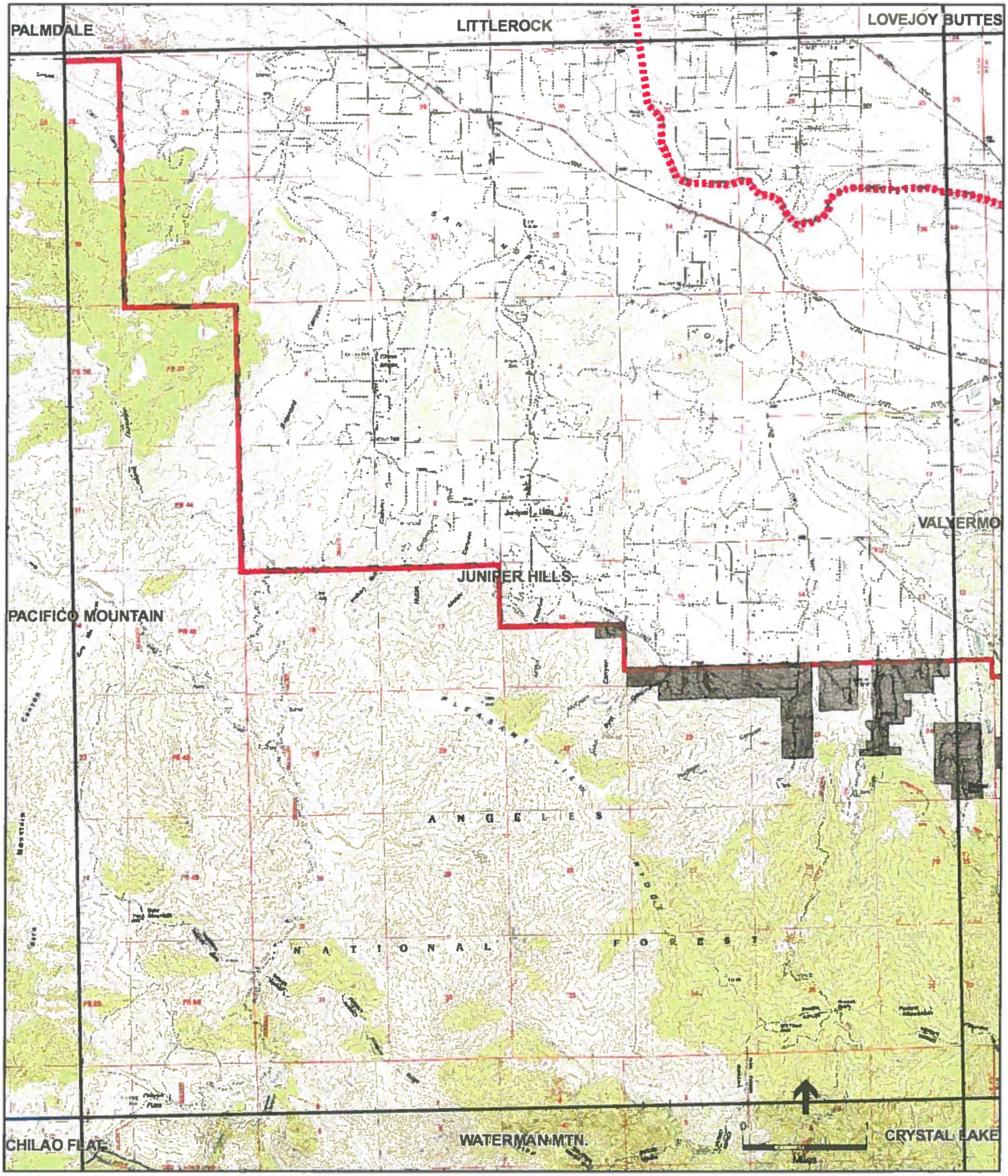

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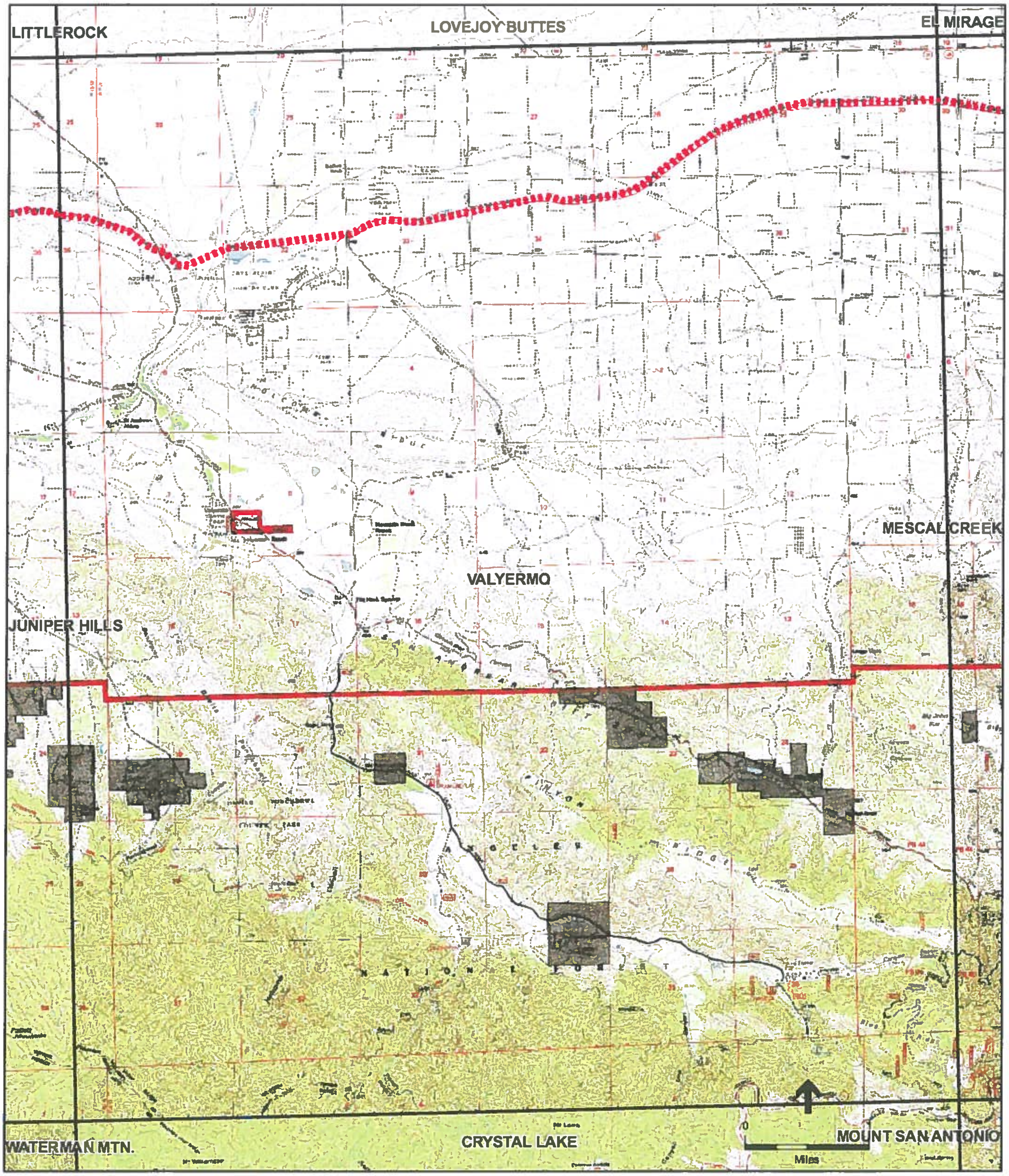

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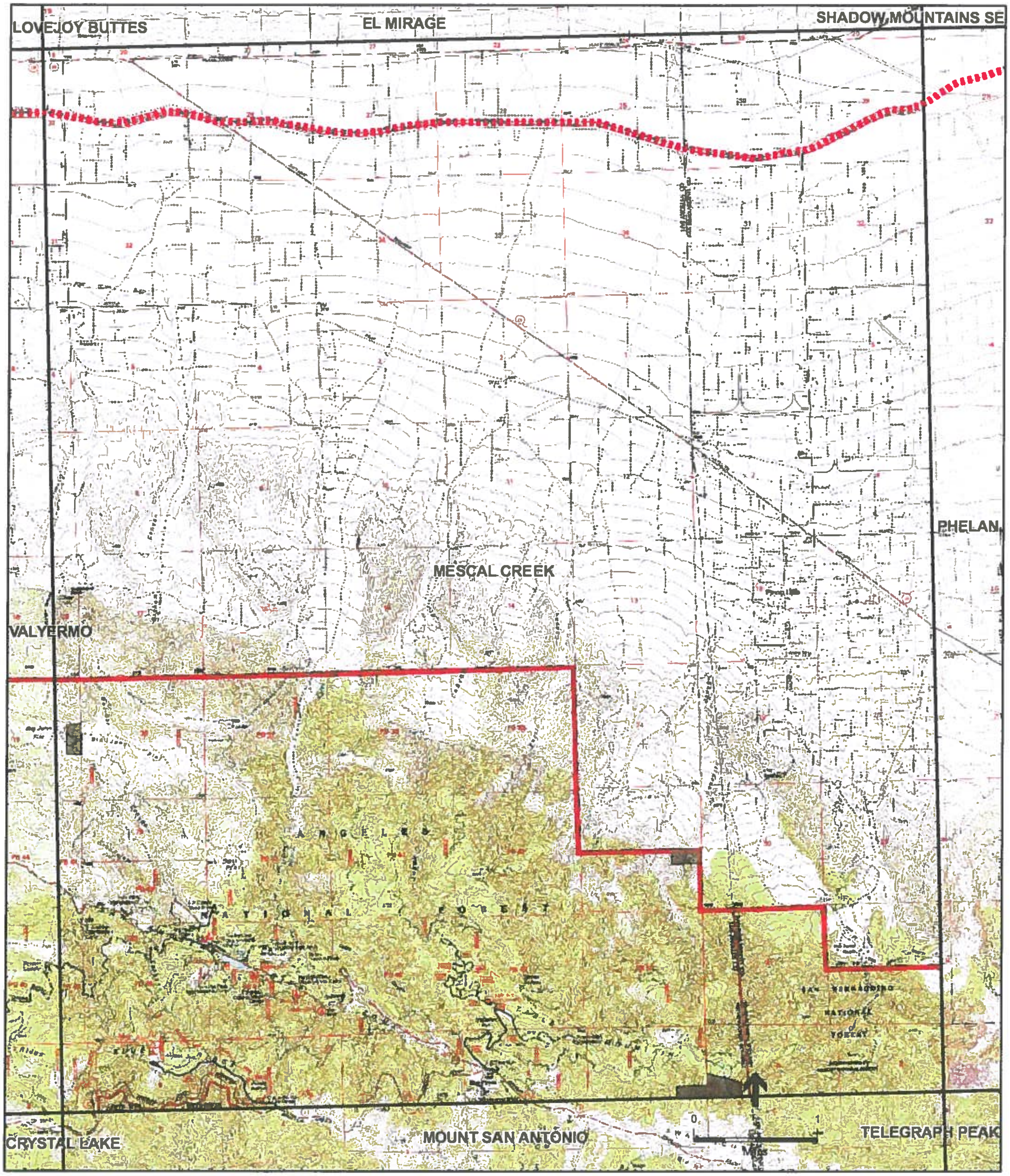

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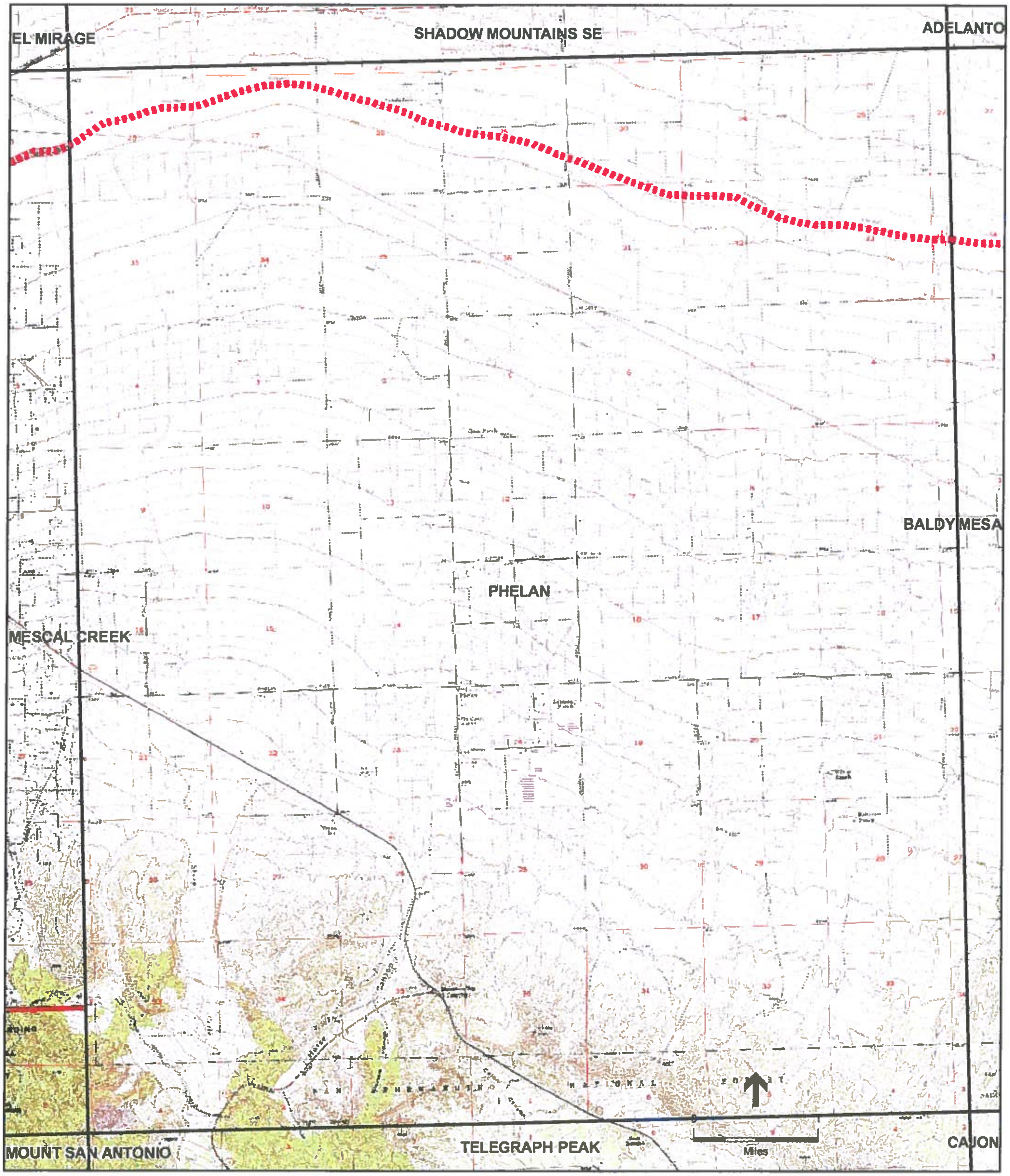

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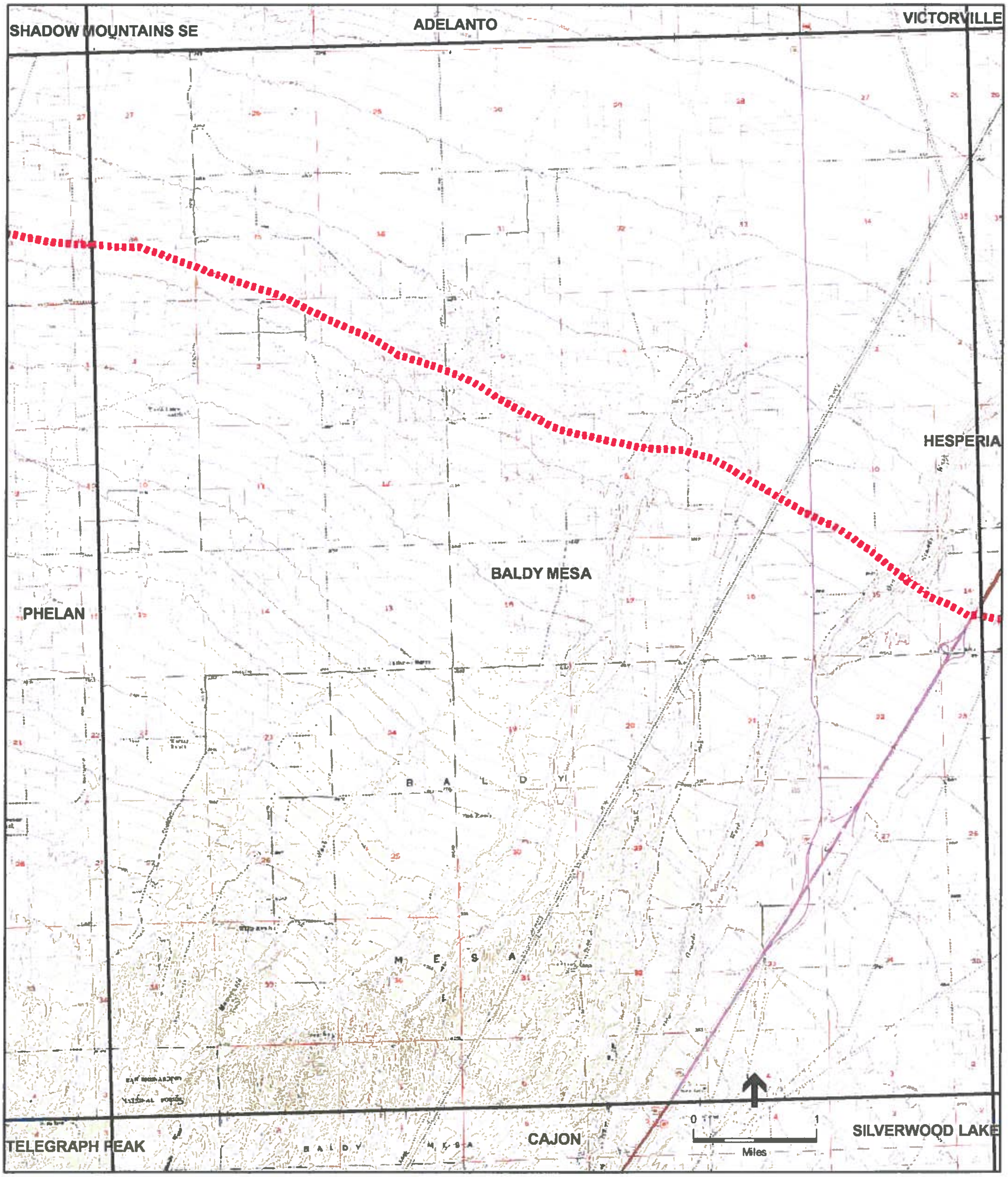

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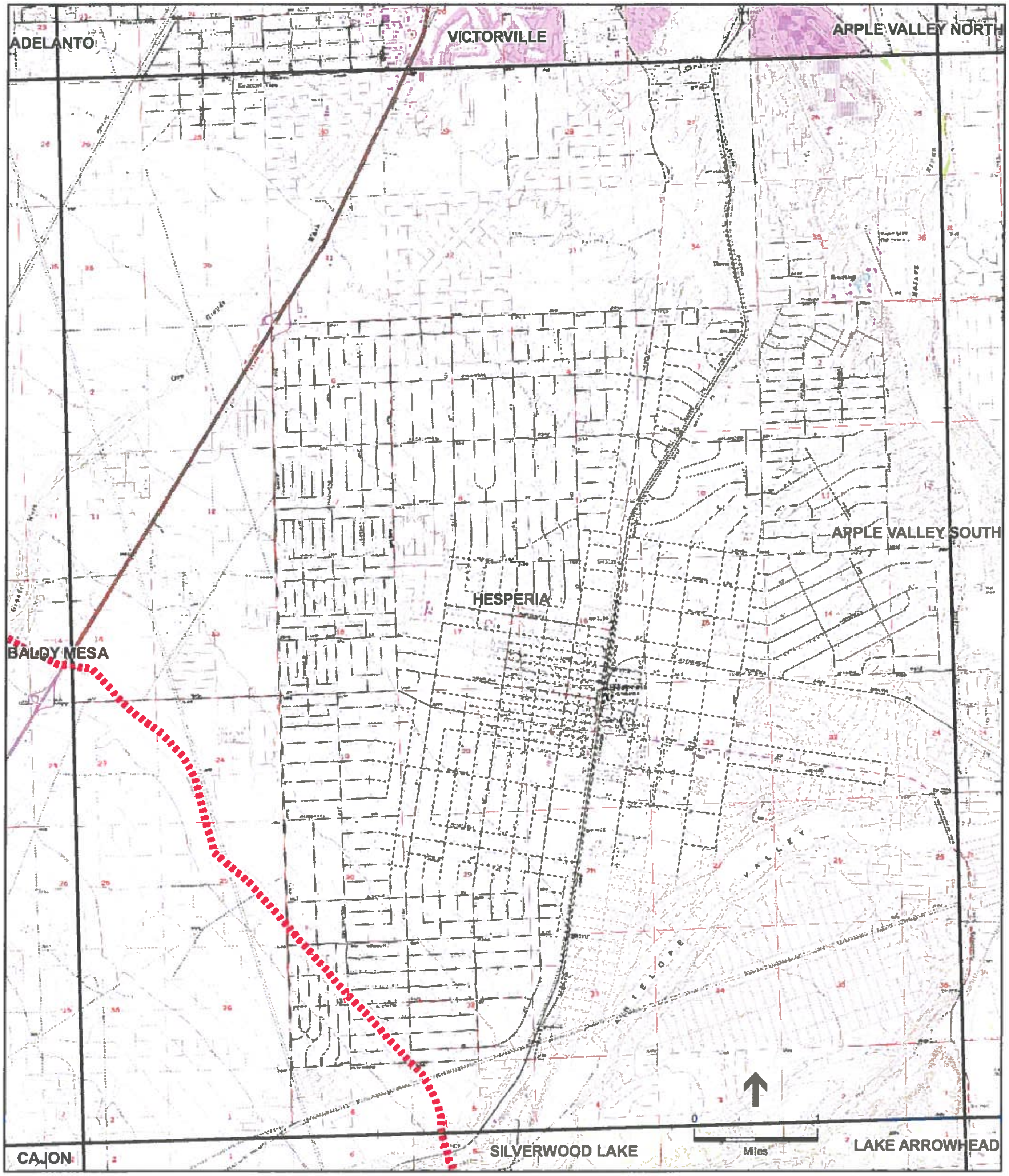

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DEPARTMENT OF PARKS AND RECREATION

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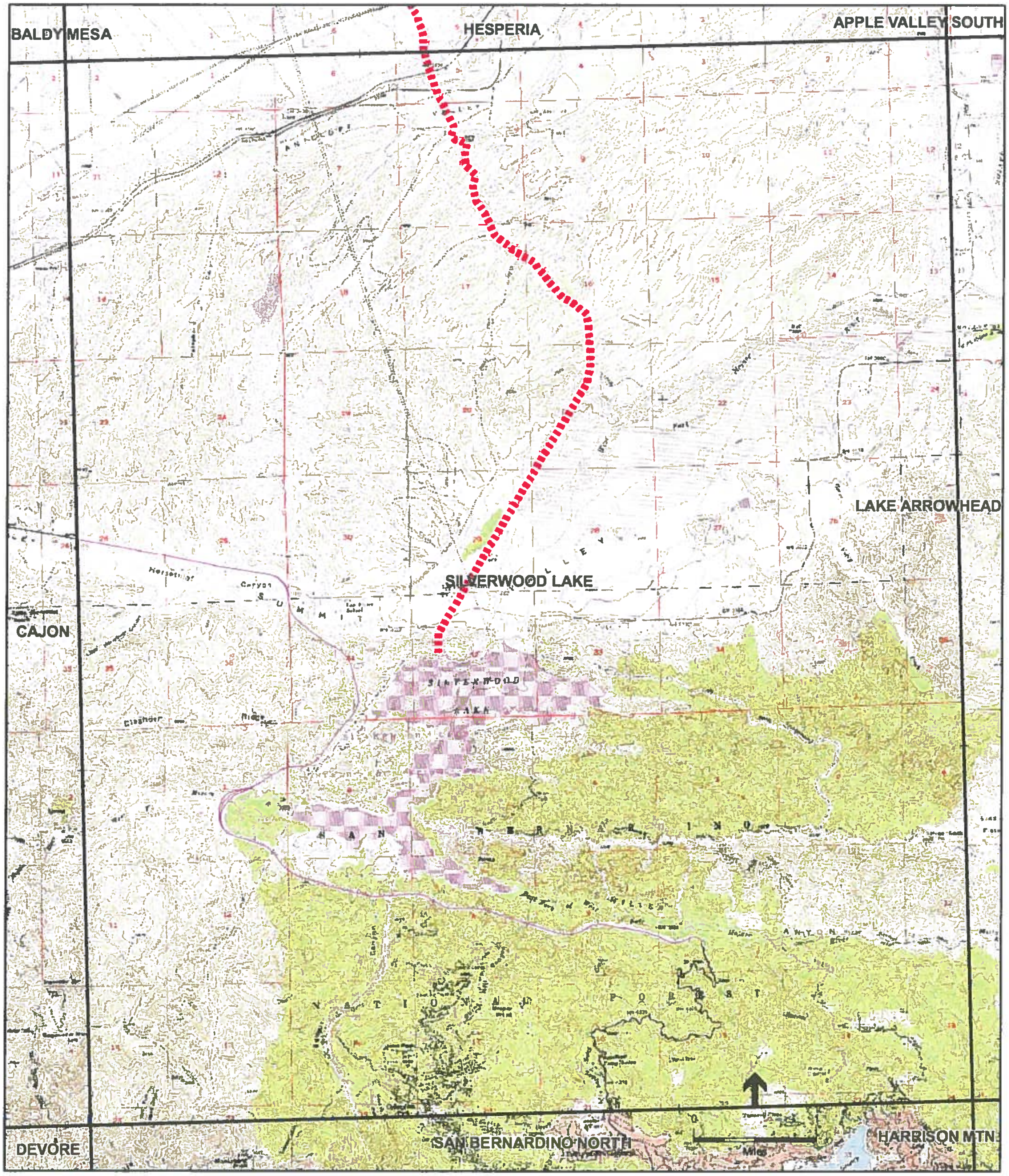

Update 8/10

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DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary# 36-021351
HRI#
Trinomial
NRHP Status Code

Other Listings
Review Code   Reviewer   Date

 ***Resource Name or #:** (Assigned by recorder) CNX-19

P1. Other Identifier: Portion of the California Aqueduct
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**
***a. County:** San Bernardino
***b. USGS 7.5' Quad** Baldy Mesa **Date** 1988 **T** 4N; **R** 6W; NE ¼ **of** SE ¼ **of Sec** 1; S.B. **B.M.**
c. Address Baldy Mesa Rd **City** Victorville **Zip** 92392
d. UTM: (Give more than one for large and/or linear resources) Zone 11, 458598 mE/ 3813395 mN; 458535 mE/ 3813421 mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
Between CNX milepost 36-37, approximately 2.9 miles west of State Route 395. Nearest cross streets are Baldy Mesa Road and 5th Street. The canal crosses the area of direct impact for the CNX project approximately 0.25 miles north of milepost 36.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
CNX-19 is a portion of the California Aqueduct. The portion of the canal within the CNX APE consists of an open lined, trapezoidal canal, approximately 30 feet deep and 30 feet wide. At the top of its banks are sand and loose gravel. This portion of the California Aqueduct was built between 1961 and 1972. Access to the canal is restricted through a barbed wire fence. The canal travels beneath a non-historic period crossing along Baldy Mesa Road.

***P3b. Resource Attributes:** (List attributes and codes) ; HP20 – Canal/Aqueduct

***P4. Resources Present:** ☐Building ☒Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #)
View to the North, August 2008

***P6. Date Constructed/Age and Source:** ☒Historic ☐Prehistoric ☐Both
1961 to 1972 per JRP/Caltrans 2000

***P7. Owner and Address:**
State of California

***P8. Recorded by:** (Name, affiliation, and address)
Jeremy Hollins – URS Corp.
1615 Murray Canyon Road, Suite 1000
San Diego, CA 92108-4314

***P9. Date Recorded:**
August 2008

***P10. Survey Type:** (Describe) Pedestrian Survey

***P11. Report Citation:**
(Cite survey report and other sources, or enter "none.")
Proposed Calnev Expansion Report, California Portion, San Bernardino County, CA, Architectural History Survey.

***Attachments:** ☐NONE ☐Location Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐Other (List):

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Primary # 36-021351
HRI #

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code 6Z

***Resource Name or #** (Assigned by recorder) CNX-19

B1. Historic Name: N/A
B2. Common Name: Californina Aqueduct
B3. Original Use: Canal/Aqueduct
B4. Present Use: Canal/Aqueduct

***B5. Architectural Style:** Engineering Structure
***B6. Construction History:** (Construction date, alterations, and date of alterations)
Constructed between 1961 and 1972.
***B7. Moved?** X No ____ Yes ____ Unknown **Date:** ______ **Original Location:** ______
***B8. Related Features:**
N/A

B9a. Architect: N/A b. Builder: N/A

***B10. Significance: Theme** N/A **Area** Victorville, San Bernardino County
Period of Significance N/A **Property Type** Canl;/Aqueduct
Applicable Criteria N/A (Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The historical significance of CNX-19 within the historic architecture APE was determined by applying the procedure and criteria for the *National Register of Historic Places* (NRHP), *California Register of Historical Resources* (CRHR), and the definition of a historical resource as defined by CEQA

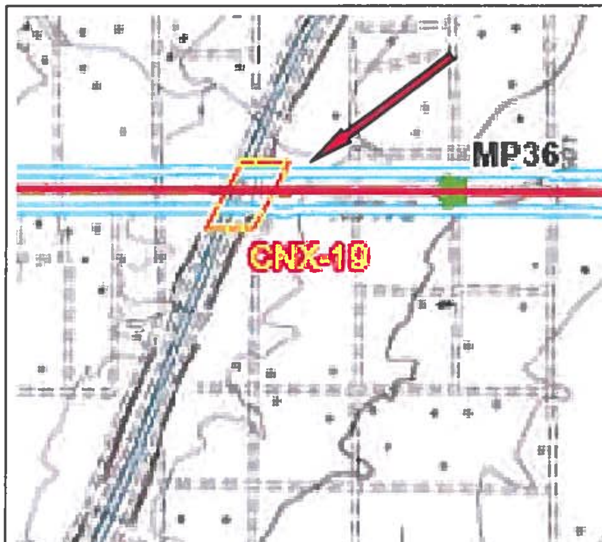
Based on site investigations and historic research, CNX-19 does not appear to possess the requisite significance to be eligible for listing on the NRHP and CRHR or be considered a historical resource for purposes of CEQA.

(See Continuation Sheet)

B11. Additional Resource Attributes: (List attributes and codes)
***B12. References:**
JRP Historical Consulting and Caltrans. "Water Conveyance Systems in California." December 2000
Baldy Mesa 7.5-Minute Series USGS Map 1956, 1988.

(See Continuation Sheet)

B13. Remarks:
***B14. Evaluator:** Jeremy Hollins - URS Corporation
***Date of Evaluation:** September 2008



Baldy Mesa 7.5-Minute Series USGS Map

← N

(This space reserved for official comments.)

*Required information

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # 36-021351
HRI #
Trinomial

 ***Resource Name or #** (Assigned by recorder) CNX-19

***Recorded by:** URS Corporation ***Date** September 2008 X **Continuation** __ **Update**

***B10. Continued**

The portion of the California Aqueduct within the area of direct impact for the CNX project is part of a larger 444-mile long water conveyance system that travels from the Sacramento-San Joaquin Valley River Delta to Riverside County. As part of the CNX project, only the portion of the aqueduct within the APE was identified, and accordingly, formal recordation of the entire California Aqueduct was not considered to be necessary (and outside of the project scope). The portion of the aqueduct which transverses the bridge was recorded and studied within the context of the whole property only.

The California Aqueduct was constructed as part of the massive State Water Project, which also included the Feather River Project Dams at Oroville and Thermalito, and branch canals stretching from the northern foothills of the Sierra Nevada to San Diego County. The project was authorized by the state legislature in 1951, and the California Aqueduct was constructed between 1961 and 1972. The design of the canal was similar to the canals constructed as part of the earlier Central Valley Project in 1935.

The portion of the California Aqueduct within the CNX APE does not appear to be 50 years old and, therefore does not appear to be individually eligible or eligible as a contributing resource to a larger resource (such as the entire California Aqueduct or State Water Project System). The portion of the aqueduct within the CNX APE also does not appear to possess the exceptional significance to qualify for listing to the NRHP under Criterion Consideration G: Properties That Have Achieved Significance within the Last 50 Years. Further, the addition of a pipeline to the exterior of a non-historic period aqueduct crossing on Baldy Mesa Road would not create a new adverse effect or significant impact to CNX-19.

Appendix D

Paleontological Resources Assessment Report

CRM Tech

May 26, 2021

PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

OESTE RECHARGE PROJECT

Phelan Area
San Bernardino County, California

Prepared for:

Mojave Water Agency
13846 Conference Center Drive
Apple Valley, CA 92037-4377

Prepared by:

Ron Schmidtling, Principal Paleontologist
Deirdre Encarnación, Report Writer
CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

May 26, 2021

CRM TECH Project No. 3706P
Approximately 10 acres
Mescal Creek, Calif., 7.5' quadrangle
Section 30; T5N R7W, San Bernardino Baseline and Meridian

MANAGEMENT SUMMARY

Between February and May 2021, CRM TECH performed a paleontological resource assessment on approximately ten acres of undeveloped land near the community of Phelan, San Bernardino County, California. The subject property of the study consists mainly of Assessor's Parcel Number 3099-081-01, along with a linear pipeline right-of-way across the adjacent property to the west, and is located at the western terminus of Cayucos Drive, between 263rd Street East and Oasis Road. The project location lies in the south half of Section 30, T5N R7W, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey (USGS) Mescal Creek, California, 7.5' quadrangle.

The study is part of the environmental review process for the proposed Oeste Recharge Project, which entails mainly the excavation of a basin for the purpose of recharging local groundwater and the installation of a pipeline leading generally southwest from the basin to the nearby California Aqueduct (East Branch). The Mojave Water Agency (MWA), as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide the MWA with the necessary information and analysis to determine whether the project would potentially disrupt or adversely affect any significant, nonrenewable paleontological resources, as mandated by CEQA.

In order to identify any paleontological resource localities in or near the project area and to assess the potential for such resources to be encountered during the project, CRM TECH initiated a records search at the San Bernardino County Museum, reviewed pertinent geological literature, and carried out a systematic field survey in accordance with the guidelines of the Society of Vertebrate Paleontology. The results of these research procedures indicate that the entire project area is situated upon surface deposits of Holocene alluvium that is underlain by older, more fossiliferous sediments of Pleistocene age.

Based on these findings, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be low in the surface soils but high in the older native alluvium beneath the surface soils. Therefore, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent impacts on such resources or reduce them to a level less than significant. As a part of the mitigation program, periodic monitoring, or "spot-checking," should be carried out upon commencement of any earth-moving operations associated with the project to ensure the timely identification of undisturbed, potentially fossiliferous sediments when they are encountered. Once such sediments are exposed, all further earth-moving operations will need to be monitored continuously. Under these conditions, the proposed project may be cleared to proceed in compliance with CEQA provisions on paleontological resources.

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LIST OF FIGURES

INTRODUCTION

Between February and May 2021, CRM TECH performed a paleontological resource assessment on approximately ten acres of undeveloped land near the community of Phelan, San Bernardino County, California (Fig. 1). The subject property of the study consists mainly of Assessor's Parcel Number 3099-081-01, along with a linear pipeline right-of-way across the adjacent property to the west, and is located at the western terminus of Cayucos Drive, between 263rd Street East and Oasis Road (Figs. 2, 3). The project location lies in the south half of Section 30, T5N R7W, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey (USGS) Mescal Creek, California, 7.5' quadrangle (Fig. 2).

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In order to identify any paleontological resource localities in or near the project area and to assess the potential for such resources to be encountered during the project, CRM TECH initiated a records search at the San Bernardino County Museum, reviewed pertinent geological literature, and carried out a systematic field survey in accordance with the guidelines of the Society of Vertebrate Paleontology. The following report is a complete account of the methods, results, and final conclusion of this study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

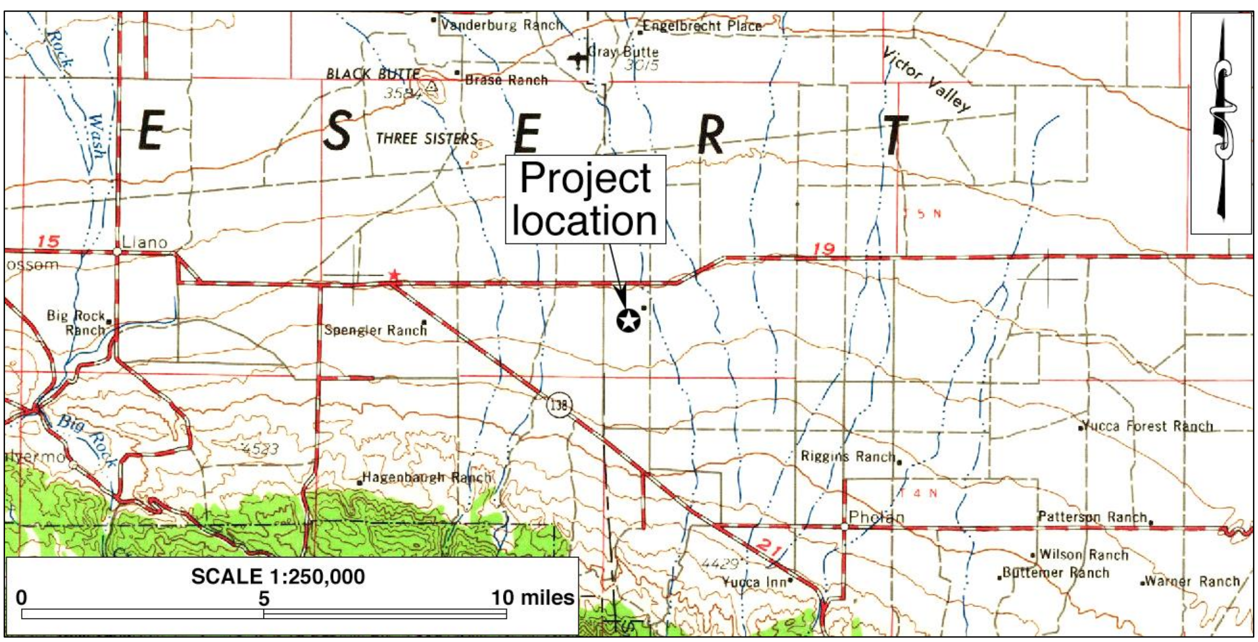

Figure 1. Project vicinity. (Based on USGS San Bernardino, Calif., 120'x60' quadrangle)

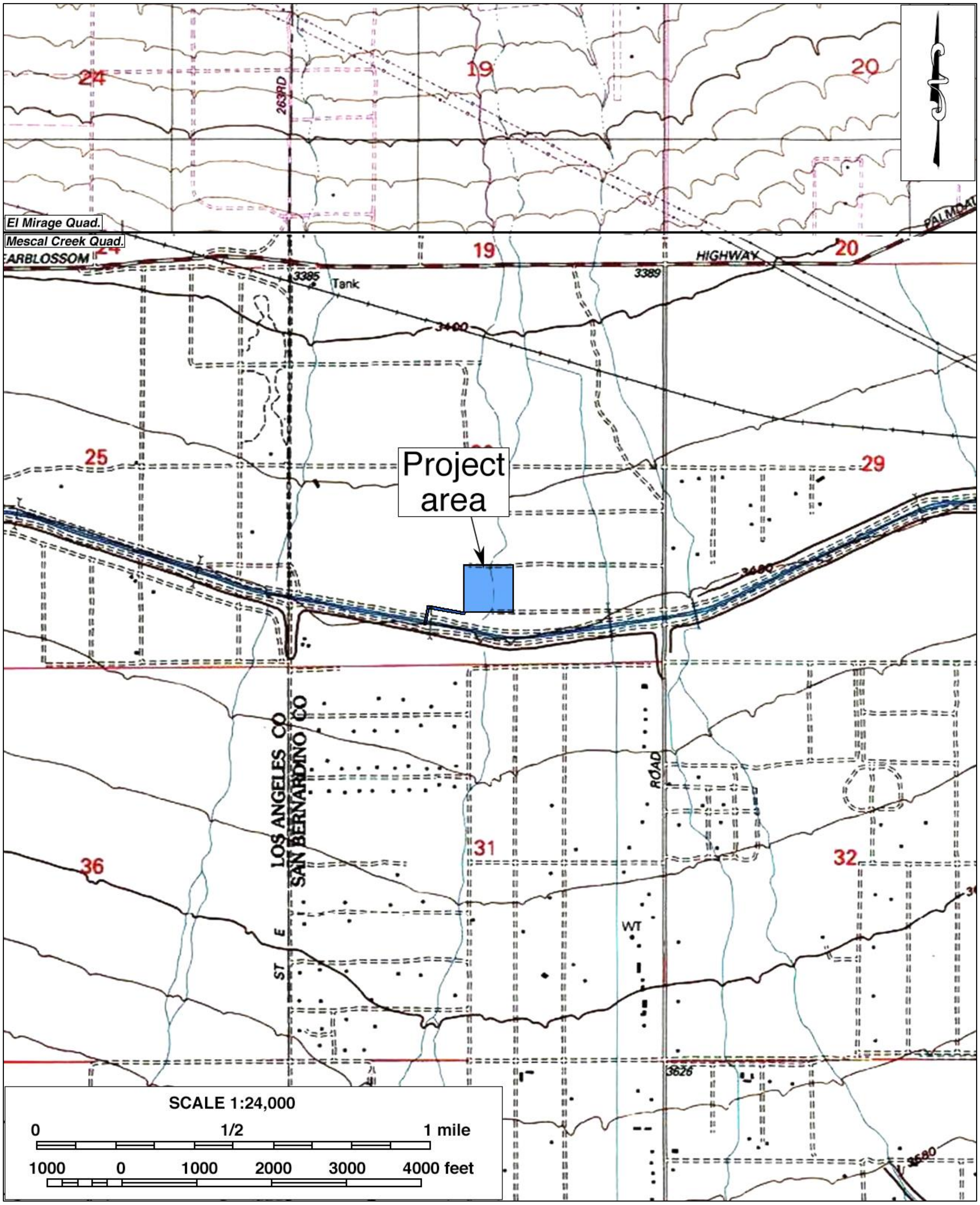

Figure 2. Project area. (Based on USGS El Mirage and Mescal Creek, Calif., 7.5' quadrangles)

Figure 3. Aerial view of the project area.

PALEONTOLOGICAL RESOURCES

DEFINITION

Paleontological resources represent the remains of prehistoric life, exclusive of any human remains, and include the localities where fossils were collected as well as the sedimentary rock formations in which they were found. The defining character of fossils or fossil deposits is their geologic age, typically older than recorded human history and/or older than the middle Holocene Epoch, which dates to circa 5,000 radiocarbon years (Society of Vertebrate Paleontology 2010:11).

Common fossil remains include marine and freshwater mollusk shells; the bones and teeth of fish, amphibians, reptiles, and mammals; leaf imprint assemblages; and petrified wood. Fossil traces, another type of paleontological resource, include internal and external molds (impressions) and casts created by these organisms. These items can serve as important guides to the age of the rocks and sediments in which they are contained and may prove useful in determining the temporal relationships between rock deposits from one area and those from another as well as the timing of geologic events. They can also provide information regarding evolutionary relationships, development trends, and environmental conditions.

Fossil resources generally occur only in areas of sedimentary rock (e.g., sandstone, siltstone, mudstone, claystone, or shale). Because of the infrequency of fossil preservation, fossils, particularly vertebrate fossils, are considered nonrenewable paleontological resources. Occasionally fossils may be exposed at the surface through the process of natural erosion or because of human disturbances; however, they generally lay buried beneath the surficial soils. Thus, the absence of fossils on the surface does not preclude the possibility of their being present within subsurface deposits, while the presence of fossils at the surface is often a good indication that more remains may be found in the subsurface.

SIGNIFICANCE CRITERIA

According to guidelines proposed by Eric Scott and Kathleen Springer (2003) of the San Bernardino County Museum, paleontological resources can be considered to be of significant scientific interest if they meet one or more of the following criteria:

1. The fossils provide information on the evolutionary relationships and developmental trends exhibited among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or the interactions between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; and/or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

PALEONTOLOGICAL SENSITIVITY

The fossil record is unpredictable, and the preservation of organic remains is rare, requiring a particular sequence of events involving physical and biological factors. Skeletal tissue with a high percentage of mineral matter is the most readily preserved within the fossil record; soft tissues not intimately connected with the skeletal parts, however, are the least likely to be preserved (Raup and Stanley 1978). For this reason, the fossil record contains a biased selection not only of the types of organisms preserved but also of certain parts of the organisms themselves. As a consequence, paleontologists are unable to know with certainty, the quantity of fossils or the quality of their preservation that might be present within any given geologic unit.

Sedimentary units that are paleontologically sensitive are those geologic units (mappable rock formations) with a high potential to contain significant nonrenewable paleontological resources. More specifically, these are geologic units within which vertebrate fossils or significant invertebrate fossils have been determined by previous studies to be present or are likely to be present. These units include, but are not limited to, sedimentary formations that contain significant paleontological resources anywhere within their geographical extent as well as sedimentary rock units temporally or lithologically amenable to the preservation of fossils.

A geologic formation is defined as a stratigraphic unit identified by its lithic characteristics (e.g., grain size, texture, color, and mineral content) and stratigraphic position. There is a direct relationship between fossils and the geologic formations within which they are enclosed and, with sufficient knowledge of the geology and stratigraphy of a particular area, it is possible for paleontologists to reasonably determine the formation’s potential to contain significant nonrenewable vertebrate, invertebrate, marine, or plant fossil remains.

The paleontological sensitivity for a geologic formation is determined by the potential for that formation to produce significant nonrenewable fossils. This determination is based on what fossil resources the particular geologic formation has produced in the past at other nearby locations. Determinations of paleontologic sensitivity must consider not only the potential to yield a large collection of fossil remains but also the potential to yield a few fossils that can provide new and significant taxonomic, phylogenetic, and/or stratigraphic data.

The Society of Vertebrate Paleontology issued a set of standard guidelines intended to assist paleontologists to assess and mitigate any adverse effects/impacts to nonrenewable paleontological resources. The guidelines defined four categories of paleontological sensitivity for geologic units that might be impacted by a proposed project, as listed below (Society of Vertebrate Paleontology 2010:1-2):

- **High Potential**: Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- **Undetermined Potential**: Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment.
- **Low Potential**: Rock units that are poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances.
- **No Potential**: Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

SETTING

REGIONAL GEOLOGY

The Phelan area is located on the western edge of the Mojave Desert geomorphic province of southeastern California, near where it abuts the Transverse Ranges province (Jenkins 1980:40-41; Harms 1996). The Transverse Ranges Geomorphic Province consists of a series of steep east-west trending mountain ranges and valleys (Harden 2004:426). This east-west structure is in contrast to the usual coastal California northwest trend, hence the name "Transverse" (Jennings 1980). The Transverse Ranges Geomorphic Province extends west offshore to include the San Miguel, Santa Rosa, and Santa Cruz Islands, and the eastern end of the province is the San Bernardino Mountains (*ibid.*).

Dibblee (1967) and Coombs et al. (1979:7) place the area in what they refer to as the Western Mojave Desert, characterized by a high-elevation desert landscape marked by scattered, isolated mountains and numerous broad, shallow basins, some with dry lakebeds at the low points. Many of these basins have pediment surfaces developed along the margins, separating the mountains from the basins (Coombs et al. 1979:9). These pediment surfaces are commonly covered by desert pavement that protects them from sheetwash and channeling (*ibid*.). The mountains and intermountain valleys of the Western Mojave Desert tend to have a northwest-southeast trend that is controlled mainly by faulting (*ibid*.:7).

The basin areas are filled with sediments ranging in geologic age from Miocene to Recent (Dibblee 1967:49-82; Meisling and Weldon 1989:110). According to Dibblee (1967:109), older alluvium, presumably of Pleistocene age, underlies much of the Mojave Desert. Pleistocene sediments in the region were laid down by two separate depositional regimes, namely the ancestral Mojave River and the Victorville Fan (Scott 2007). The Phelan area is located on the Victorville Fan, which was generally considered to have a high potential for containing nonrenewable vertebrate fossil remains (Meisling and Weldon 1989:108; Reynolds and Reynolds 1994). However, recent studies suggest that these sediments, while potentially fossiliferous, are not as fossiliferous as the ancestral Pleistocene-age Mojave River sediments (Scott 2007).

CURRENT NATURAL SETTING OF THE PROJECT AREA

Situated in a sparsely populated rural residential area, the project location is surrounded by undeveloped desert land crisscrossed by unpaved roads (Fig. 3). The concrete-lined channel of the California Aqueduct (East Branch) lies approximately 200 feet to the south of the main project site, where the recharge basin will be constructed, while the southwestern end of the pipeline alignment includes an existing concrete overchute across the aqueduct (Fig. 3). Elevations in the project area range around 3,470 to 3,485 feet above mean sea level, and the terrain is relatively level with a slight incline towards the south.

Several small drainages traverse the project area, generally oriented north-south. The ground surface in the project area appears to have been disturbed by off-road vehicle use and recent dumping of landscaping, automotive, and construction waste. Modern domestic refuse was also observed. The surface soils are of grayish-brown, fine to coarse alluvial sands mixed with small rocks and gravel.

Figure 4. Typical landscape in the project area. (Photograph taken on March 25, 2021; view to the east)

Vegetation observed includes Joshua trees, creosote bush, brittlebush, cholla, and other small native and naturalized grasses and shrubs (Fig. 4).

METHODS AND PROCEDURES

RECORDS SEARCH

The paleontological records search service for this study was provided by the San Bernardino County Museum (SBCM), Division of Earth Sciences, in Redlands. The SBCM maintains files of regional paleontological localities as well as supporting maps and documents. The records search results were used to identify previously performed paleontological resource assessments as well as known paleontological localities within the vicinity of the project area. A copy of the records search results is attached to this report in Appendix 2.

LITERATURE REVIEW

In conjunction with the records searches, CRM TECH report writer Deirdre Encarnación reviewed geological literature pertaining to the project vicinity. Sources consulted during the review include primarily topographic, geologic, and soil maps of the Victor Valley region, published geological literature on regional geology, and other materials in the CRM TECH library, including unpublished reports produced during similar surveys in the vicinity.

FIELD SURVEY

On March 25, 2021, CRM TECH field director Daniel Ballester and paleontological surveyor Arturo Aldaco carried out the field survey of the project area. The recharge basin site was surveyed by walking a series of parallel north-south transects spaced 15 meters (approximately 45 feet) apart, while the pipeline right-of-way was surveyed along two parallel 10-meter (approximately 33-foot) transects placed on either side of the project centerline. In this way, the ground surface in the entire project area was systematically and carefully examined to determine the soil types, to verify the geologic formations, and to look for any indications of paleontological remains. Ground visibility was poor (approximately 50%) where pockets of thick vegetation growth are present but was excellent (90%) over most of the property (Fig. 4).

RESULTS AND FINDINGS

RECORDS SEARCHES

According to the records search results from the SBCM, the project area is situated upon surface exposures of younger Holocene alluvial gravel and canyon flood plains (Cortez 2021:1). These younger sediments are generally low in potential to contain significant paleontological resources, but they may overlay older Pleistocene alluvium deposited between roughly 1.8 million years ago and 11,000 years ago, which is much more fossiliferous (*ibid*.). The nearest fossil locality identified by the SBCM was found approximately eight miles to the southwest and yielded the remains of skink and rabbit in near-surface deposits of Pleistocene-aged, very fine-grained sands overlain by younger Quaternary deposits (*ibid*.).

LITERATURE REVIEW

The surface geology within the project area has been mapped by Morton and Miller (2003; 2006) as consisting mainly of *Qyf* ("young alluvial-fan deposits") with a narrow strip of *Qw* ("very young wash deposits [late Holocene]") along an intermittent natural drainage running north-south across the center of the property (Fig. 5). The *Qyf* sediments are further described as unconsolidated to moderately consolidated silt, sand, pebbly cobbly sand, and bouldery alluvial-fan deposits with slightly to moderately dissected surfaces that form large and small fans throughout the region (*ibid.*). The *Qw* sediments, meanwhile are described as unconsolidated sand and gravel deposits in active washes and channels on active surfaces of alluvial fans (*ibid.*).

Covering large areas on the north side of the San Gabriel Mountains west of Sheep Creek, the *Qyf* sediments typically contain large proportion of cobbles and boulders (Morton and Miller 2003; 2006). They are frequently bisected by the sandy and gravelly *Qw* sediments along the various streams and intermittent drainages, such as in the project area. Both of these sediments are considered too coarse in texture for the optimal preservation of fossil remains. Given their relatively recent origin (i.e., Holocene), both of them are rather unlikely settings for the deposition of potentially significant fossil remains to begin with.

FIELD SURVEY

Throughout the course of the field survey, no surface manifestation of any paleontological remains was observed within the project area.

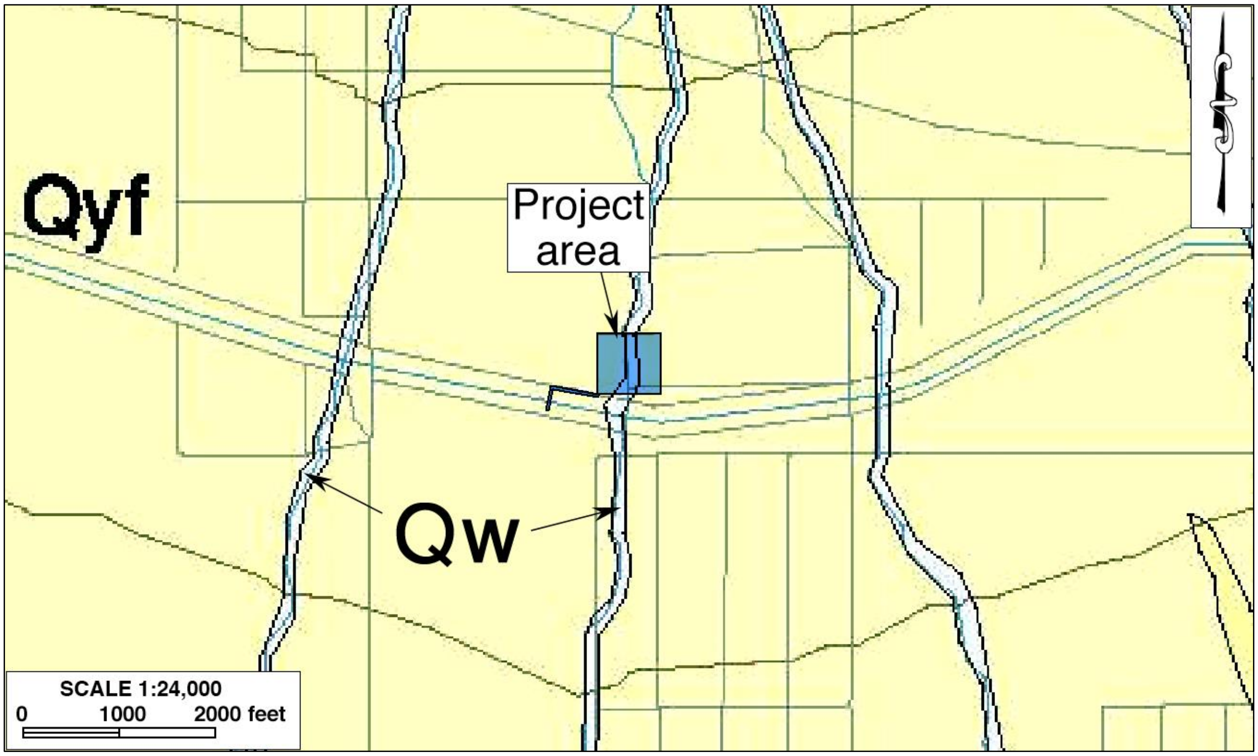

Figure 5. Geological map of the project area. (Source: Morton and Miller 2006)

CONCLUSION

CEQA guidelines (Title 14 CCR App. G, Sec. V(c)) require that public agencies in the State of California determine whether a proposed project would "directly or indirectly destroy a unique paleontological resource" during the environmental review process. The present study, conducted in compliance with this provision, is designed to identify any significant, non-renewable paleontological resources that may exist within or adjacent to the project area, and to assess the possibility for such resources to be encountered in future excavation and construction activities.

In summary of the research results presented above, no paleontological localities were previously reported within the project area, and no indications of any fossil remains was found in the surface sediments during this study. The records search identified nearby fossil localities in lithologies similar to those present in the project area at some unknown depth, and both the literature review and records search suggest that the entire project area is situated upon surface exposures of Holocene-age alluvium that is underlain by older, more fossiliferous sediments of Pleistocene age. Being of alluvial origin, these older geologic units have the potential to contain significant, nonrenewable paleontological resources.

Based on these findings, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be low in the surface soils but high in the older native alluvium beneath the surface soils. Therefore, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent impacts on such resources or reduce them to a level less than significant. The mitigation program should be developed in accordance with the provisions of CEQA (Scott and Springer 2003) as well as the proposed guidelines of the Society of Vertebrate Paleontology (2010), and should include but not be limited to the following components:

- Due to the variable thickness of the Holocene-aged soils on the surface, periodic monitoring, or "spot-checking," will be required upon commencement of any earth-moving operations associated with the project to ensure the timely identification of undisturbed, potentially fossiliferous sediments when they are encountered.
- Once the potentially fossiliferous sediments are exposed, all further earth-moving operations will need to be monitored continuously. The monitor should be prepared to quickly salvage fossil remains as they are unearthed to avoid construction delays and should collect samples of sediments that are likely to contain small fossils. However, the monitor must have the power to temporarily halt or divert ground disturbances to allow for the removal of abundant or large specimens.
- Collected samples of sediment should be processed to recover small fossils, and all recovered specimens should be identified and curated at a repository with permanent retrievable storage.
- A report of findings, including an itemized inventory of recovered specimens, should be prepared upon completion of the procedures outlined above. The report should include a discussion of the significance of the paleontological findings, if any. The approval of the report by the Mojave Water Agency would signify completion of the program to mitigate potential impacts on paleontological resources.

Under these conditions, the proposed project may be cleared to proceed in compliance with CEQA provisions on paleontological resources.

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2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. http//:vertpaleo.org/Membership/Member-Resources/SVP_Impact_Mitigation_Guidelines.aspx.

APPENDIX 1

PERSONNEL QUALIFICATIONS

RON SCHMIDTLING, M.S.
Principal Paleontologist

Education

1995	M.S., Geology, University of California, Los Angeles.
1991	Pasadena City College, Pasadena, California.
1985	B.A., Archaeology, Paleontology, Ancient Folklore, and Art History, University of Southern Mississippi, Hattiesburg.

Professional Experience:

2020- Principal Paleontologist, CRM TECH, Colton, California.

2014- Instructor of Earth Science, History of Life, Ecology, and Evolutionary Biology, Columbia College Hollywood, Reseda, California.

2013, 2015 Volunteer, excavation of a camarasaur and a diplodocid in southern Utah, Natural History Museum of Los Angeles County, California.

1993-2014 Consultant, Getty Conservation Institute, Brentwood, California.

- Geological Consultant on the Renaissance Bronze Project, characterizing constituents of bronze core material;
- Paleontological Consultant for Antiquities/Conservation, identifying the foraminifera and mineral constituents of a limestone torso of Aphrodite;
- Scientific Consultant on the Brentwood Site Building Project, testing building materials for their suitability in the museum galleries.

1999-2001 Archaeological and Paleontological Monitor, Michael Brandman Associates, Irvine, California.

1997 Department of Archaeology, University of California, Los Angeles.

1994 Scientific Illustrator and Teaching Assistant, Department of Earth and Space Sciences and Department of Biological Sciences, University of California, Los Angeles.

Memberships

AAPS (Association of Applied Paleontological Sciences), USA; CSEOL (Center for the Study of Evolution and the Origin of Life), Department of Earth Sciences, University of California, Los Angeles.

Publications and Reports

Author, co-author, and contributor on numerous paleontological publications and paleontological resource management reports.

PALEONTOLOGICAL SURVEYOR/FIELD DIRECTOR
Daniel Ballester, M.S., RPA (Registered Professional Archaeologist)

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.
2007	Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.

- Cross-trained in paleontological field procedures and identifications by CRM TECH Geologist/Paleontologist Harry M. Quinn.

Professional Experience

2002-	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
2011-2012	GIS Specialist for Caltrans District 8 Project, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew Chief, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew, ECorp, Redlands.
1999-2002	Project Paleontologist/Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

Cultural Resources Management Reports

Co-author and contributor to numerous cultural and paleontological resources management reports since 2002.

REPORT WRITER
Deirdre Encarnación, M.A.

Education

2003	M.A., Anthropology, San Diego State University, California.
2000	B.A., Anthropology, minor in Biology, with honors; San Diego State University, California.
2001	Archaeological Field School, San Diego State University.
2000	Archaeological Field School, San Diego State University.

Professional Experience

2004-	Project Archaeologist/Report Writer, CRM TECH, Riverside/Colton, California.
2001-2003	Part-time Lecturer, San Diego State University, California.
2001	Research Assistant for Dr. Lynn Gamble, San Diego State University.
2001	Archaeological Collection Catalog, SDSU Foundation.

PALEONTOLOGICAL SURVEYOR
Arturo E. Aldaco, B.S.

Education

2020	B.S., Anthropology, University of California, Riverside.
2018	A.S., Anthropology, Chaffey College, Rancho Cucamonga, California.

Professional Experience

2021-	Project Archaeologist, CRM TECH, Riverside/Colton, California.
2020	Field Archaeologist, McKenna et al., Whittier, California.
2019-2020	Peer Educator, University of California, Riverside.
2019	Field Crew Member, Northern Arizona University: Belize Valley Archaeological Reconnaissance, San Ignacio, Belize.

APPENDIX 2

RECORDS SEARCH RESULTS

2024 Orange Tree Lane, Redlands, CA 92374 | Phone: 909.798.8616 Fax: 909.307.0539

San Bernardino County Museum
Division of Earth Sciences

Crystal Cortez
Curator of Earth Sciences

email: Crystal.cortez@sbcm.sbcounty.org

08 March, 2021

CRM Tech
Attn: Nina Gallardo
1016 E. Cooley Drive, Suite B
Colton, CA 92324

PALEONTOLOGY RECORDS REVIEW Oeste Recharge Project (3706P) in the City of San Bernardino, San Bernardino County, California

Dear Nina,

The Division of Earth Sciences of the San Bernardino County Museum (SBCM) has completed a records search for the above-named project in Riverside County, California. The proposed Oeste Recharge Project (CRM TECH Contract No. 3706P) in the County of San Bernardino, California located near the City of Phelan, as shown on the United States Geological Survey (USGS) 7.5 minute Mescal Creek, California quadrangle.

Geologic mapping of that region indicates that the proposed development is located on surficial deposits of Quaternary alluvial gravel and canyon flood plains (Qa) of Holocene (recent) age (Dibblee and Minch, 2002). These sediments have low potential to contain significant paleontological resources. However, these sediments may overlay older Pleistocene fan deposits or Pleistocene alluvium. These potentially-fossiliferous sediments were deposited between ~1.8 million years ago to ~11,000 years ago. Older Pleistocene deposits in the area have been found to be highly fossiliferous.

For this review, I conducted a search of the Regional Paleontological Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no recorded paleontological resource localities are present within the proposed project. The nearest SBCM localities are approximately 8 miles south west and have similar deposits to those at the proposed project site. Localities SBCM 1.103.179, 1.103.180, and 1.103.181, yield fossil remains of *Scincidae*, *Sylvilagus*, and *Lepuridae*, respectively. Fossils were discovered in Pleistocene aged tan to gray very fine grained sands which were overlaid by younger Quaternary deposits.

This records search covers only the paleontological records of the San Bernardino County Museum. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Please do not hesitate to contact us with any further questions that you may have.

Sincerely,

Crystal Cortez, Curator of Earth Sciences
Division of Earth Sciences
San Bernardino County Museum